Rancho Buena Vista High School – Fire Alarm Upgrade

Vista Unified School District

ADDENDUM No. 1

Bid #V24251167B April 23, 2025

The following is issued to supplement or revise the Contract Documents. The revisions to the documents are described below. Unless specifically changed by this addendum, the remainder of the drawings, documents, specifications, and bid date/time shall remain in effect as originally issued.

DRAWINGS:

Item #1. ADDITION – Electrical Legend and Notes E-1.0
- a. Provided note 5 under "General Project Notes".

Item #2. REVISION – Site Plan - Fire Alarm E-5.0
- a. Revised existing fire alarm routing on site plan.

Item #3. REVISION – Fire Alarm - Floor Plan E-5.1
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" and "Fire Alarm Symbol Legends".

Item #4. REVISION – Fire Alarm - Floor Plan E-5.2
- a. Revised "General Notes" for clarity.

Item #5. REVISION – Fire Alarm - Floor Plan E-5.3
- a. Revised "General Notes" for clarity.

Item #6. REVISION – Fire Alarm - Floor Plan E-5.4
- a. Revised "General Notes" and "Fire Alarm Symbol Legends".

Item #7. REVISION – Fire Alarm - Floor Plan E-5.5
- a. Revised "General Notes" for clarity.

Item #8. REVISION – Fire Alarm - Floor Plan E-5.6
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" and "Fire Alarm Symbol Legends".

Item #9. REVISION – Fire Alarm - Floor Plan E-5.7
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" for clarity.

Item #10. REVISION – Fire Alarm - Floor Plan E-5.8
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" for clarity.

Item #11. REVISION – Fire Alarm - Floor Plan E-5.9
- a. Omitted "General Notes" and "Fire Alarm Symbol Legends" for clarity.

Item #12. REVISION – Fire Alarm - Floor Plan E-5.10
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" and "Fire Alarm Symbol Legends".

Item #13. REVISION – Fire Alarm - Floor Plan E-5.11
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" and "Fire Alarm Symbol Legends".

Item #14. REVISION – Fire Alarm - Floor Plan E-5.12
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" for clarity.

Item #15. REVISION – Fire Alarm - Floor Plan E-5.13
- a. Fire Alarm design updated to reflect existing conditions.
- b. Revised "General Notes" for clarity.

Item #16. REVISION – Fire Alarm - Floor Plan E-5.14
- a. Fire Alarm design updated to reflect existing conditions.

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b. Revised "General Notes" for clarity.

Item #17. REVISION – Fire Alarm - Floor Plan E-5.15
a. Fire Alarm design updated to reflect existing conditions.
b. Revised "General Notes" and "Fire Alarm Symbol Legends

Item #18. REVISION – Fire Alarm Schedule and Notes E-5.16
a. Revised schedule for "Notifier Model NFS2 3030".

Item #19. REVISION – Fire Alarm Riser Diagram E-5.17
a. Updated riser diagrams to match revised floor plan.

Item #20. REVISION – Fire Alarm Riser Diagram E-5.18
a. Updated riser diagrams to match revised floor plan.

Item #21. REVISION – Fire Alarm Calculations E-5.19
a. Updated calcs to match revised floor plan.

Item #22. REVISION – Fire Alarm Calculations E-5.20
a. Updated calcs to match revised floor plan.

Item #23. REVISION – Typical Details E-5.21
a. Revised detail 1 for clarity.
b. Omitted detail 4.

Item #24. ADDITION – Typical Details E-5.21
a. Detail 9, "Typical Access Panel Installation Detail (In Existing Ceiling)", provided.

Item #25. ADDITION – Demolition Plan - Fire Alarm E-10.9
a. Provided "Demolition General Notes", "General Demolition Requirements", and "Fire Alarm Symbols Legend to be Removed" on sheet.

SPECIFICATIONS:

Item #1. ADDITION – Specification Section
a. Provided Specification Section 08 3100 for Access Doors and Panels.

Item #2. REVISION – Specification Section
a. Revised Specification Section 01 5000 for Temporary Facilities and Controls.
b. Revised specification section 28 3001 for Fire Alarm Voice Evacuation System. Revised manufacturer from FCI to Notifier. Page 5 and 6.

PRE-BID RFI's:

Question #1. Special conditions require that the contractor furnish fire watch for buildings, or portions thereof, when the fire alarm system is not operating in a dependable manner. Please clarify if fire watch will be required while staff and students are not present during these periods.
a. Yes, fire watch will be needed anytime system is non-operational.

Question #2. Please confirm the fire alarm devices shown on demolition plan sheets E10.1 through E10.15 accurately represent existing fire alarm device locations. During the site walk we observed many devices shown on plans that do not exist. Are accurate fire alarm asbuilts available?
a. Existing devices are less than what are currently shown on demo sheets. There is no additional as-builts other than what is provided.

Question #3. Specification 28 30 01 section 3.14 directs contractor to remove existing fire alarm devices, wire and raceways below ceiling after new system is operational and approved. Since many of the new fire device locations are to be installed in the same

location as the prior, is it permissible to utilize existing conduit and boxes for the new fire devices and wire, provided fire watch is furnished while the system is inoperable?

a. The intent is to use little to none fire watch. Provide new raceways and minimize downtime.

Question #4. Please verify the school campus will be vacant without summer school during phase 2 of project schedule noted in the bid solicitation. Working around occupied buildings will have a cost impact.

a. No, RBVHS will have summer school classes that will need to be worked around in phases.

Question #5. During job walk it was stated that the new system is to be Notifier. Please confirm. If a different single manuf. system is required, please provide manuf. to be used or ie equal to.

a. No. Notifier is district standard.

Question #6. Owner's contingency. 00 42 00 Bid Form and Proposal – calls out for owner's contingency of $260,000. Sec. 01010-1.02 8 Scope of Work – calls out for owner's contingency of $280,000. Please confirm correct dollar value.

a. Owner's contingency is $260,000.

Question #7. Liquidated Damages 00 52 00 Agreement. Article 6 calls out for $500 a day liquidated damages for every day past substantial completion due date. 00 73 00 Special Conditions C. calls out for $1,000 per day. Please confirm correct dollar value.

a. Liquidated Damages – Time of Completion: If work under this contract is not at Substantial Completion within the specified time period, the agreed liquidated damages established in the General Conditions is Rancho Buena Vista High School Fire Alarm Upgrade LD Amount ($1,000) per day for each calendar date Substantial Completion is delayed.

Question #8. Warranty 28 3001-5 1.18.4 states a 3 year warranty; 1.21 states a 2 year warranty. Please confirm.

a. Provide 3 year warranty.

Question #9. Scope of Work 1010, Part 1, 1.02, A. States prime contractor shall conform to Div. 00 and Div. 01. Div. 00 specs were not provided. Please provide or confirm "Not part of bid". A.1 calls out for roofing scope. Please confirm roofing is not part of this project or bid. A.9 calls for rain temporary protection. Please confirm not in scope as buildings will not be opened to the environments for this project.

a. 1. Confirmed, Div. 00 specs are not part of bid. 2. Confirmed. 3. Confirmed.

Question #10. Clean Up Section 01010 1.02 A.9 calls to provide for white glove clean up. Please confirm this shall only be required at immediate areas of scope and not at outlying areas, interior or exterior.

a. Confirmed. Only areas affected by construction.

Question #11. Work Scope Section 01010 A.16 states integrating new devices into districts existing fire alarm system. Please further define this section requirements or confirm "not part or included in bid".

a. There won't be any integration of the new devices into the existing panel as a new panel will be installed with the new system; integrating new devices with the existing panel is not part of the bid.

Question #12. Please confirm the school campus will be vacant without summer school during phase 2 of the project schedule noted in the bid solicitation. Working around occupied buildings will have a significant cost impact.

a. No, RBVHS will have summer school classes that will need to be worked around in phases.

Question #13. Fire Watch, please confirm if the fire watch will be required while staff and students are not present during off line periods of fire alarm system.

a. Yes, fire watch will be needed anytime system is non-operational.

Question #14. Field Offices. Section 01 5213 2.04 For this specific scope of work. Please confirm if field office facilities will be required as stated. If a more minimum requirement is still desired, please confirm and outline.

a. Please follow spec as stated.

Question #15. Temp. power and water usage. Section 01 5000 1.03 Please confirm not needed for minor usage of electricity and water as it pertains to this scope. It is understood that if a large usage is to be used, then appropriate metering will be placed and monitored. This will be a reimbursable cost to the district, established prior.

a. Confirmed.

Question #16. Underground conduits. It was stated on the job walk that there was newly developed underground conduit as-builts. Please provide.

a. To be provided in addendum.

Question #17. Exposed conduit. Section 01 7000-5 3.06.A. States to avoid whenever possible cutting or patching of existing finishes. On the job walk it was stated that conduit could be run surface mount in a non-conspicuous way to avoid having to open up ceilings (flex would be used as able in gyp ceilings and walls). Conduit exposed in finished areas will be painted to match existing to as close as possible. Please confirm.

a. Confirmed. Provide surface raceway where it is noted on plan.

Question #18. The plans specify a Honeywell E3 Series fire alarm, however TRL Systems is an authorized Edwards dealer. Are we able to use a like for like system, or is Honeywell the only acceptable option?

a. Please refer to Question #5 answer.

Attachments:
Revision/Clarification drawings: E-1.0, E-5.0, E-5.1, E-5.2, E-5.3, E-5.4, E-5.5, E-5.6, E-5.7, E-5.8, E-5.9, E-5.10, E-5.11, E-5.12, E-5.13, E-5.14, E-5.15, E-5.16, E-5.17, E-5.18, E-5.19, E-5.20, E-5.21, E-10.9
Specification Sections: 01 5000, 08 3100, 28 3001

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ABBREVIATIONS

A	AMPERE (AMPS)
AC	ALTERNATING CURRENT
AF	AMPS-FRAME (RATING)
AIC	AMP INTERRUPTING CURRENT
AM	AMMETER
AS	AMP SWITCH (FUSED SWITCH RATING)
AT	AMPS-TRIP (RATING)
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CO	CONDUIT ONLY
CT	CURRENT TRANSFORMER
CU	COPPER
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DWG	DRAWING
EX	EXISTING
FLA	FULL LOAD AMPS
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
GRD/GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
KW	KILOWATT
LCL	LONG CONTINUOUS LOAD
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
MCM (KCM)	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
NC	NORMALLY CLOSED
NF	NON-FUSED
NO	NORMALLY OPEN/NUMBER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
P	POLE
PH	PHASE
POC	POINT OF CONNECTION
PRS	PVC COATED RIGID STEEL (CONDUIT)
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE DUCT
SWBD	SWITCHBOARD
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLTAMPERES
VM	VOLTMETER
VL	VERIFY LOCATION
W	WIRE/WATTS
WP	WEATHERPROOF (NEMA TYPE 3R)
WT	WATERTIGHT
XP	EXPLOSION PROOF (RATED FOR AREA HAZARD)

ELECTRICAL SYMBOL LEGEND

DISTRIBUTION EQUIPMENT

- DRAW OUT TYPE EQUIPMENT
- VACUUM CIRCUIT BREAKER, RATING AS NOTED.
- AIR INTERRUPTER SWITCH AND FUSE
- AIR INTERRUPTER
- FUSE
- POWER TRANSFORMER, RATING AS NOTED
- POWER CIRCUIT BREAKER DRAWOUT
- AUTOMATIC TRANSFER SWITCH. SEE SCHEDULE
- (A) AMMETER
- (V) VOLTMETER
- CIRCUIT BREAKER
  - 200AF — 200AMP FRAME
  - 200AT — 200AMP TRIP
  - 3P — 3 POLE
  - 10,000AIC — 10,000 AMPS INTERRUPTING CURRENT
- FUSED SWITCH
  - 200AS — 200AMP SWITCH
  - 200AF — 200AMP FUSE
  - 3P — 3 POLE
- (M) UTILITY COMPANY METER

POWER

- DUPLEX RECEPTACLE, FLOOR MOUNTED
- DUPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
- HORZ — RECEPTACLE, WALL MOUNTED HORIZONTALLY, +18" A.F.F. (U.O.N.)
- FOURPLEX RECEPTACLE, WALL MOUNTED, +18" A.F.F. (U.O.N.)
- RECEPTACLE MOUNTED +6" ABOVE COUNTER BACKSPLASH SEE ARCHITECTURAL PLANS FOR REQUIRED MOUNTING HEIGHT PRIOR TO ROUGH-IN.
- GFI — DUPLEX GROUND FAULT INTERRUPTING RECEPTACLE +18" A.F.F. (U.O.N.)
- WP — DUPLEX RECEPTACLE IN WEATHERPROOF ENCLOSURE +18" A.F.F. (U.O.N.)
- WP/L — DUPLEX RECEPTACLE IN WEATHERPROOF "LOCKING" ENCLOSURE +18" A.F.F. (U.O.N.) (SEE TYPICAL DETAILS E3 SERIES SHEETS AND SPECIFICATIONS FOR REQUIRED TYPE).
- (J) (JH) JUNCTION BOX, CEILING OR WALL MOUNTED
- CONDUIT AND WIRE, CONCEALED IN CEILING OR WALL
- CONDUIT AND WIRE, CONCEALED IN OR UNDER FINISHED FLOOR OR UNDER FINISHED GRADE.
- FLEXIBLE CONDUIT CONNECTION
- BRANCH CIRCUIT HOMERUN TO PANEL. SLASHES INDICATE NUMBER OF CONDUCTORS. EQUIPMENT GROUND WIRE NOT INDICATED U.O.N. #12 CONDUCTORS ARE MINIMUM, NO HASH MARKS = MIN (2) #12
- 3/4" CONDUIT STUBBED FROM DEVICE TO ABOVE ACCESSIBLE CEILING
- #8 — BRANCH CIRCUIT HOMERUN, NUMBER INDICATES INCREASED CONDUCTOR SIZE. CONDUCTORS SHALL REMAIN AS INDICATED FOR SIZE THROUGHOUT THE ENTIRE CIRCUIT.
- PANELBOARD, SURFACE MOUNTED.
- PANELBOARD, RECESSED
- T — STEP-DOWN TRANSFORMER
- DISTRIBUTION SWITCHBOARD
- SR — SURFACE MOUNTED RACEWAY, SINGLE SECTION SERIES, NON METALLIC (WHITE)
- SR 2 — SURFACE MOUNTED RACEWAY, TWO SECTION SERIES, NON METALLIC (WHITE)
- SR 3 — SURFACE MOUNTED RACEWAY, THREE SECTION SERIES, NON METALLIC (WHITE)

GENERAL PROJECT NOTES:

1. UNLESS WHERE OTHERWISE NOTED, ALL WORK INDICATED ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK.
2. UNLESS WHERE OTHERWISE NOTED, ALL DIMENSIONS ARE TO BE CENTERLINE OF THE DEVICE.
3. "GENERAL NOTES" SHOWN ON AN INDIVIDUAL DRAWING APPLY TO ALL WORK SHOWN ON THAT SHEET. "KEY NOTES" ONLY APPLY TO SPECIFIC ITEMS WHERE ANNOTATED AT SPECIFIC LOCATIONS. SOME KEY NOTES MAY NOT APPLY TO ANY SPECIFIC ITEMS.
4. UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY-IN TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED. (3 / E5.21)

GENERAL DEMOLITION NOTES:

1. ALL ELECTRICAL EQUIPMENT, EXPOSED RACEWAY AND CONDUIT, OUTLET BOXES AND RINGS, AND DEVICES ARE TO BE REMOVED, EXCEPT WHERE SHOWN TO REMAIN. EXISTING WIRING, WHETHER EXPOSED, IN CONDUIT OR RACEWAY IS TO BE REMOVED TO THE GREATEST EXTENT POSSIBLE.
2. THE ELECTRICAL CONTRACTOR IS TO DIRECT THE REMOVAL OF THE ABOVE LISTED WORK.

MEP COMPONENT ANCHORAGE NOTE:

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA-APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A1.18 THROUGH 1617A1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G., HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8.1 AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

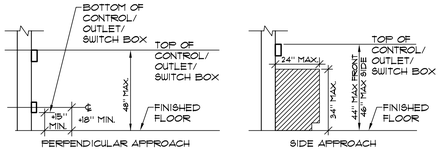
MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E).

MP ☐ MD ☐ PP ☐ E ☒ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP ☐ MD ☐ PP ☐ E ☐ OPTION 2: SHALL COMPLY WITH HCAI (OSHPD) PREAPPROVAL (OPM #)_____, AS INCLUDED IN THESE DRAWINGS WITH PROJECT-SPECIFIC NOTES AND DETAILS.

FIRE RATED ASSEMBLIES NOTE:

1. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT DESCRIPTION AND DETAIL OF ALL FIRE RATED ASSEMBLIES.



NOTES:

1. MAINTAIN MINIMUM 30"X48" CLEAR FLOOR SPACE AT EACH APPROACH.
2. FORWARD OR FRONT APPROACH FOR DEVICES MOUNTED ABOVE COUNTERS ASSUMES THAT DIRECTLY BELOW THE DEVICE, THE COUNTER HAS A 30" MIN. WIDTH X 21" MIN. HIGH X 19" MIN. DEEP CLEAR OPENING. CBC SECTIONS 11B-306 AND 11B-308.

MOUNTING HEIGHT OVER OBSTRUCTION (1 / E1.0)

NO SCALE

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ARCHITECT OF RECORD



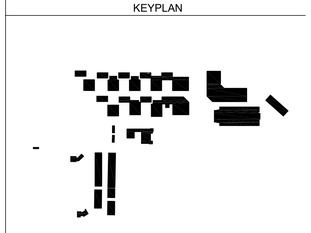
ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION
1	04/23/25	ADDENDUM 01

PROJECT NO: #Pln

MODEL FILE:
23-018_RBV FIRE ALARM_DRAFT.pln

PLOT DATE:
7/5/2023

SHEET TITLE

ELECTRICAL LEGEND AND NOTES

E-1.0

REGISTERED PROFESSIONAL ENGINEER — No. E 14781 — Exp. 6-30-2027 — ELECTRICAL — STATE OF CALIFORNIA

JOHNSON CONSULTING ENGINEERS, INC.
Power | Lighting | Multimedia
Communications | Data Networking
12875 Brookprinter Place, Suite 300
Poway, CA 92064
P 858.679.4030 | F 858.513.0559
www.jce-inc.com

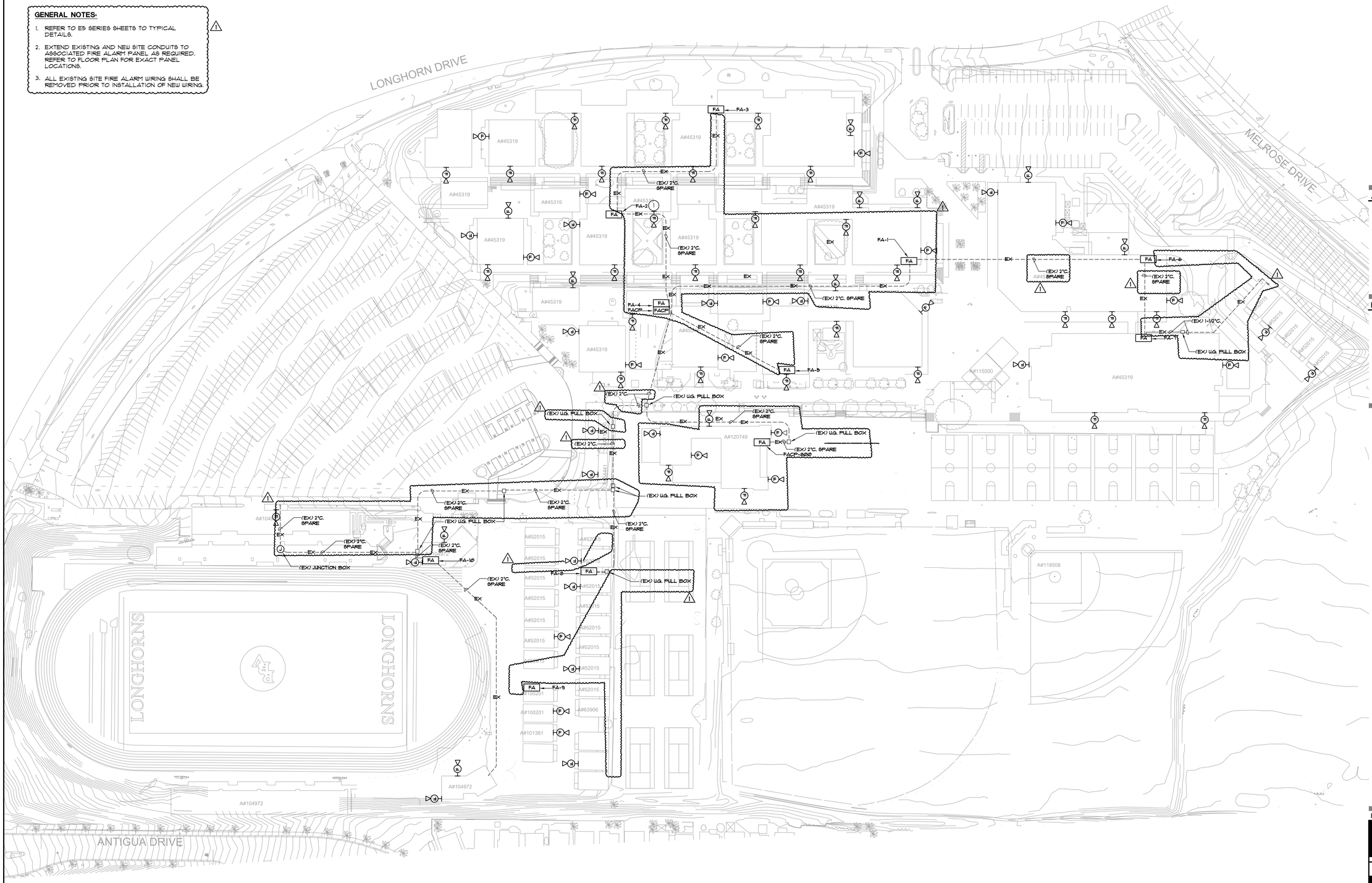
#23011.01 4/22/2025

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GENERAL NOTES:

1. REFER TO E5 SERIES SHEETS TO TYPICAL DETAILS.
2. EXTEND EXISTING AND NEW SITE CONDUITS TO ASSOCIATED FIRE ALARM PANEL AS REQUIRED. REFER TO FLOOR PLAN FOR EXACT PANEL LOCATIONS.
3. ALL EXISTING SITE FIRE ALARM WIRING SHALL BE REMOVED PRIOR TO INSTALLATION OF NEW WIRING.



1 SITE PLAN - FIRE ALARM
SCALE 1"=50'

NORTH

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ARCHITECT OF RECORD

LICENSED ARCHITECT
JOSHUA T. ECKLE
No. C31020
EXP. 12/25
STATE OF CALIFORNIA

ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

	DESCRIPTION
[redacted]	

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE
SITE PLAN - FIRE ALARM

E-5.0

REGISTERED PROFESSIONAL ENGINEER
MICHAEL S. RIVERA
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

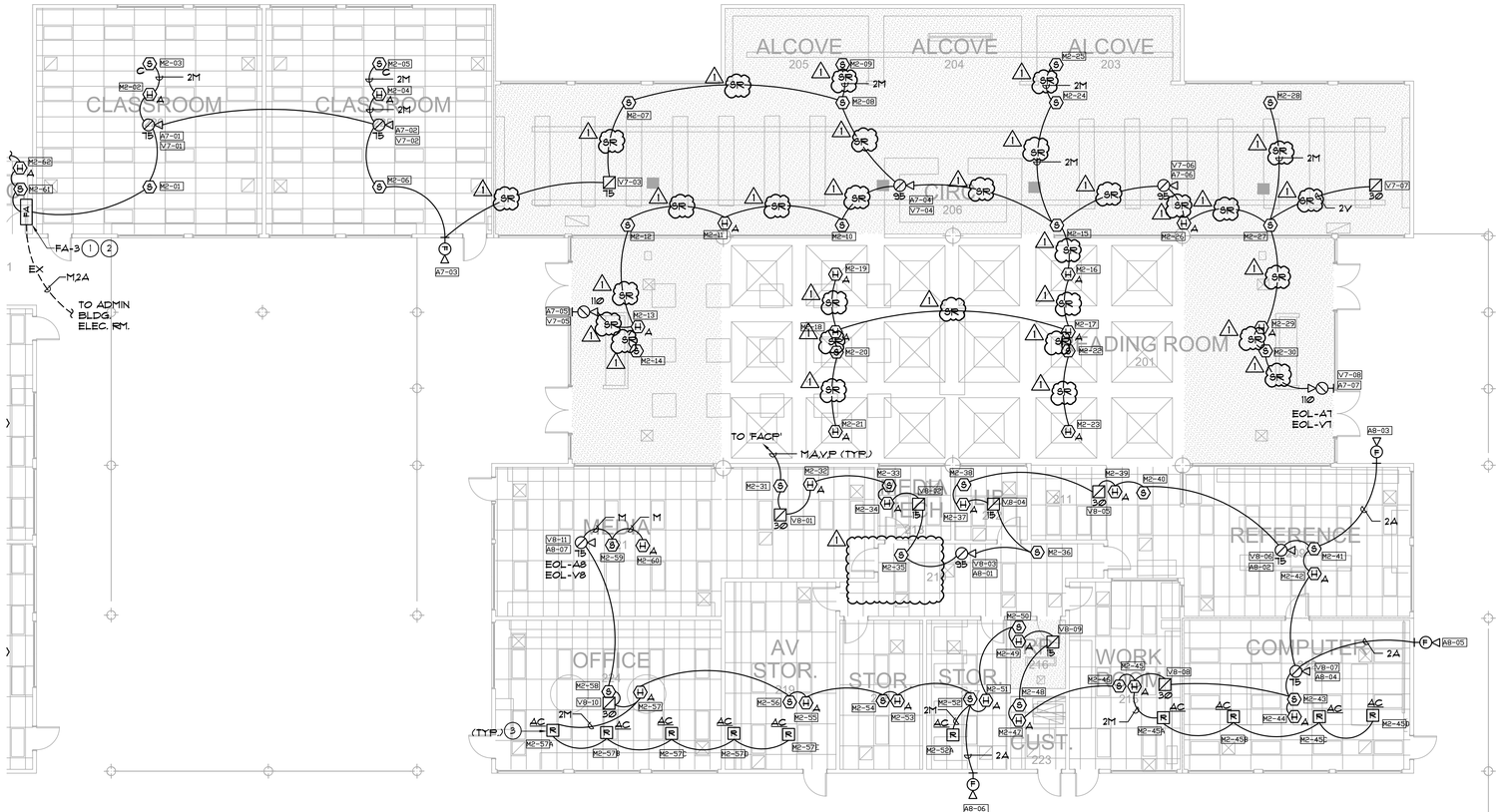
4/22/2025

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1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAYIN TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. EXTEND EXISTING DEDICATED 120V CIRCUIT TO NEW PANEL.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

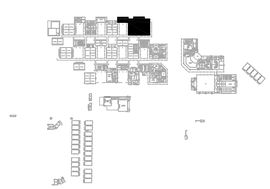
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" A.F.F. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (SI = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.10.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEYPLAN



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LICENSED ARCHITECT
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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

	SCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.1

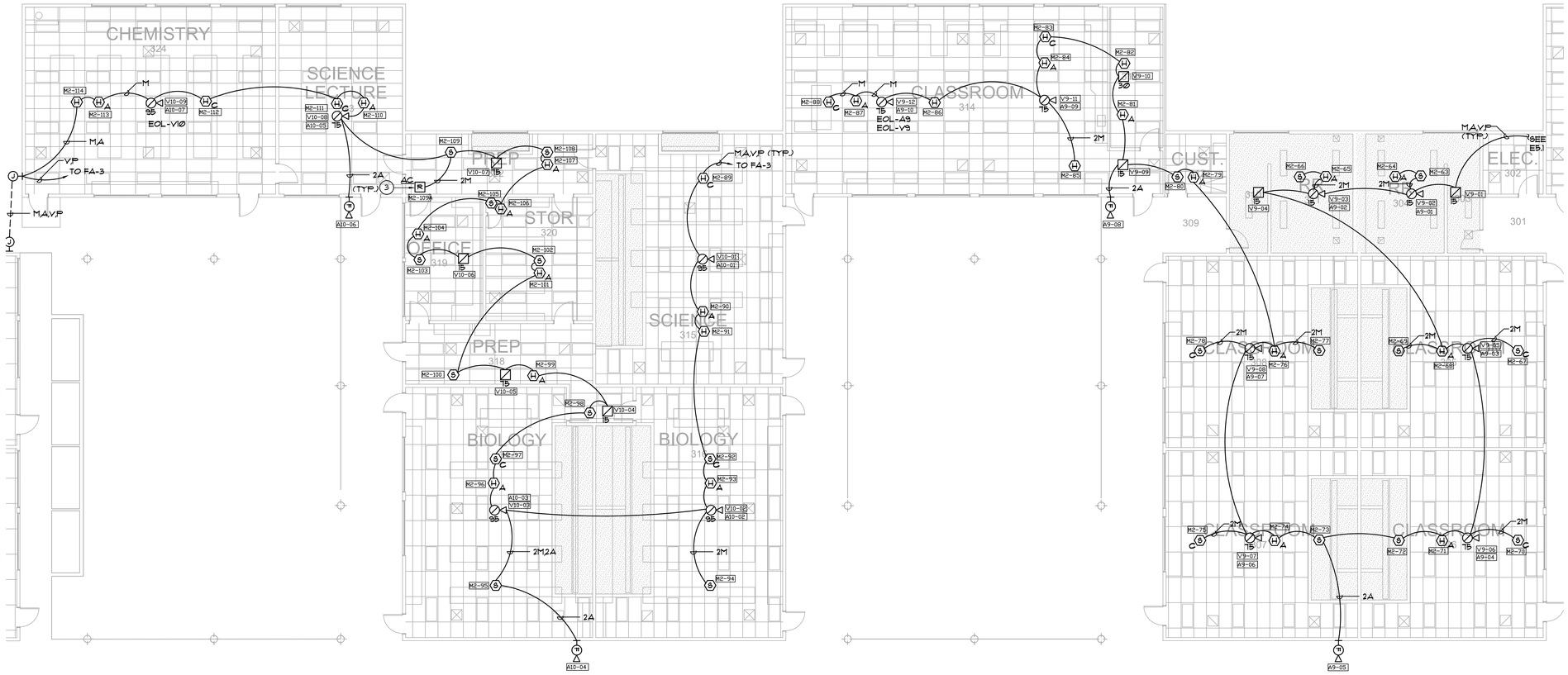
REGISTERED PROFESSIONAL ENGINEER
JOSEPH M. JOHNSON
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

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1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E5.[illegible] SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. EXTEND EXISTING DEDICATED 120V CIRCUIT TO NEW PANEL.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

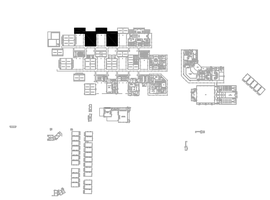
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (1.0W.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- [R] — ADDRESSABLE RELAY MODULE
- [M] — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.1.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEYPLAN



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RBV FIRE ALARM UPGRADE

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REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.2

REGISTERED PROFESSIONAL ENGINEER
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

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GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

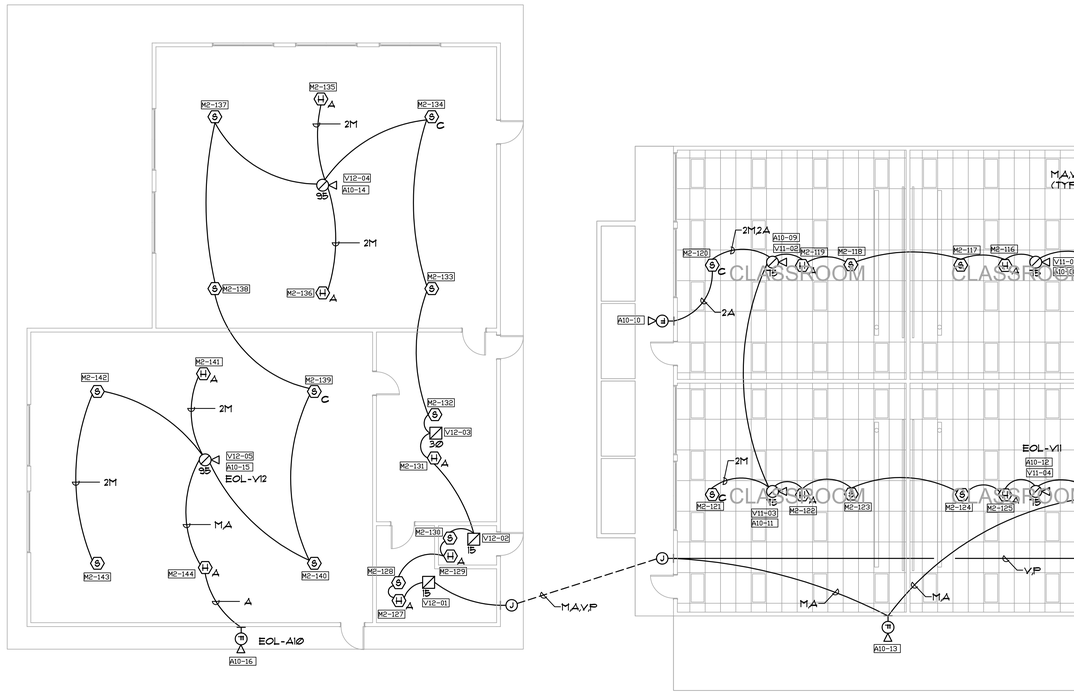
1. EXTEND EXISTING DEDICATED 120V CIRCUIT TO NEW PANEL.
2. PROVIDE CONNECTION TO 'FACP', REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

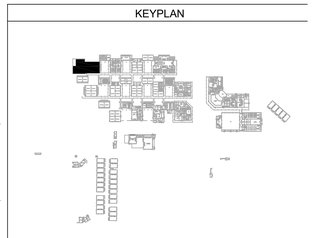
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (1.0W.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- S — CEILING MOUNTED SMOKE DETECTOR
- SC — CEILING MOUNTED SMOKE/CO DETECTOR
- H — CEILING MOUNTED HEAT DETECTOR
- HA — HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- PA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 3051.102 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.





NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

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#23011.01 4/15/2024

RBV FIRE ALARM UPGRADE

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VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

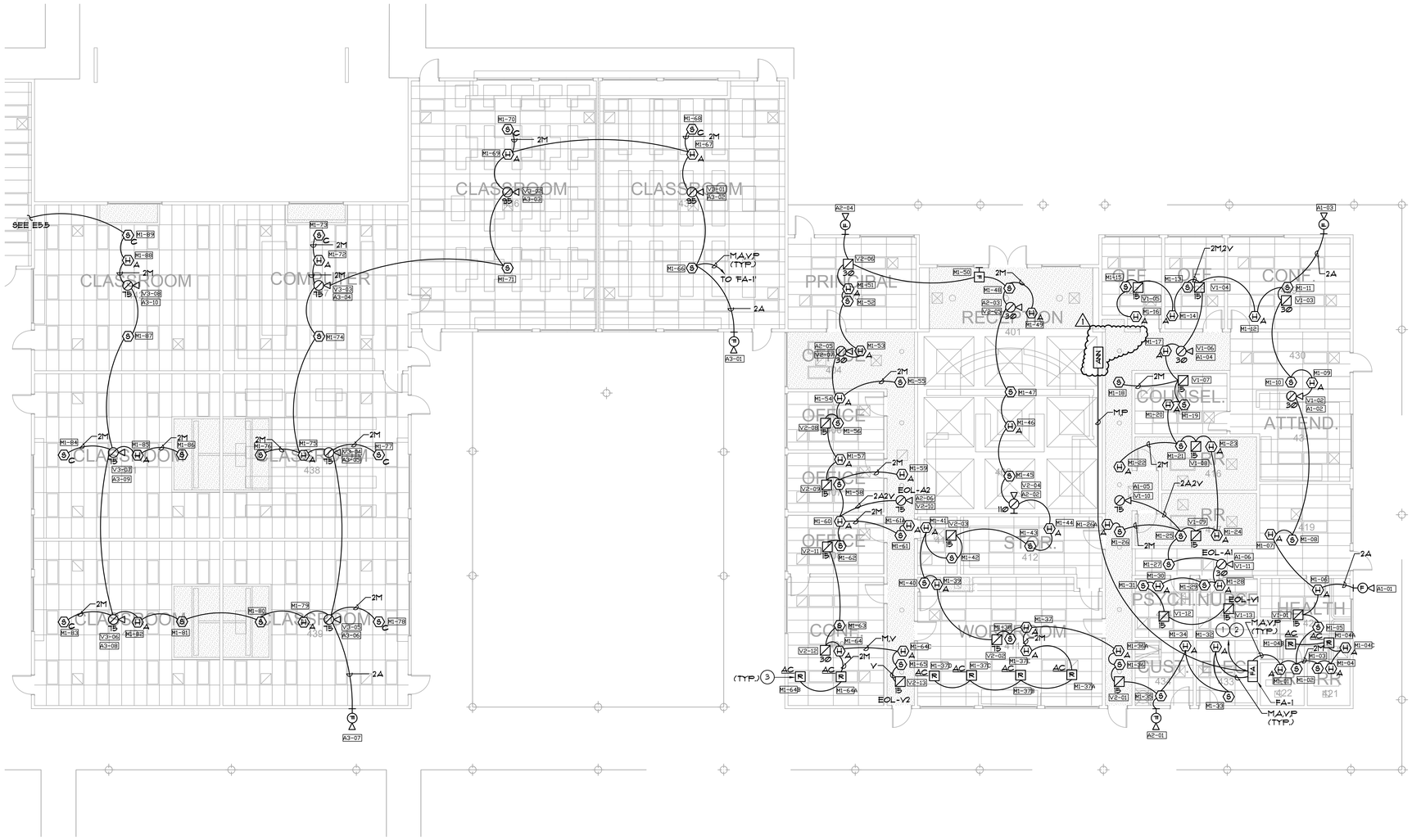
PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.3

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GENERAL NOTES:

1. NOT USED.
2. REFERENCE E5.1 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAYIN TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. EXTEND EXISTING DEDICATED 120V CIRCUIT TO NEW PANEL.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- 81 WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" A.F.F. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (81 = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA REMOTE FIRE ALARM POWER EXTENDER
- KHS KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN REMOTE ANNUNCIATOR
- FS FIRE PROTECTION FLOW SWITCH WITH [M]
- TS FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R ADDRESSABLE RELAY MODULE
- M ADDRESSABLE MONITOR MODULE

EOL-V VISUAL END OF LINE RESISTOR

EOL-A AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.1.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

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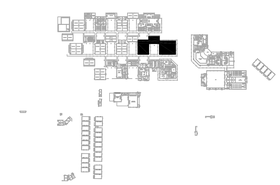
ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

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1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.4

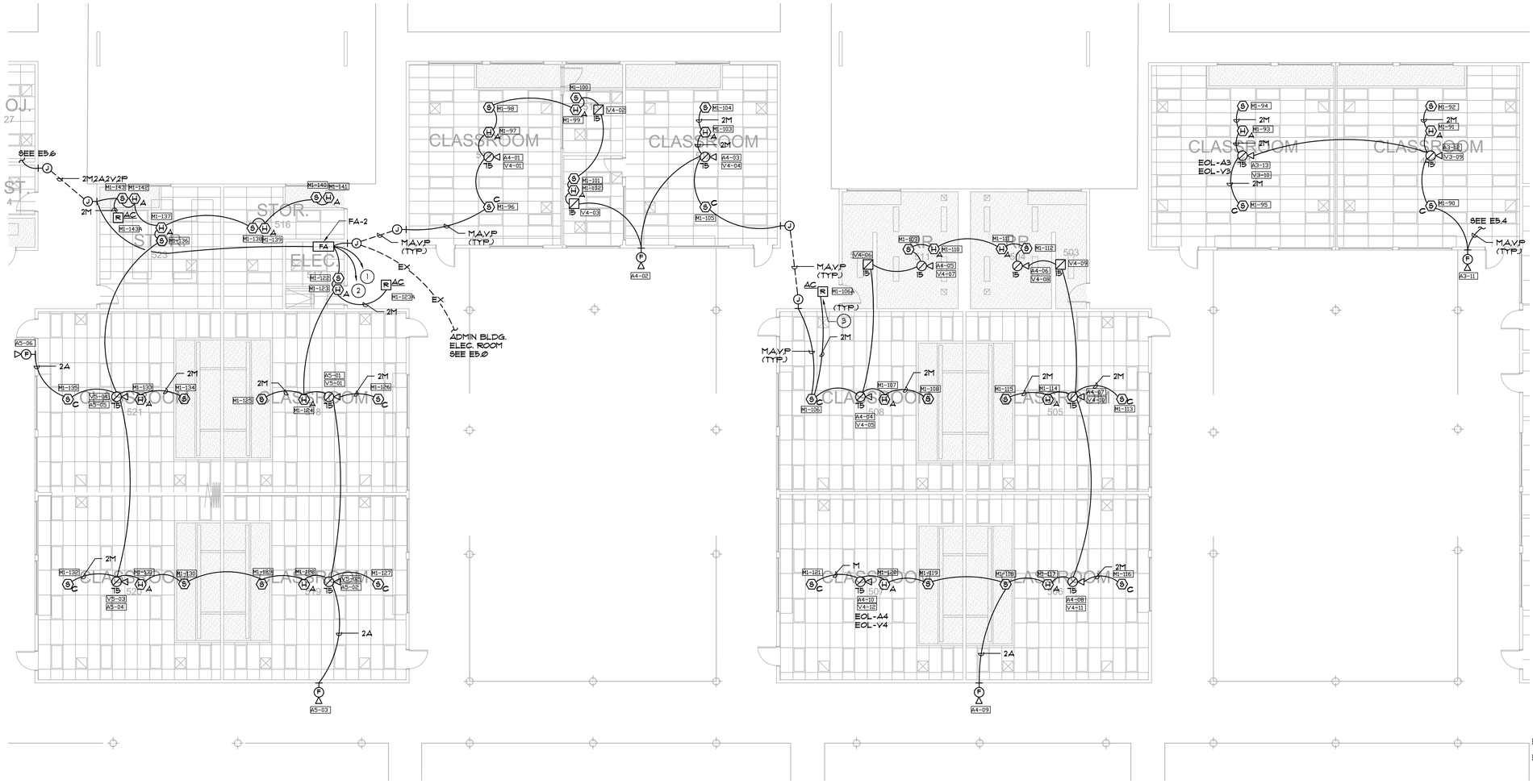
REGISTERED PROFESSIONAL ENGINEER
MICHAEL GALLEGOS
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

JOHNSON CONSULTING ENGINEERS, INC.
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GENERAL NOTES:

1. NOT USED.
2. REFERENCE E5.[illegible] SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO 120/208V PANEL IN ELECTRICAL ROOM. PROVIDE "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.
4. RECONNECT TO EXISTING DEDICATED 120V CIRCUIT.

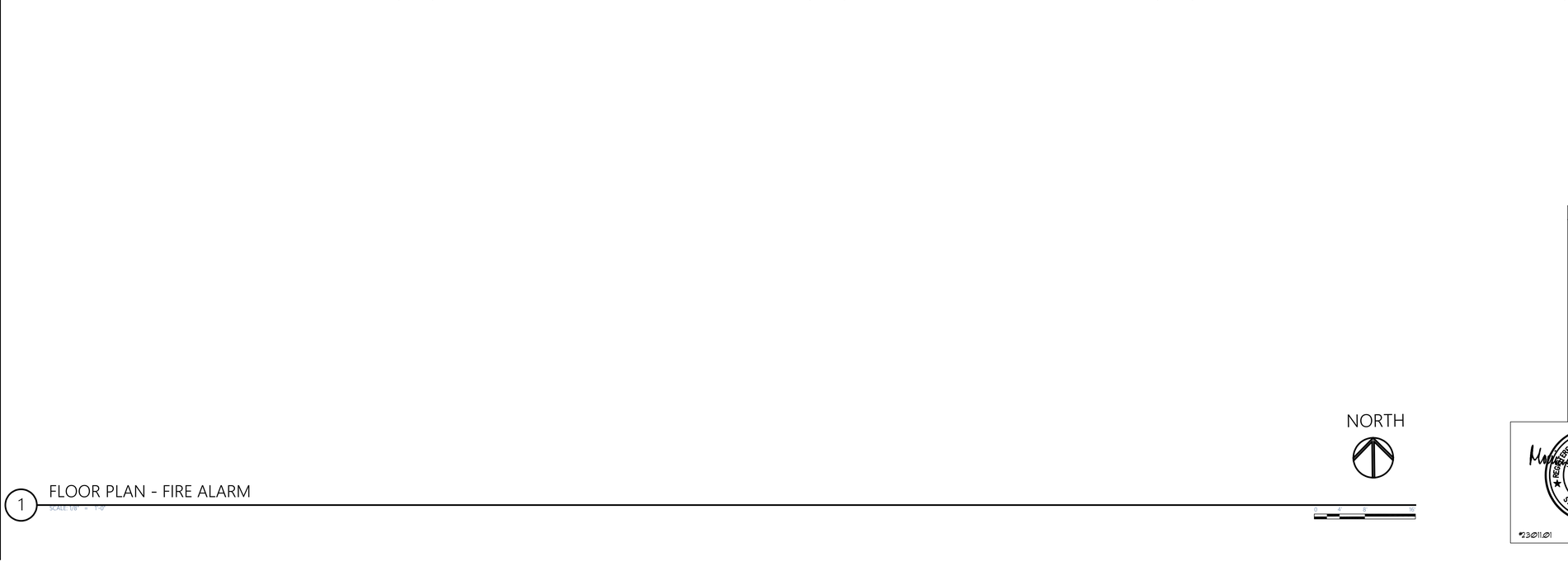
FIRE ALARM SYMBOL LEGENDS

- F — MANUAL FULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- V / TB — CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- AV / TB — CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- (F) A — WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- (S) — CEILING MOUNTED SMOKE DETECTOR
- (S)C — CEILING MOUNTED SMOKE/CO DETECTOR
- (H) — CEILING MOUNTED HEAT DETECTOR
- (H)A — HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL, MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.1.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEY PLAN



NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

ALPHASTUDIO DESIGN GROUP
6152 INNOVATION WAY
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www.alphastudio-design.com

ARCHITECT OF RECORD

LICENSED ARCHITECT
JOSHUA T. ECKLE
No. C31020
EXP. 12/25
STATE OF CALIFORNIA

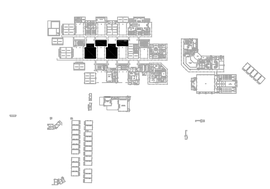
ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #PIn
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.5

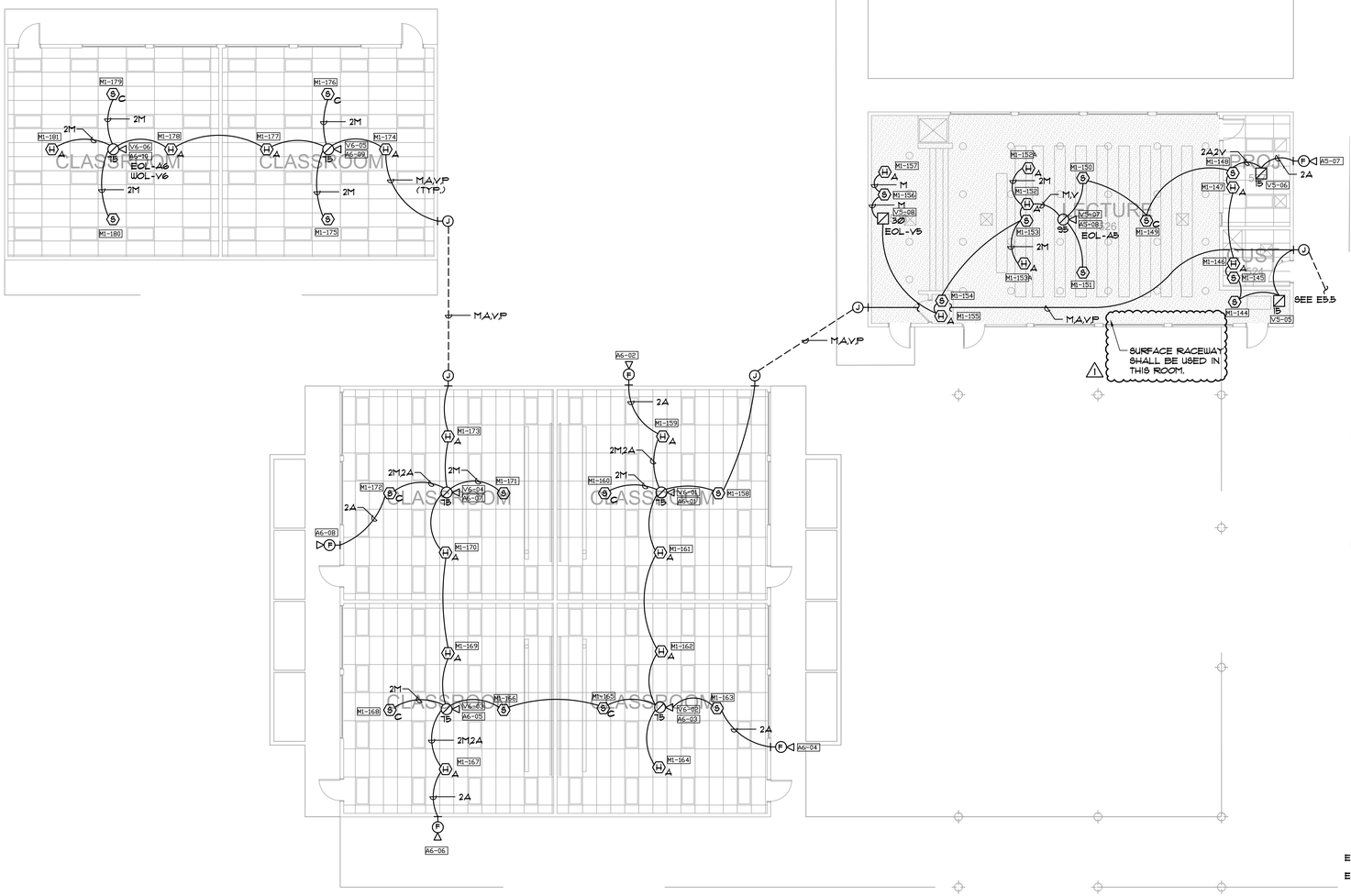
REGISTERED PROFESSIONAL ENGINEER
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

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GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO PANEL CONNECT TO "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, V1.
4. PROVIDE RELAY MODULE TO SHUNT SOUND SYSTEM POWER UNDER ANY ALARM.

FIRE ALARM SYMBOL LEGENDS

- F — MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- Y / 15 — CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- A,V / 15 — CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- F / A — WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- S — CEILING MOUNTED SMOKE DETECTOR
- S/C — CEILING MOUNTED SMOKE/CO DETECTOR
- H — CEILING MOUNTED HEAT DETECTOR
- H / A — HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
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KEYPLAN



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1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

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RBV FIRE ALARM UPGRADE

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VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

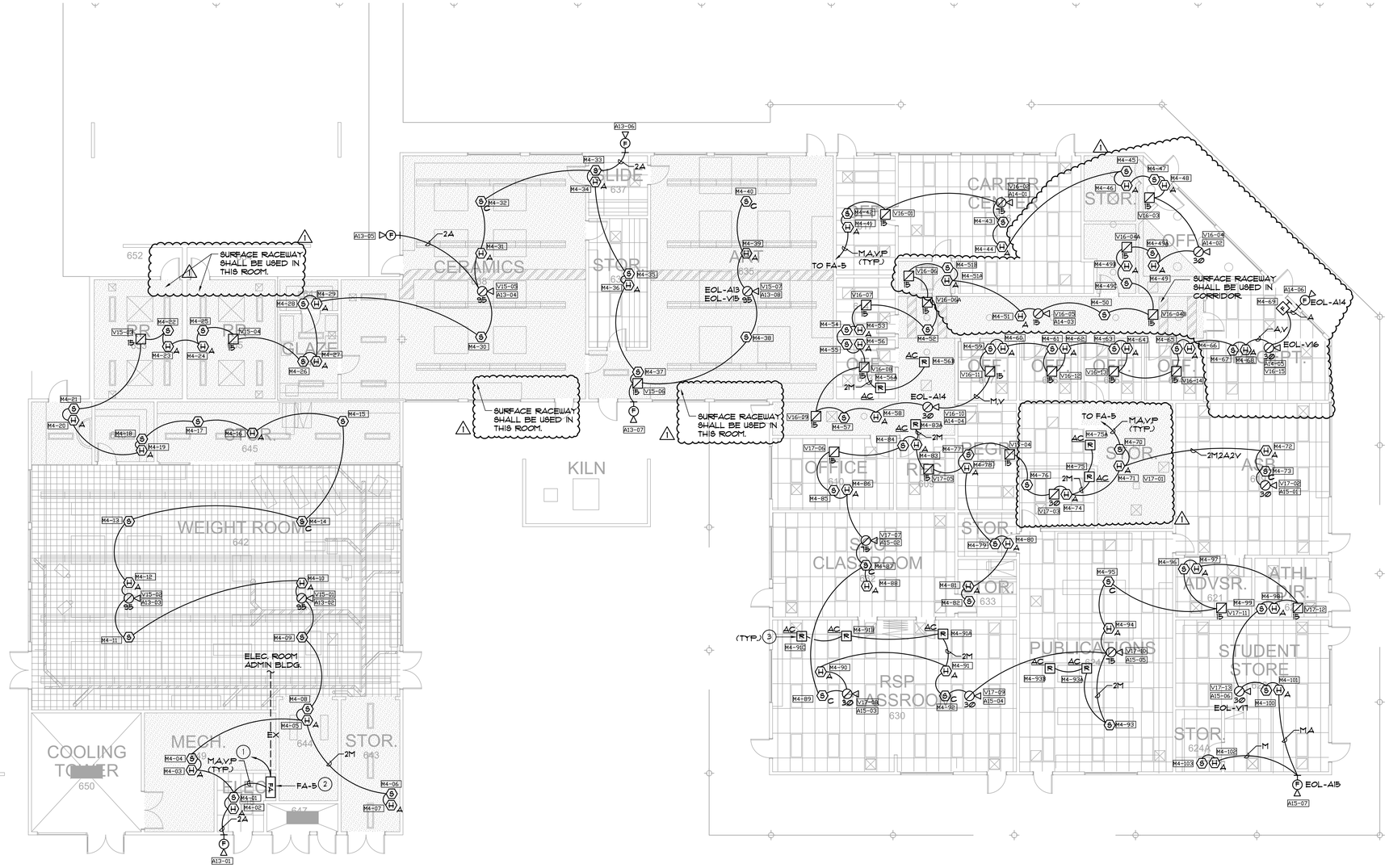
SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.6

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1 FLOOR PLAN - FIRE ALARM

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

NORTH

0 4 8 16

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO 120/208V PANEL IN ELECTRICAL ROOM. PROVIDE "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E0.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

FIRE ALARM SYMBOL LEGENDS

F	MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
Y 15	CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (Y=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
AV 15	CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
F A	WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
S	CEILING MOUNTED SMOKE DETECTOR
S C	CEILING MOUNTED SMOKE/CO DETECTOR
H	CEILING MOUNTED HEAT DETECTOR
H A	HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
FACP	MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
FA	REMOTE FIRE ALARM POWER EXTENDER
KHS	KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
ANN	REMOTE ANNUNCIATOR
FS	FIRE PROTECTION FLOW SWITCH WITH [M]
TS	FIRE PROTECTION TAMPER SWITCH WITH [M]
DSM	DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
R	ADDRESSABLE RELAY MODULE
M	ADDRESSABLE MONITOR MODULE
EOL-V	VISUAL END OF LINE RESISTOR
EOL-A	AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
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KEY PLAN

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KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.7

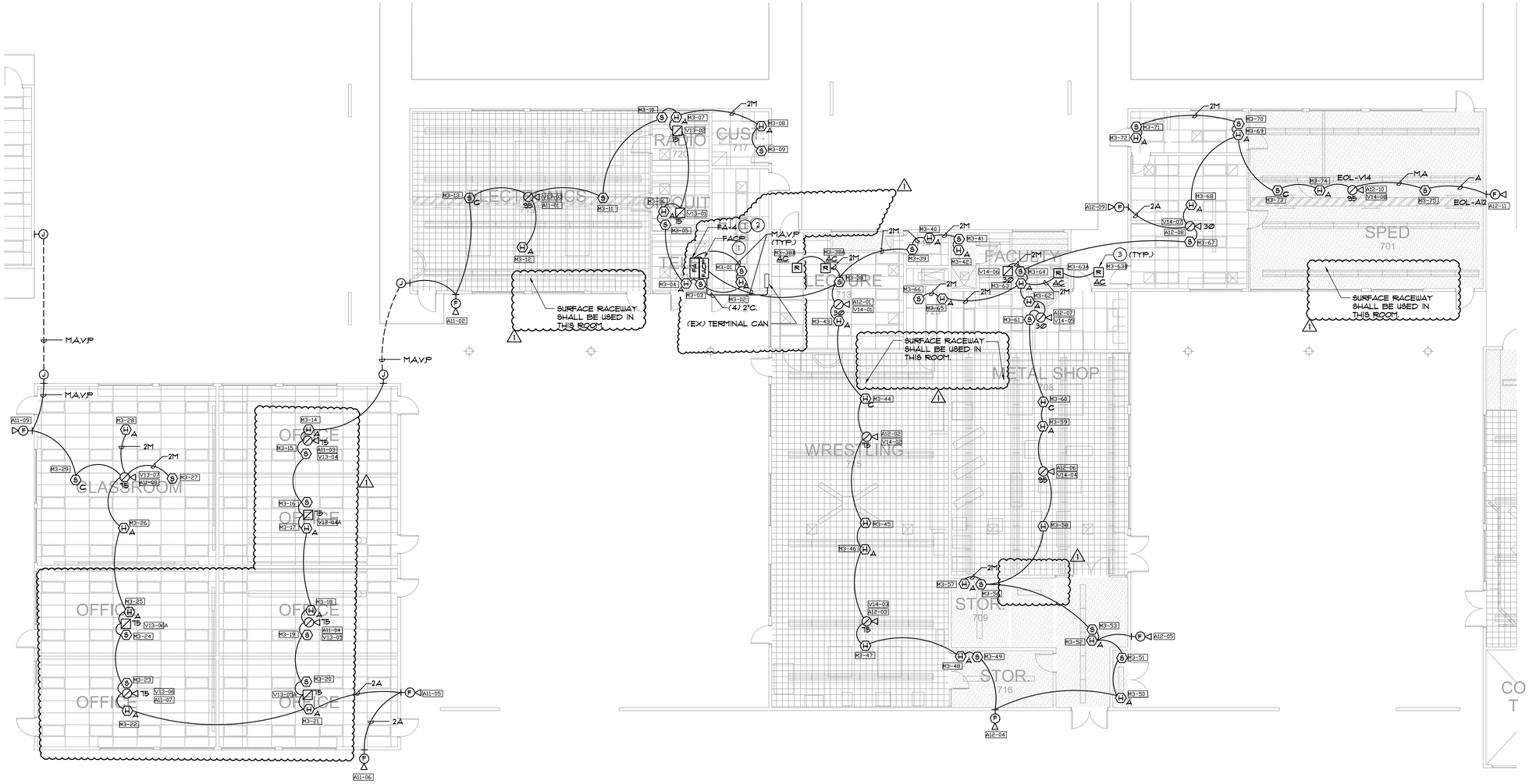
REGISTERED PROFESSIONAL ENGINEER
Mark A. Gallegos
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GENERAL NOTES:

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2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAYIN TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO 120/208V PANEL IN ELECTRICAL ROOM. PROVIDE "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E0.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.10.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

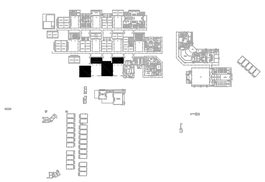
NORTH

0 4 8 16

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

KEY PLAN

KEYPLAN



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ARCHITECT OF RECORD

LICENSED ARCHITECT
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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #PIn
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.8

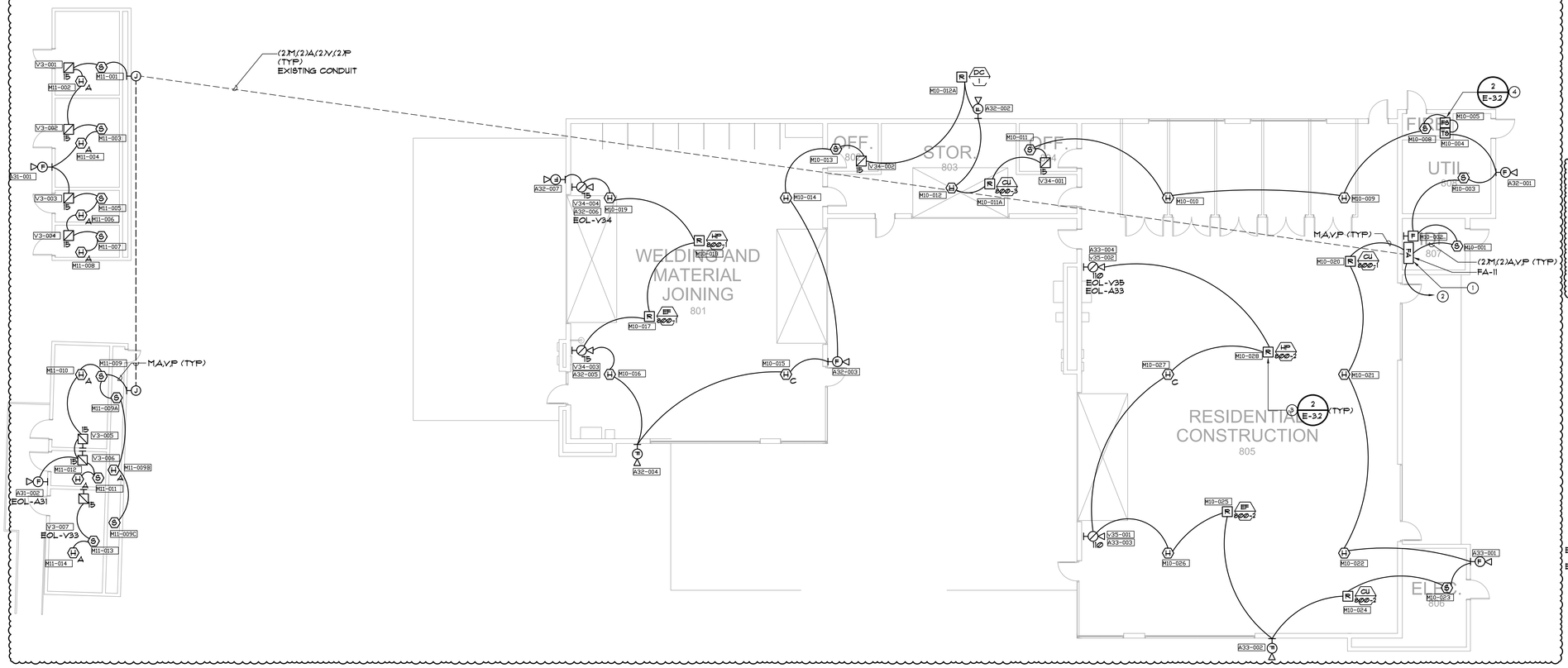
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GENERAL NOTES:

1. NOT USED.
2. REFERENCE E8[illegible] SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. RECONNECT TO EXISTING DEDICATED 120V CIRCUIT.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET [illegible]

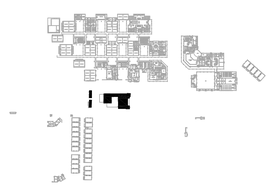
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" AFF. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" AFF. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" AFF. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (SI = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED FLASHING LIGHT STROBE MOUNTED +80"-96" AFF. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (VI = SIGNAL CIRCUIT IDENTIFICATION VISUAL)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE *6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- PS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- [R] — ADDRESSABLE RELAY MODULE
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KEYPLAN



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1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

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ARCHITECT OF RECORD
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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

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VISTA UNIFIED SCHOOL DISTRICT
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REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE
FLOOR PLAN - FIRE ALARM

E-5.9

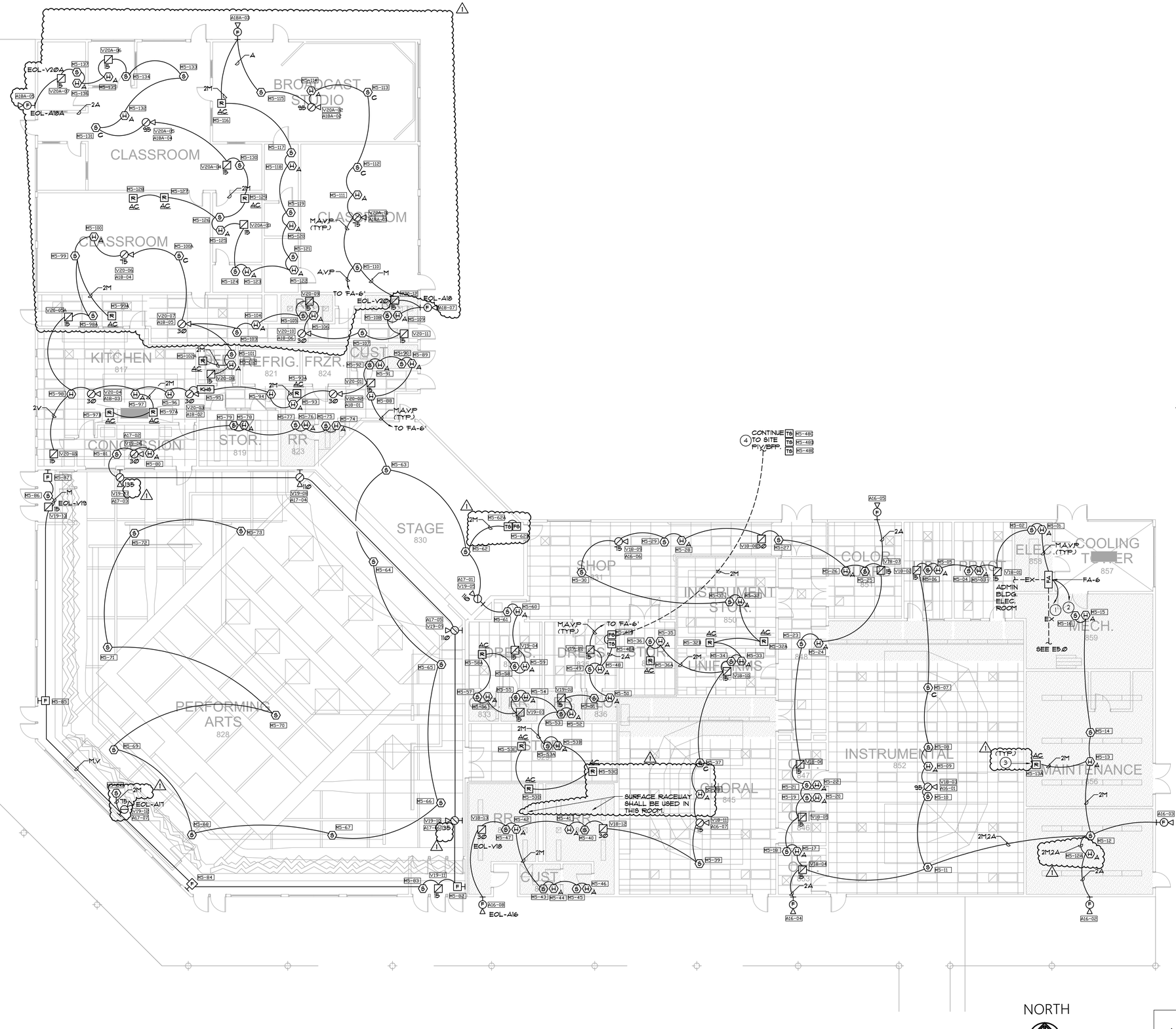
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1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0.[illegible] SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
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6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. EXTEND EXISTING DEDICATED 120V CIRCUIT TO NEW PANEL.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

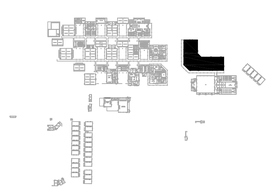
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" A.F.F. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (S = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 3305.10.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEYPLAN



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LICENSED ARCHITECT
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EXP. 12/25
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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

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1601 LONGHORN DRIVE
VISTA, CA 92081

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1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.10

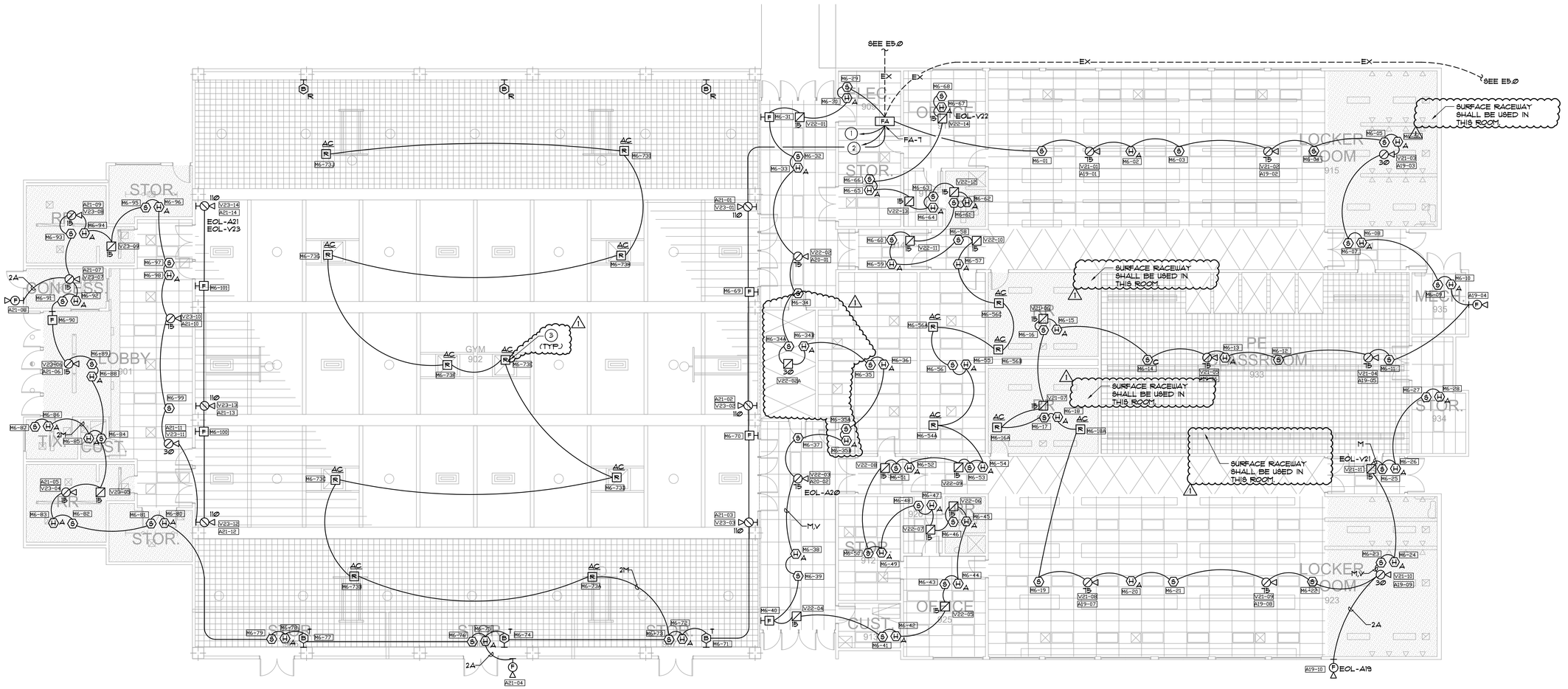
REGISTERED PROFESSIONAL ENGINEER
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Exp. 6-30-2025
ELECTRICAL
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FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.1Ø2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

BEAM DETECTOR TRANSMITTER

BEAM DETECTOR RECEIVER

FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" A.F.F. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (SI = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE 6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 3Ø Ø1 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH [M]
- TS — FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E5Ø SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAYIN TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 12Ø VOLT CIRCUIT TO PANEL CONNECT TO "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.Ø.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.
4. PROVIDE RELAY MODULE TO SHUNT SOUND SYSTEM POWER UNDER ANY ALARM.

NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

KEY PLAN

KEYPLAN

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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

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1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.11

REGISTERED PROFESSIONAL ENGINEER
No. E 14781
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1 FLOOR PLAN - FIRE ALARM

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

NORTH

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO PANEL CONNECT TO "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.
3. MAKE CONNECTION TO AIR CONDITIONING CONTROL CIRCUIT FOR AUTOMATIC SHUT OFF OF UNIT UPON SMOKE DETECTION, VL.

FIRE ALARM SYMBOL LEGENDS

- [F] MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- V / 15 CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- A,V / 15 CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- F / A WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- (S) CEILING MOUNTED SMOKE DETECTOR
- (S)C CEILING MOUNTED SMOKE/CO DETECTOR
- (H) CEILING MOUNTED HEAT DETECTOR
- (H)A HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA REMOTE FIRE ALARM POWER EXTENDER
- KHS KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN REMOTE ANNUNCIATOR
- FS FIRE PROTECTION FLOW SWITCH WITH [M]
- TS FIRE PROTECTION TAMPER SWITCH WITH [M]
- DSM DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R ADDRESSABLE RELAY MODULE
- M ADDRESSABLE MONITOR MODULE
- EOL-V VISUAL END OF LINE RESISTOR
- EOL-A AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 3015.102 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEY PLAN

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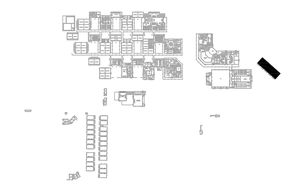
ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

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KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.12

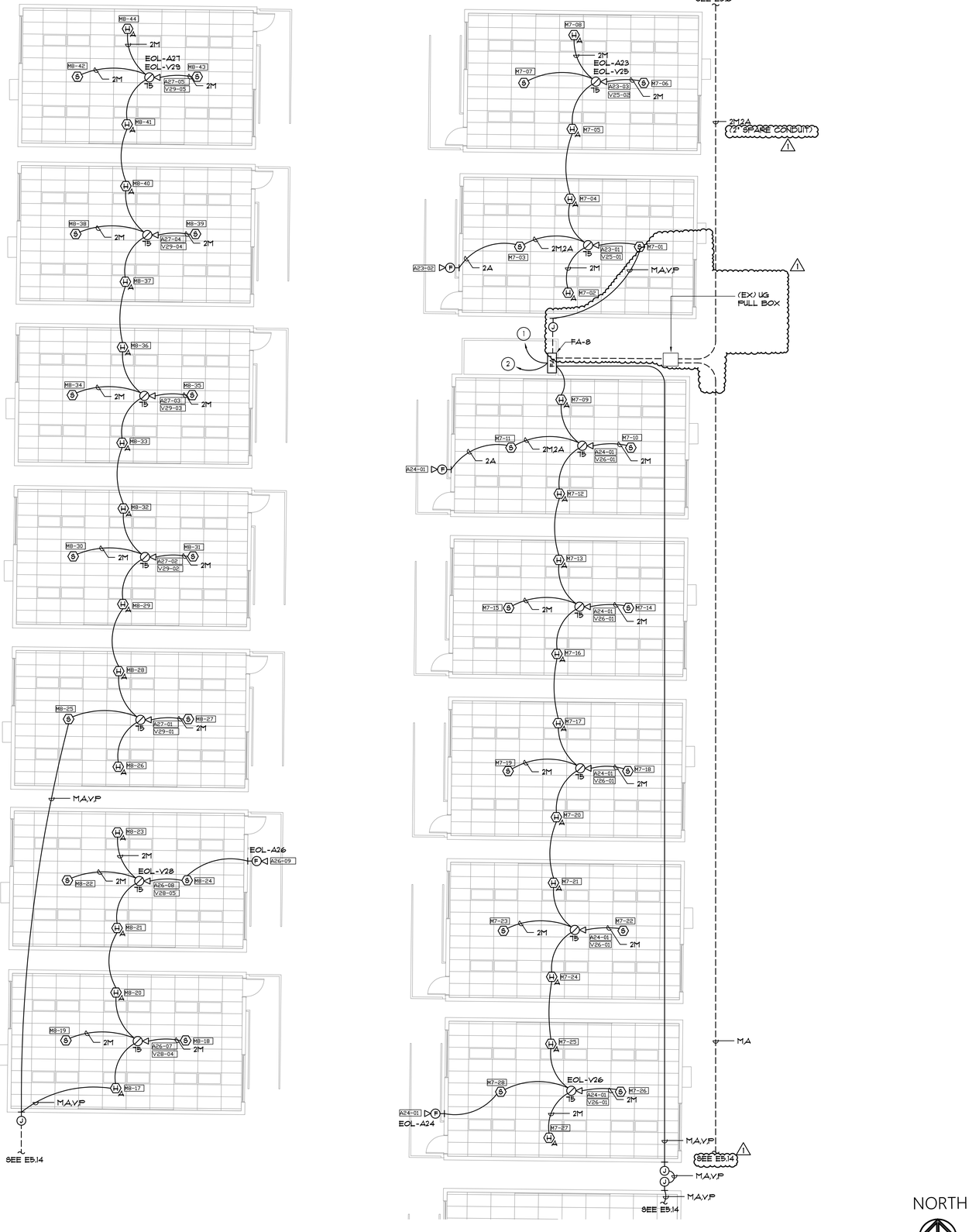
REGISTERED PROFESSIONAL ENGINEER
MICHAEL J. GRIMES
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NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. RECONNECT TO EXISTING DEDICATED 120V CIRCUIT.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.Ø.

FIRE ALARM SYMBOL LEGENDS

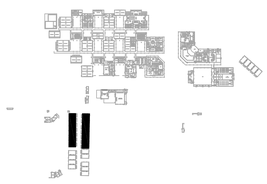
- F — MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- V 15 — CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- A/V 15 — CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (1.0W.)
- F A — WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +90" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- S — CEILING MOUNTED SMOKE DETECTOR
- S C — CEILING MOUNTED SMOKE/CO DETECTOR
- H — CEILING MOUNTED HEAT DETECTOR
- H A — HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6)
- FACP — MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FIRE PROTECTION FLOW SWITCH WITH M
- TS — FIRE PROTECTION TAMPER SWITCH WITH M
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R — ADDRESSABLE RELAY MODULE
- M — ADDRESSABLE MONITOR MODULE
- EOL-V — VISUAL END OF LINE RESISTOR
- EOL-A — AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 3Ø9.1Ø2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEY PLAN

KEYPLAN



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RBV FIRE ALARM UPGRADE

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1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #PIn
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.13

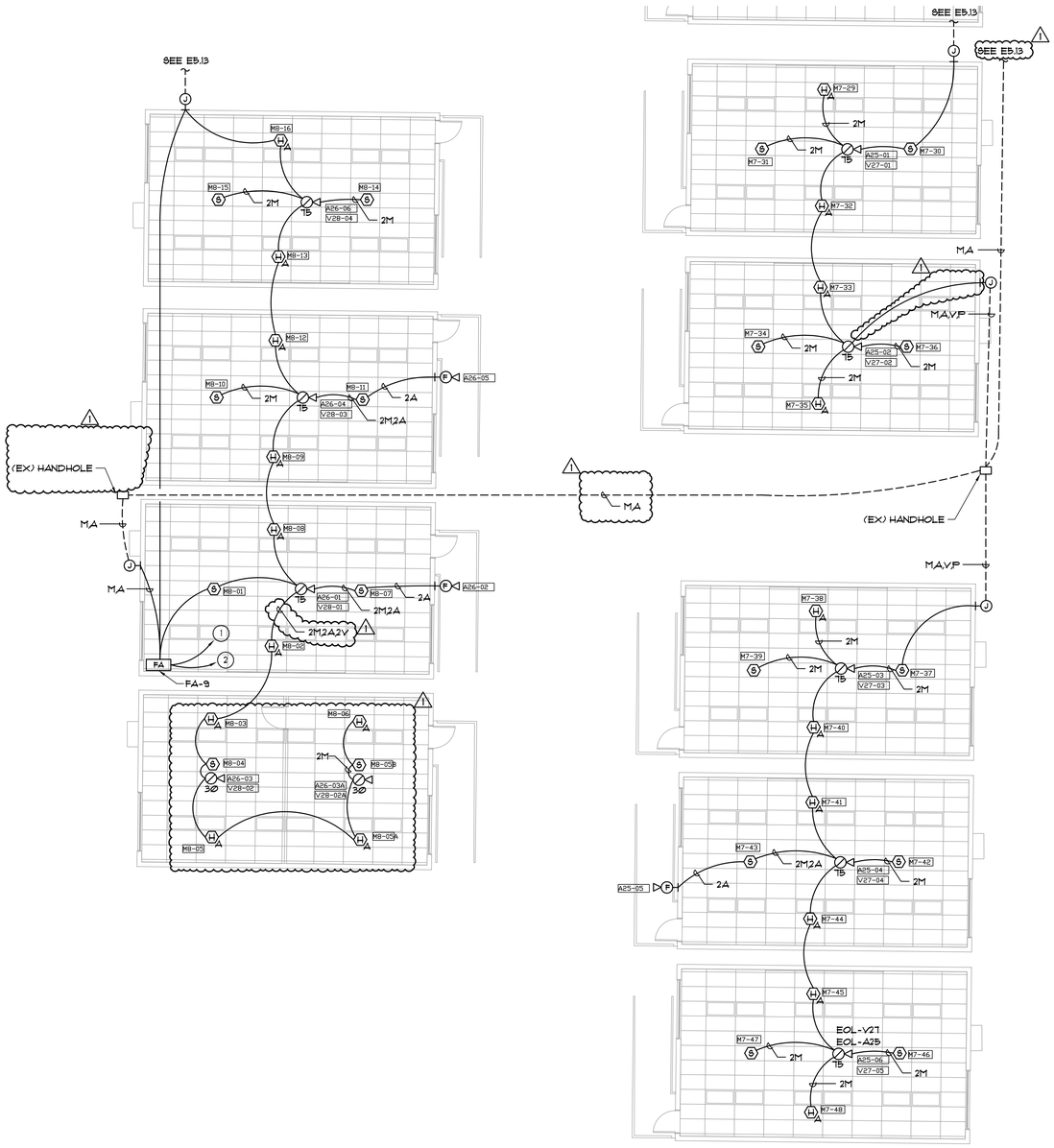
REGISTERED PROFESSIONAL ENGINEER
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1 FLOOR PLAN - FIRE ALARM

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

NORTH

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E5.0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" EMT, ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAYIN TYPE CEILINGS WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. PROVIDE DEDICATED 120 VOLT CIRCUIT TO RELO PANEL. PROVIDE "RED LOCK ON BREAKER".
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.

FIRE ALARM SYMBOL LEGENDS

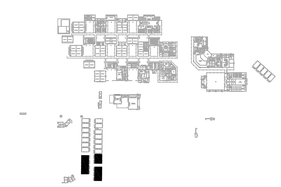
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- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- S CEILING MOUNTED SMOKE DETECTOR
- S/C CEILING MOUNTED SMOKE/CO DETECTOR
- H CEILING MOUNTED HEAT DETECTOR
- H/A HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #5)
- FACP MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 01 3.6
- FA REMOTE FIRE ALARM POWER EXTENDER
- KHS KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
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- FS FIRE PROTECTION FLOW SWITCH WITH [M]
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- DSM DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
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- M ADDRESSABLE MONITOR MODULE
- EOL-V VISUAL END OF LINE RESISTOR
- EOL-A AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 305.1.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEY PLAN

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RBV FIRE ALARM UPGRADE

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1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.14

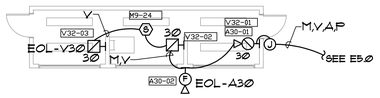
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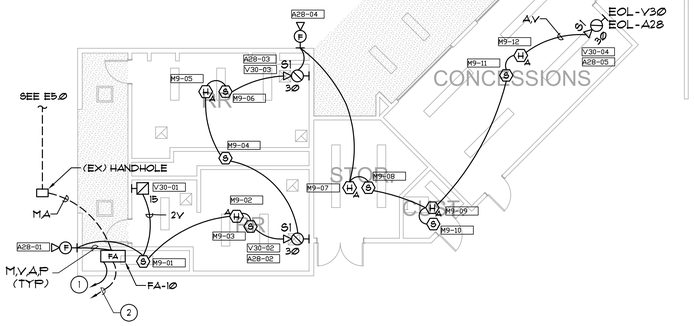
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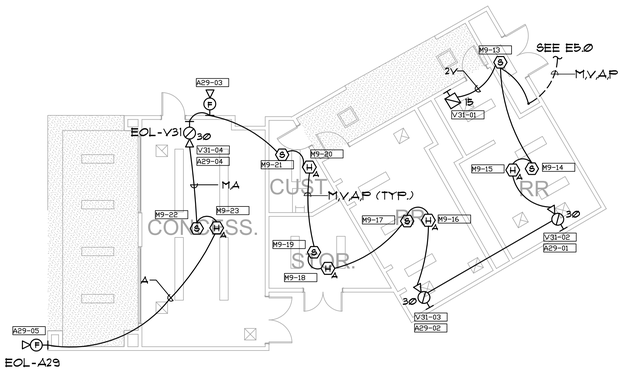
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NORTH

1 FLOOR PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. NOT USED.
2. REFERENCE E0 SERIES SHEETS FOR TYPICAL CONDUIT AND BACKBOX INSTALLATION DETAILS.
3. REFERENCE RISER DIAGRAMS FOR TYPICAL CONDUIT SIZES AND INITIATION ZONE CIRCUIT IDENTIFICATIONS.
4. UNLESS OTHERWISE NOTED SOLID LINES BETWEEN DEVICES SHALL BE 1" E.M.T. ROUTED CONCEALED ABOVE CEILINGS OR IN WALLS. DASHED LINES INDICATE 1-1/2" P.V.C. UNDERGROUND CONDUIT. ALL WIRING TO BE PROVIDED PER MANUFACTURER SHOP DRAWINGS.
5. CONTRACTOR SHALL PROVIDE CEILING ACCESS PANEL AT ALL NON-LAY'N TYPE CEILINGS, WHERE HEAT DETECTOR ABOVE CEILING IS INDICATED.
6. PROVIDE WIRE PROTECTIVE GUARD OVER ALL FIRE ALARM DEVICES LOCATED IN THE FOLLOWING AREAS: GYMNASIUM, LOCKER ROOMS, SHOP AREAS, AND ANY OTHER AREA WHERE DEVICES MAY BE SUBJECT TO CONTACT.

KEY NOTES:

1. RECONNECT TO EXISTING DEDICATED 120V CIRCUIT.
2. PROVIDE CONNECTION TO "FACP", REFER TO SITE PLAN SHEET E5.0.

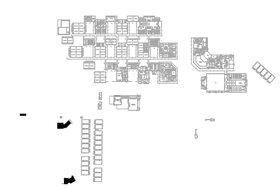
FIRE ALARM SYMBOL LEGENDS

- MANUAL PULL STATION MOUNTED BETWEEN 42" TO 48" A.F.F. TO HIGHEST POINT OF OPERATING HANDLE OR LEVER OF DEVICE.
- CEILING MOUNTED STROBE (15=STROBE CANDELA RATING) (V=VISUAL SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED COMBINATION SPEAKER/STROBE (15 = STROBE CANDELA RATING) (V = VISUAL SIGNAL CIRCUIT IDENTIFICATION) (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- S1 WALL MOUNTED SPEAKER/STROBE MOUNTED +80"-96" A.F.F. OR 6" BELOW CEILING TO BOTTOM OF DEVICE WHICHEVER IS LOWER. ENTIRE LENS MUST BE WITHIN THE +80"-96" DIMENSION. (15 = STROBE CANDELA RATING) (S1 = SIGNAL CIRCUIT IDENTIFICATION) TAP AT 1/4 WATT (U.O.N.)
- WALL MOUNTED WEATHERPROOF EXTERIOR SPEAKER MOUNTED +80" A.F.F. TO BOTTOM OF DEVICE (A = AUDIO SIGNAL CIRCUIT IDENTIFICATION)
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED SMOKE/CO DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING (SEE GENERAL NOTE #6.)
- FACP MAIN FIRE ALARM CONTROL PANEL. MOUNTING HEIGHT REQUIREMENT SPEC SECTION 28 30 00 1 3.6
- FA REMOTE FIRE ALARM POWER EXTENDER
- KHS KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN REMOTE ANNUNCIATOR
- FS FIRE PROTECTION FLOW SWITCH WITH M
- TS FIRE PROTECTION TAMPER SWITCH WITH M
- DSM DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- R ADDRESSABLE RELAY MODULE
- M ADDRESSABLE MONITOR MODULE
- EOL-V VISUAL END OF LINE RESISTOR
- EOL-A AUDIO END OF LINE RESISTOR

FIRE ALARM NOTE:
THIS FIRE ALARM DESIGN IS A COMPLETE PLAN SUBMITTAL IN ACCORDANCE WITH CBC 3095.1.2 MODERNIZATION PROJECT.

FULLY AUTOMATIC FIRE ALARM DESIGN:
THIS PROJECT IS DESIGNED TO COMPLY WITH ALL REQUIREMENTS FOR A FULLY PROTECTED AUTOMATIC FIRE ALARM SYSTEM.

KEYPLAN



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REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FLOOR PLAN - FIRE ALARM

E-5.15



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NOTIFIER MODEL NFS2 3030

SYM.	MODEL NO.	DESCRIPTION	C.S.F.M. LISTING	MFG.
FACP	NFS2-3030	FIRE ALARM CONTROL PANEL/VOICE EVAC	7165-0028:0224	NOTIFIER
FA	HFP-PS10	FIRE ALARM POWER SUPPLY PANEL	7315-1637:0505	NOTIFIER
DSM	DSM-12/24	SYNC MODULE	7300-0785:0132	WHEELOCK
ANN	LCD-80	REMOTE ANNUNCIATOR	7120-0028:0156	NOTIFIER
F	NBG-12LX	MANUAL PULL STATION	7150-0028:0199	NOTIFIER
H	FST-951	INTELLIGENT HEAT DETECTOR	7270-0028:0502	NOTIFIER
	B300-6	SENSOR BASE	7300-1653:0109	NOTIFIER
S,H	FCO-951	INTELLIGENT SMOKE/HEAT/ CO DETECTOR	7272-0028:0510	NOTIFIER
	B200S	SOUNDER BASE	7300-1653:0213	NOTIFIER
S	FSP-951	INTELLIGENT SMOKE DETECTOR	7272-0028:0503	NOTIFIER
	B300-6	SENSOR BASE	7300-1653:0109	NOTIFIER
H	FST-951	INTELLIGENT HEAT DETECTOR (ATTIC)	7270-0028:0502	NOTIFIER
	B300-6	SENSOR BASE	7300-1653:0109	NOTIFIER
F	SPRK	EXTERIOR SPEAKER W/WP BACKBOX	7320-1653:0201	SYS SENSOR
	SCWLED	STROBE (15/30/75/110) cd (CEIL MNT)	7300-1653:0525	SYS SENSOR
	SPSCWL	SPEAKER/STROBE - CEILING	7320-1653:0505	NOTIFIER
	SPSWL	SPEAKER/STROBE - WALL	7320-1653:0505	SYS SENSOR
M	FMM-1	ADDRESSABLE MONITOR MODULE	7300-0028:0219	NOTIFIER
R	FRM-1	ADDRESSABLE RELAY MODULE	7300-0028:0219	NOTIFIER
R1	RIC-1	120 VOLT RELAY MODULE	7300-1004:0101	SAE INC
	TYPE FPL	SIGNAL LINE CIRCUIT CONDUCTORS ('M')	7161-0859:0101	WEST PENN
	TYPE THHN	AUDIO VISUAL AND POWER CONDUCTORS (AV,P)	N/A	SOUTHWIRE

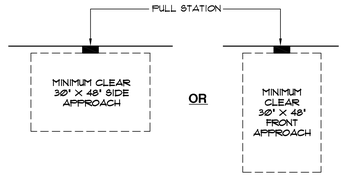
APPLICABLE STANDARDS AND CODES

SEE SHEET T-002

WIRING SCHEDULE

DES	CONDUCTOR TYPE	WIRE COLOR	CIRCUIT TYPE
M	(1) 1 PR #14 TWSTED SHIELDED	RED/BLACK/SHIELD	SIGNAL LINE CIRCUIT
A	(2) #12 THHN (UON ON CALCS)	BLUE/WHITE	NOTIFICATION APP. CIRCUIT (NAC)
V	(2) #12 THHN (UON ON CALCS)	GREEN/BLUE	NOTIFICATION APP. CIRCUIT (NAC)
P	(2) #12 THHN	RED/BLACK	POWER

CLEAR SPACE REQUIREMENTS AT FIRE ALARM PULL STATIONS:



ANNUNCIATOR ZONE SCHEDULE

	ROOM SMOKE OR HEAT DETECTORS	ABOVE CEILING HEAT DETECTORS	MANUAL PULL STATIONS	DUCT DETECTORS	SPRINKLER SYSTEM	TROUBLE INDICATION
BLDG. A	YES	YES	NO	NO	N/A	YES
BLDG. B	YES	YES	NO	YES	N/A	YES
BLDG. C	YES	YES	NO	NO	N/A	YES
BLDG. D	YES	YES	NO	NO	N/A	YES
BLDG. E	YES	YES	NO	NO	N/A	YES
BLDG. F	YES	YES	NO	NO	N/A	YES
BLDG. G	YES	YES	NO	NO	N/A	YES
BLDG. H	YES	YES	NO	NO	N/A	YES
BLDG. I	YES	YES	NO	NO	N/A	YES
BLDG. J	YES	YES	NO	NO	N/A	YES
BLDG. JJ	YES	YES	NO	NO	N/A	YES
BLDG. K THRU T	YES	YES	NO	NO	N/A	YES

NOTES:

1. ALL SMOKE DETECTORS, HEAT DETECTORS ABOVE CEILING DETECTORS, DUCT DETECTORS MANUAL PULL STATIONS, FLOW SWITCHES, TAMPER SWITCHES SHALL BE INDIVIDUALLY ADDRESSABLE.
2. PROVIDE (1) ANNUNCIATOR WHICH WILL PROVIDE LED LIGHT INDICATORS TO IDENTIFY THE ABOVE ZONE SCHEDULE (IN ADDITION TO ANNUNCIATOR NOTED IN NOTE # 3).
3. PROVIDE (1) 32 CHARACTER BACK-LIGHTED ALPHA-NUMERIC DISPLAY ANNUNCIATOR WITH KEYPAD FOR OPERATOR CONTROL, PROGRAMMING AND TESTING.

MAXIMUM NUMBER OF CONDUCTORS IN TRADE SIZES OF CONDUIT OR TUBING MINIMUM CONDUIT SIZE FOR THIS PROJECT IS 1"

CONDUIT TRADE SIZE (INCHES)		1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5
TYPE LETTERS	CONDUCTOR SIZE AWG, kcmil											
THWN	14 12	13 10	24 18	39 29	69 51	94 70	154 114	164				
THHN	10 8	6 3	11 5	18 9	32 16	44 22	73 36	104 51	160 79	106	136	

TRADE SIZE	INTERNAL DIAMETER INCHES	AREA——SQUARE INCHES								
		100% INCHES	PERCENT REDUCTION PER NUMBER OF 18AWG TWISTED SHIELD PAIRS							
			OVER 2 COND. 40%	1	2	3	4	5	6	7	8
1/2	.622	.30	.12	38%	66%	99%	X	X	X	X	X
3/4	.824	.53	.21	19%	38%	57%	76%	95%	X	X	X
1	1.049	.86	.34	12%	24%	36%	48%	60%	72%	84%	96%
1 1/4	1.380	1.50	.60	7%	14%	21%	28%	35%	42%	49%	56%
1 1/2	1.610	2.04	.82	5%	10%	15%	20%	25%	30%	35%	40%
2	2.067	3.36	1.34	3%	6%	9%	12%	15%	18%	21%	24%

FIRE ALARM SEQUENCE OF OPERATION

ACTION \ DEVICE	MANUAL PULL STATION	AREA/DUCT SMOKE/HEAT DETECTOR	AC POWER FAILURE	SPRINKLER ACTIVATION TAMPER SW.	SPRINKLER ACTIVATION FLOW SW.
SOUND ALARM THROUGHOUT BLDG.	YES	YES	NO	N/A	YES
ACTIVATE RELAY FOR MONITORING	YES	YES	YES	N/A	YES
ANNUNCIATE AT PANEL AND ANNUNCIATOR	YES	YES	YES	N/A	YES
SOUND TROUBLE BUZZER	ON WIRING FAULT	ON WIRING FAULT	YES	N/A	ON WIRING FAULT
SOUND SPRINKLER BELL	NO	NO	NO	N/A	YES
REPORT TO MONITORING STATION	YES	YES	YES	YES	YES
INITIATE SHUTDOUN OF HVAC UNITS	YES	YES	NO	N/A	YES

FIRE ALARM MONITORING NOTE:

1. AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY CFC SECTION 907. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUJS BY UNDERWRITERS LABORATORY OR SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY OWNER.

FIRE ALARM GENERAL REQUIREMENTS:

1. THE COMPLETE INSTALLATION SHALL BE REVIEWED AND APPROVED BY THE ABOVE LOCAL MANUFACTURERS REPRESENTATIVE. SEE SPECIFICATIONS (28 30 01), FOR ADDITIONAL CONTRACTOR QUALIFICATIONS AND REQUIREMENTS.
2. WIRING TYPES AND QUANITITES SHOWN ARE FOR INFORMATION ONLY. THE CONTRACTOR SHALL PROVIDE ALL WIRING AS REQUIRED TO MAKE A FULLY OPERATIONAL SYSTEM. SHOP DRAWINGS AND OR AS-BUILT DOCUMENTS SHALL INDICATE ALL WIRING PROVIDED.
3. THE AUDIBILITY OF FIRE ALARM WARNING DEVICES SHALL BE AUDIBLE THROUGH THE OCCUPANCY WITH A MINIMAL SOUND LEVEL 15 db's OVER THE AMBIENT NOISE LEVEL. ADD ADDITIONAL DEVICES AS REQUIRED.
4. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM, A REACCEPTANCE TEST OF THE ENTIRE SYSTEM SHALL BE PERFORMED IN THE PRESENCE OF THE ENFORCING AGENCY AND IN ACCORDANCE WITH SPECIFICATIONS (28 30 01). THE CONTRACTOR SHALL FURNISH db METERS AND ALL OTHER EQUIPMENT TO PERFORM THESE TESTS.
5. ALL OPERATING HARDWARE AT INITIATING DEVICES SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST, AND THE FORCE REQUIRED TO OPERATE SHALL BE LESS THAN 5 POUNDS.
6. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
7. UPON COMPLETION OF THE INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
8. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
9. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT.
10. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND /OR TESTING.
11. WALL MOUNTED VISUAL NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM FROM FINISHED FLOOR.
12. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THEN 6" TO A HORIZONTAL STRUCTURE.
13. AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10 FEET OR MORE THAN 110 DBA AT THE MINIM HEARING DISTANCE . SOUND LEVEL SHALL BE MAINTAIND FOR DURATION OF AT LEAST 60 SECTIONS 5 DBA MUST BE MAINTAINED.
14. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
15. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
16. 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 CANDELLA VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
17. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
18. ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
19. 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. THERE MUST BE AT LEAST 6" OF LEAD WIRE FROM THE BOX TO THE DEVICE. ALL BOXES TO BE SIZED PER CEC.
20. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER
21. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMETS.
22. FIRE ALARM PANEL, REMOTES, AND COMPONENETS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
23. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE 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/EXTENDERS.
24. THE INSTALLING CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72,
25. CONTROL PANELS, REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48".
26. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC CHAPTER 9.
27. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
28. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.
29. PROVIDE FIRE ALARM DOCUMENTATION CABINET AT MAIN FIRE ALARM PANEL.
30. THE INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT THE PLACEMENT OF ALL FIRE ALARM DETECTION DEVICES SHALL PROVIDE THE MINIMUM CLEARANCE DISTANCE FROM ALL EXISTING HVAC SUPPLY REGISTERS / RETURN AIR GRILLES AS REQUIRED BY THE FIRE ALARM MANUFACTURER TO ELIMINATE ACCUMULATION OF DUST AND FALSE ALARM INITIATION OF THE DEVICES.

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KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #PIn
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

FIRE ALARM SCHEDULE AND NOTES

E-5.16

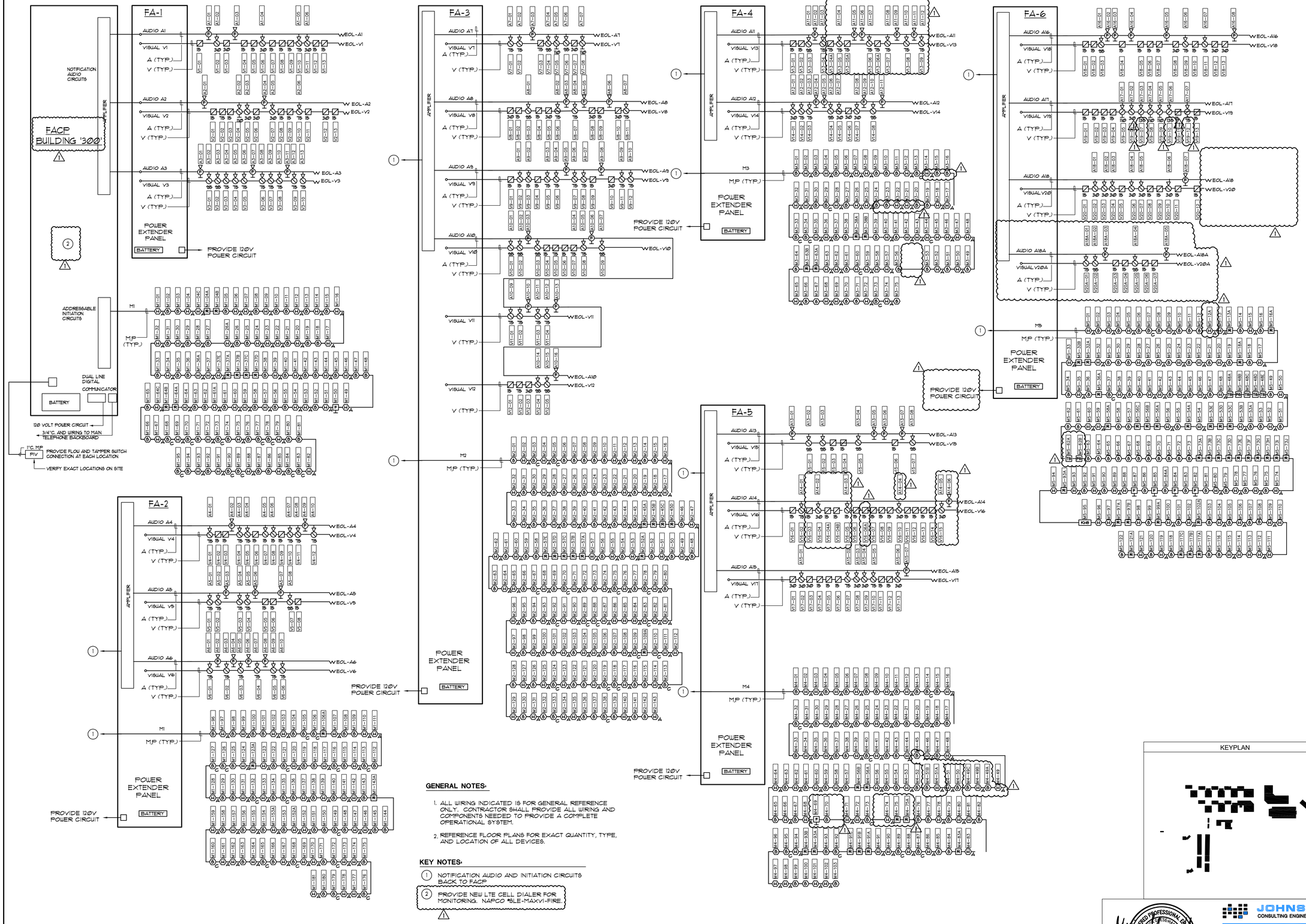


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GENERAL NOTES:

1. ALL WIRING INDICATED IS FOR GENERAL REFERENCE ONLY. CONTRACTOR SHALL PROVIDE ALL WIRING AND COMPONENTS NEEDED TO PROVIDE A COMPLETE OPERATIONAL SYSTEM.
2. REFERENCE FLOOR PLANS FOR EXACT QUANTITY, TYPE, AND LOCATION OF ALL DEVICES.

KEY NOTES:

1. NOTIFICATION AUDIO AND INITIATION CIRCUITS BACK TO FACP.
2. PROVIDE NEW LTE CELL DIALER FOR MONITORING. NAPCO *SLE-MAXVI-FIRE.

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KEYPLAN

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln

MODEL FILE:
23-018_RBV FIRE ALARM_DRAFT.pln

PLOT DATE:
7/5/2023

SHEET TITLE

FIRE ALARM RISER DIAGRAM

E-5.17

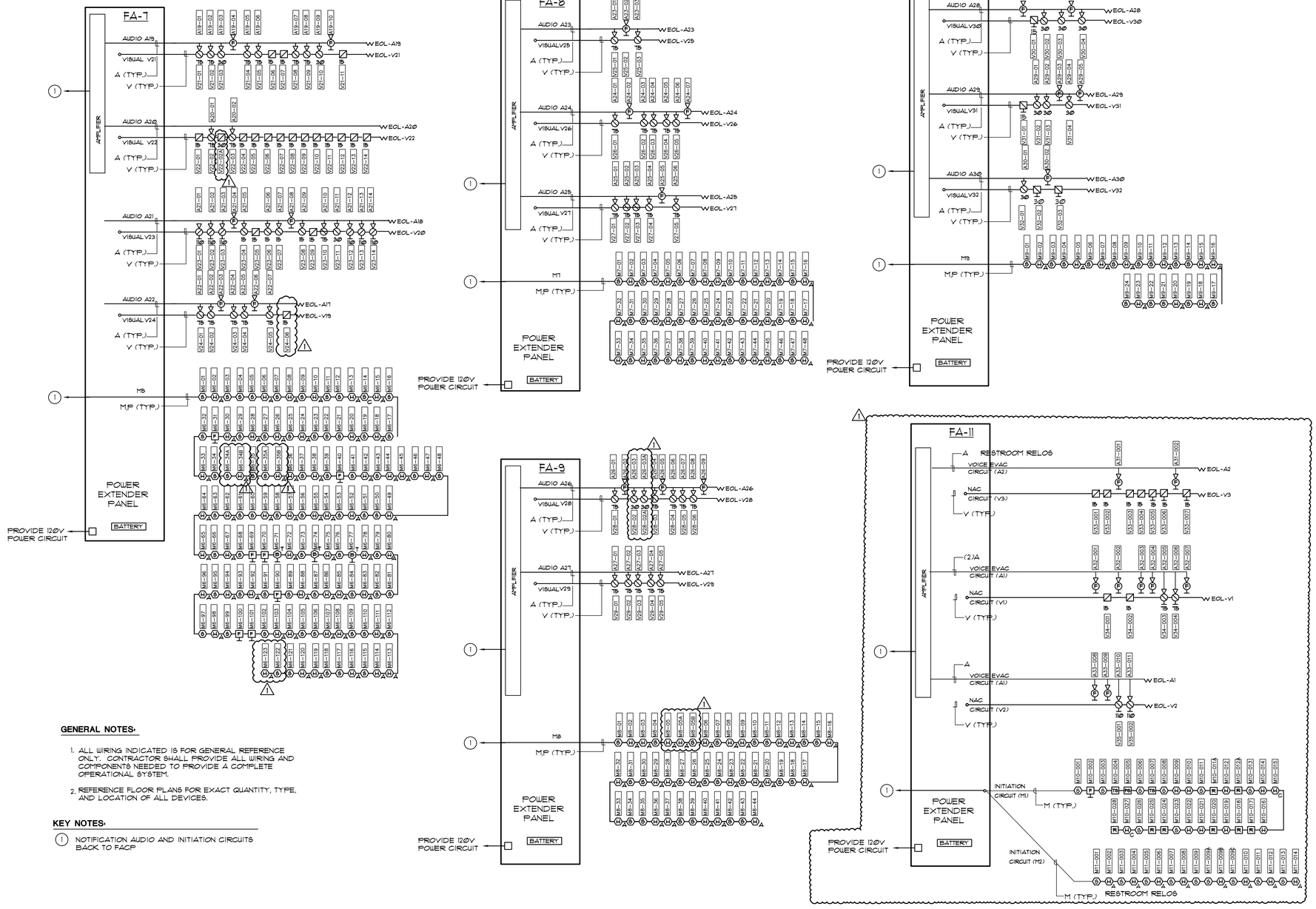
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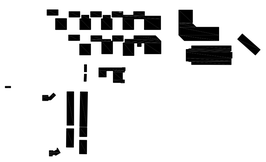
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7/5/2023

SHEET TITLE

FIRE ALARM RISER DIAGRAM

E-5.18

REGISTERED PROFESSIONAL ENGINEER
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

JOHNSON CONSULTING ENGINEERS, INC.
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#23011.01 4/22/2025

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Fire Alarm Control Panel

FACP NOTIFIER NFS2 3030 Battery Calculations

Building '300' (FACP)

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Control Panel Devices :						
Master Control Assembly	1	0.0810	0.0810	1	0.1500	0.1500
Communication Module	1	0.0460	0.0460	1	0.0460	0.0460
Voice Gateway	1	0.1500	0.1500	1	0.1500	0.1500
Additional SLC Modules	11	0.2000	2.2000	11	0.2500	2.7500
Signal Line Circuit Devices:						
Smoke Detector	420	0.0003	0.1386	420	0.0065	2.7300
Smoke Detector Base	420	0.0005	0.2100	420	0.0055	2.3100
Heat Detector	398	0.0002	0.0796	398	0.0065	2.5870
Heat Detector Base	398	0.0005	0.1990	398	0.0055	2.1890
Relay Module	78	0.0003	0.0234	78	0.0003	0.0234
Monitor Module	33	0.0004	0.0132	33	0.0070	0.2310
Remote Annunciator	1	0.0300	0.0300	1	0.0650	0.0650
Beam Detector (REC. & TRANS)	3	0.0040	0.0120	3	0.0150	0.0450
Pull Station	14	0.0003	0.0042	14	0.0000	0.0000
Pull Station	0	0.0003	0.0000	0	0.0000	0.0000
Smoke Detector/CO	67	0.0005	0.0335	67	0.0350	2.3450
Exteior Speaker @ 2 watt tap	0	0.000	0.0000	0	0.02857	0.000
NAC Panel	0	0.075	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe				0	0.043	0.000
30cd Wall Speaker/Strobe				0	0.063	0.000
75cd Wall Speaker/Strobe				0	0.107	0.000
110cd Wall Speaker/Strobe				0	0.148	0.000
15cd (Ceiling) Speaker/Strobe				0	0.041	0.000
30cd (Ceiling) Speaker/Strobe				0	0.063	0.000
75cd (Ceiling) Speaker/Strobe				0	0.111	0.000
95cd (Ceiling) Speaker/Strobe				0	0.134	0.000
15cd Wall Strobe				0	0.057	0.000
30cd Wall Strobe				0	0.085	0.000
75cd Wall Strobe				0	0.135	0.000
110cd Wall Strobe				0	0.182	0.000
135cd Wall Strobe				0	0.205	0.000
185cd Wall Strobe				0	0.253	0.000
15cd (Ceiling) Strobe				0	0.018	0.000
30cd (Ceiling) Strobe				0	0.022	0.000
75cd (Ceiling) Strobe				0	0.070	0.000
95cd (Ceiling) Strobe				0	0.075	0.000
Total Standby Amperage			**3.221**	**Total Alarm Amperage**		**15.621**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 3.221 = 77.292 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = 0.25 x 15.621 = 3.905 Amp Hours
Total Required = **81.197** Amp Hours
x125% = 101.4966875
Provide Battery & Minimum Battery Amp Hour Required = **120** Amp Hours

Building (FA-1)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	1	0.000	0.000	7	0.02857	0.200
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe				0	0.043	0.000
30cd Wall Speaker/Strobe				0	0.063	0.000
75cd Wall Speaker/Strobe				0	0.107	0.000
110cd Wall Speaker/Strobe				1	0.148	0.148
0				0	0.172	0.000
0				0	0.000	0.000
15cd (Ceiling) Speaker/Strobe				0	0.041	0.000
30cd (Ceiling) Speaker/Strobe				5	0.063	0.315
75cd (Ceiling) Speaker/Strobe				10	0.111	1.110
95cd (Ceiling) Speaker/Strobe				2	0.134	0.268
0				0	0.000	0.000
0				0	0.000	0.000
0				0	0.000	0.000
15cd Wall Strobe				0	0.057	0.000
30cd Wall Strobe				0	0.085	0.000
75cd Wall Strobe				0	0.135	0.000
110cd Wall Strobe				0	0.182	0.000
135cd Wall Strobe				0	0.205	0.000
185cd Wall Strobe				0	0.253	0.000
15cd (Ceiling) Strobe				14	0.018	0.252
30cd (Ceiling) Strobe				3	0.022	0.066
75cd (Ceiling) Strobe				1	0.070	0.070
95cd (Ceiling) Strobe				0	0.075	0.000
0				0	0.000	0.000
0				0	0.00000	0.000
0				0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**2.635**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25(1 5 Min.) x Total Alarm Amperage = .25 x 2.635 = 0.659 Amp Hours
Total Required = **2.459** Amp Hours
x125% = 3.073434375
Provide Battery & Minimum Battery Amp Hour Required = **12** Amp Hours

Building (FA-2)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	9	0.000	0.000	9	0.02857	0.257
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	0			0	0.107	0.000
110cd Wall Speaker/Strobe	0			0	0.148	0.000
135cd Wall Speaker/Strobe	0			0	0.172	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	2			2	0.041	0.082
30cd (Ceiling) Speaker/Strobe	0			0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	16			16	0.111	1.776
95cd (Ceiling) Speaker/Strobe	1			1	0.134	0.134
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	7			7	0.018	0.126
30cd (Ceiling) Strobe	0			0	0.022	0.000
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**2.581**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 2.581 = 0.645 Amp Hours
Total Required = **2.445** Amp Hours
x125% = 3.056603125
Provide Battery & Minimum Battery Amp Hour Required = **12** Amp Hours

BUILDING (FA-3)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	11			11	0.02857	0.314
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	0			0	0.107	0.000
110cd Wall Speaker/Strobe	2			2	0.148	0.296
135cd Wall Speaker/Strobe	0			0	0.172	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	2			2	0.041	0.082
30cd (Ceiling) Speaker/Strobe	0			0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	16			16	0.111	1.776
95cd (Ceiling) Speaker/Strobe	9			9	0.134	1.206
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	9			9	0.018	0.162
30cd (Ceiling) Strobe	7			7	0.022	0.154
75cd (Ceiling) Strobe	4			4	0.070	0.280
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**4.476**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 4.476 = 1.119 Amp Hours
Total Required = **2.919** Amp Hours
x125% = 3.648834375
Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-4)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	9			9	0.02857	0.257
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	0			0	0.107	0.000
110cd Wall Speaker/Strobe	0			0	0.148	0.000
135cd Wall Speaker/Strobe	0			0	0.172	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	3			3	0.063	0.189
75cd (Ceiling) Speaker/Strobe	8			8	0.111	0.888
95cd (Ceiling) Speaker/Strobe	3			3	0.134	0.402
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	2			2	0.018	0.036
30cd (Ceiling) Strobe	1			1	0.022	0.022
75cd (Ceiling) Strobe	3			3	0.070	0.210
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**2.210**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25x 2.210 = 0.553 Amp Hours
Total Required = **2.353** Amp Hours
X125% = 2.823039
Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-11)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	9			9	0.02857	0.257
NAC Panel	0	0.075	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0			0	0.030	0.000
30cd Wall Speaker/Strobe	0			0	0.040	0.000
75cd Wall Speaker/Strobe	2			2	0.115	0.230
110cd Wall Speaker/Strobe	2			2	0.200	0.400
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0			0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	4			4	0.111	0.444
95cd (Ceiling) Speaker/Strobe	2			2	0.134	0.268
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	3			3	0.057	0.171
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	6			6	0.018	0.108
30cd (Ceiling) Strobe	0			0	0.022	0.000
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.000**	**Total Alarm Amperage**		**1.878**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.000 = 0.000 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 1.878 = 0.470 Amp Hours
Total Required = **0.470** Amp Hours
x125% = 0.586915625
Minimum Battery Amp Hour Required = **12** Amp Hours

(FA-5)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	6			6	0.02857	0.171
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	0			0	0.107	0.000
110cd Wall Speaker/Strobe	0			0	0.148	0.000
135cd Wall Speaker/Strobe	0			0	0.172	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	6			6	0.063	0.378
75cd (Ceiling) Speaker/Strobe	4			4	0.111	0.444
95cd (Ceiling) Speaker/Strobe	4			4	0.134	0.536
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	17			17	0.018	0.306
30cd (Ceiling) Strobe	4			4	0.022	0.088
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**2.129**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 2.129 = 0.532 Amp Hours
Total Required = **2.332** Amp Hours
X125% = 2.91544375
Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-6)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	8			8	0.02857	0.229
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	1			1	0.107	0.107
110cd Wall Speaker/Strobe	3			3	0.148	0.444
135cd Wall Speaker/Strobe	2			2	0.172	0.344
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	6			6	0.063	0.378
75cd (Ceiling) Speaker/Strobe	4			4	0.111	0.444
95cd (Ceiling) Speaker/Strobe	3			3	0.134	0.402
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	24			24	0.018	0.432
30cd (Ceiling) Strobe	3			3	0.022	0.066
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**3.052**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25x 3.052 = 0.763 Amp Hours
Total Required = **2.563** Amp Hours
X125% = 3.2036125
Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-7)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	6			6	0.02857	0.171
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.043	0.000
30cd Wall Speaker/Strobe	0			0	0.063	0.000
75cd Wall Speaker/Strobe	0			0	0.107	0.000
110cd Wall Speaker/Strobe	6			6	0.148	0.888
135cd Wall Speaker/Strobe	0			0	0.172	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	4			4	0.041	0.164
30cd (Ceiling) Speaker/Strobe	3			3	0.063	0.189
75cd (Ceiling) Speaker/Strobe	13			13	0.111	1.443
95cd (Ceiling) Speaker/Strobe	0			0	0.134	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	18			18	0.018	0.324
30cd (Ceiling) Strobe	0			0	0.022	0.000
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**3.385**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 3.385 = 0.846 Amp Hours
Total Required = **2.646** Amp Hours
X125% = 3.30794375
Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-8)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	1	0.000	0.000	4	0.02857	0.114
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe				0	0.030	0.000
30cd Wall Speaker/Strobe				0	0.040	0.000
75cd Wall Speaker/Strobe				0	0.115	0.000
110cd Wall Speaker/Strobe				0	0.200	0.000
0				0	0.000	0.000
0				0	0.000	0.000
15cd (Ceiling) Speaker/Strobe				0	0.041	0.000
30cd (Ceiling) Speaker/Strobe				0	0.063	0.000
75cd (Ceiling) Speaker/Strobe				12	0.111	1.332
95cd (Ceiling) Speaker/Strobe				0	0.134	0.000
0				0	0.000	0.000
0				0	0.000	0.000
0				0	0.000	0.000
15cd Wall Strobe				0	0.057	0.000
30cd Wall Strobe				0	0.085	0.000
75cd Wall Strobe				0	0.135	0.000
110cd Wall Strobe				0	0.182	0.000
135cd Wall Strobe				0	0.205	0.000
185cd Wall Strobe				0	0.253	0.000
15cd (Ceiling) Strobe				0	0.018	0.000
30cd (Ceiling) Strobe				1	0.022	0.022
75cd (Ceiling) Strobe				0	0.070	0.000
95cd (Ceiling) Strobe				0	0.075	0.000
0				0	0.000	0.000
0				0	0.00000	0.000
0				0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**1.674**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25(1 5 Min.) x Total Alarm Amperage = .25 x 1.674 = 0.419 Amp Hours
Total Required = **2.219** Amp Hours
x125% = 2.7732125
Provide Battery & Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-9)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	3	0.000	0.000	3	0.02857	0.086
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.030	0.000
30cd Wall Speaker/Strobe	0			0	0.040	0.000
75cd Wall Speaker/Strobe	0			0	0.115	0.000
110cd Wall Speaker/Strobe	0			0	0.200	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0			0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	11			11	0.111	1.221
95cd (Ceiling) Speaker/Strobe	0			0	0.134	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	0			0	0.057	0.000
30cd Wall Strobe	0			0	0.085	0.000
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	0			0	0.018	0.000
30cd (Ceiling) Strobe	0			0	0.022	0.000
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**1.513**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25 x 1.513 = 0.378 Amp Hours
Total Required = **2.178** Amp Hours
x125% = 2.722721875
Provide Battery & Minimum Battery Amp Hour Required = 12 Amp Hours

Building (FA-10)
Remote Extender Panel
Supplementary Notification Appliance Circuit Battery Calculations

Standby Amperage				Alarm Amperage		
Type of Device Or Equipment	Qty	Current	Total	Quantity	Current	Total
Exteior Speaker @ 2 watt tap	5			5	0.02857	0.143
NAC Panel	1	0.075	0.075	1	0.206	0.206
15cd Wall Speaker/Strobe	0			0	0.030	0.000
30cd Wall Speaker/Strobe	0			0	0.040	0.000
75cd Wall Speaker/Strobe	0			0	0.115	0.000
110cd Wall Speaker/Strobe	0			0	0.200	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0			0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	7			7	0.063	0.441
75cd (Ceiling) Speaker/Strobe	0			0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0			0	0.134	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
	0			0	0.000	0.000
15cd Wall Strobe	2			2	0.057	0.114
30cd Wall Strobe	2			2	0.085	0.170
75cd Wall Strobe	0			0	0.135	0.000
110cd Wall Strobe	0			0	0.182	0.000
135cd Wall Strobe	0			0	0.205	0.000
185cd Wall Strobe	0			0	0.253	0.000
15cd (Ceiling) Strobe	0			0	0.018	0.000
30cd (Ceiling) Strobe	0			0	0.022	0.000
75cd (Ceiling) Strobe	0			0	0.070	0.000
95cd (Ceiling) Strobe	0			0	0.075	0.000
0	0			0	0.000	0.000
0	0			0	0.00000	0.000
0	0			0	0.00000	0.000
Total Standby Amperage			**0.075**	**Total Alarm Amperage**		**1.074**

Standby Time Required
24 Hours x Total Standby Amperage = 24 x 0.075 = 1.800 Amp Hours
Alarm Time Required
.25 (15 Min.) x Total Alarm Amperage = .25x 1.074 = 0.268 Amp Hours
Total Required = **2.068** Amp Hours
X125% = 2.585578125
Minimum Battery Amp Hour Required = 12 Amp Hours

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ARCHITECT OF RECORD

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JOSHUA T. ECKLE
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EXP. 12/25
STATE OF CALIFORNIA

ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE
RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081
VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

REGISTERED PROFESSIONAL ENGINEER
MONICA GRIESE-HANSEN
No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA
#23011.01 4/22/2025

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SHEET TITLE
FIRE ALARM CALCULATIONS

E-5.19

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Fire Alarm Voltage Drop Calculations

Calculation Formula:

Total Current x Feet x 21.6 / Circular Mils (Voltage Drop)

Voltage Drop / 24 Volts x 100 Percent = Percentage Voltage Drop

Circular Mils Using #10 wire =10380
Circular Mils Using #12 wire = 6530
Circular Mils Using #14 wire = 4110
Circular Mils Using #18 wire = 1620

Building (FA-1)

Device Type	Circuit: V1/A1 Devices	x Current	Total Current	Circuit: V2/A2 Devices	x Current	Total Current	Circuit: V3/A3 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	2	0.02857	0.057	2	0.02857	0.057	3	0.02857	0.086	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	1	0.148	0.148	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	3	0.063	0.189	2	0.063	0.126	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	1	0.111	0.111	1	0.111	0.111	8	0.111	0.888	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	0	0.134	0.000	2	0.134	0.268	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	8	0.018	0.144	6	0.018	0.108	0	0.018	0.000	0	0.018	0.000
30cd (Ceiling) Strobe	1	0.022	0.022	2	0.022	0.044	0	0.022	0.000	1	0.022	0.022
75cd (Ceiling) Strobe	0	0.070	0.000	1	0.070	0.070	0	0.070	0.000	1	0.070	0.070
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.729		Total	0.664		Total	1.242		Total	0.092
Circuit Length:	320			460			300			0		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	0.77			1.01			1.23			0.00		
Percent voltage drop:	**3.22%**			**4.21%**			**5.13%**			**0.00%**		

Building (FA-2)

Device Type	Circuit: V4/A4 Devices	x Current	Total Current	Circuit: V5/A5 Devices	x Current	Total Current	Circuit: V6/A6 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	2	0.02857	0.057	3	0.02857	0.086	4	0.02857	0.114	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	2	0.041	0.082	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	6	0.111	0.666	4	0.111	0.444	6	0.111	0.666	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	1	0.134	0.134	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	4	0.018	0.072	3	0.018	0.054	0	0.018	0.000	2	0.018	0.036
30cd (Ceiling) Strobe	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000	1	0.022	0.022
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	1.083		Total	0.718		Total	0.780		Total	0.058
Circuit Length:	375			290			350			0		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	1.34			0.69			0.90			0.00		
Percent voltage drop:	**5.60%**			**2.87%**			**3.76%**			**0.00%**		

Building (FA-11)

Device Type	Circuit: V33/A31 Devices	x Current	Total Current	Circuit: V34/A32 Devices	x Current	Total Current	Circuit: V35/A33 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	5	0.02857	0.143	2	0.02857	0.057	2	0.02857	0.057	0	0.02857	0.000
NAC Panel	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000
30cd Wall Speaker/Strobe	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000
75cd Wall Speaker/Strobe	2	0.115	0.230	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000
110cd Wall Speaker/Strobe	0	0.200	0.000	2	0.200	0.400	0	0.200	0.000	0	0.200	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	4	0.111	0.444	0	0.111	0.000	0	0.111	0.000	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	2	0.134	0.268	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	3	0.057	0.171	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	2	0.018	0.036	0	0.018	0.000	4	0.018	0.072	0	0.018	0.000
30cd (Ceiling) Strobe	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.853		Total	0.725		Total	0.300		Total	0.000
Circuit Length:	300			350			450			0		
Circular mils:	6530			6530			6530			4110		
Volts dropped:	0.85			0.84			0.45			0.00		
Percent voltage drop:	**3.53%**			**3.50%**			**1.86%**			**0.00%**		

Building (FA-3)

Device Type	Circuit: V7/A7 Devices	x Current	Total Current	Circuit: V8/A8 Devices	x Current	Total Current	Circuit: V9/A9 Devices	x Current	Total Current	Circuit: V10/A10 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	1	0.02857	0.029	3	0.02857	0.086	2	0.02857	0.057	2	0.02857	0.057
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	2	0.148	0.296	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	2	0.041	0.082	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	2	0.111	0.222	3	0.111	0.333	6	0.111	0.666	1	0.111	0.111
95cd (Ceiling) Speaker/Strobe	2	0.134	0.268	1	0.134	0.134	0	0.134	0.000	4	0.134	0.536
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	0	0.018	0.000	3	0.018	0.054	3	0.018	0.054	2	0.018	0.036
30cd (Ceiling) Strobe	1	0.022	0.022	4	0.022	0.088	1	0.022	0.022	0	0.022	0.000
75cd (Ceiling) Strobe	1	0.070	0.070	0	0.070	0.000	0	0.070	0.000	2	0.070	0.140
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	1.113		Total	0.695		Total	0.881		Total	0.880
Circuit Length:	370			350			400			350		
Circular mils:	6530			6530			4110			4110		
Volts dropped:	1.36			0.80			1.85			1.62		
Percent voltage drop:	**5.67%**			**3.35%**			**7.72%**			**6.75%**		

BUILDING (FA-3)

Device Type	Circuit: V11/A10 Devices	x Current	Total Current	Circuit: V12/A10 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	2	0.02857	0.057	1	0.02857	0.029	0	0.02857	0.000	0	0.02857	0.000
NAC Panel	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	4	0.111	0.444	0	0.111	0.000	0	0.111	0.000	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	2	0.134	0.268	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	0	0.018	0.000	1	0.018	0.018	0	0.018	0.000	0	0.018	0.000
30cd (Ceiling) Strobe	0	0.022	0.000	1	0.022	0.022	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	1	0.070	0.070	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.501		Total	0.407		Total	0.000		Total	0.000
Circuit Length:	350			375			0			0		
Circular mils:	6530			6530			4110			4110		
Volts dropped:	0.58			0.50			0.00			0.00		
Percent voltage drop:	**2.42%**			**2.10%**			**0.00%**			**0.00%**		

Building (FA-4)

Device Type	Circuit: V13/A11 Devices	x Current	Total Current	Circuit: V14/A12 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	5	0.02857	0.143	4	0.02857	0.114	0	0.02857	0.000	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	3	0.063	0.189	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	6	0.111	0.666	2	0.111	0.222	0	0.111	0.000	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	1	0.134	0.134	2	0.134	0.268	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	2	0.018	0.036	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000
30cd (Ceiling) Strobe	0	0.022	0.000	1	0.022	0.022	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	3	0.070	0.210	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	1.395		Total	0.815		Total	0.000		Total	0.000
Circuit Length:	350			350			0			0		
Circular mils:	6530			6530			6530			4110		
Volts dropped:	1.61			0.94			0.00			0.00		
Percent voltage drop:	**6.73%**			**3.93%**			**0.00%**			**0.00%**		

(FA-5)

Device Type	Circuit: V15/A13 Devices	x Current	Total Current	Circuit: V16/A14 Devices	x Current	Total Current	Circuit: V17/A15 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	4	0.02857	0.114	1	0.02857	0.029	1	0.02857	0.029	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	2	0.063	0.126	4	0.063	0.252	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	0	0.111	0.000	2	0.111	0.222	2	0.111	0.222	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	4	0.134	0.536	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	3	0.018	0.054	9	0.018	0.162	5	0.018	0.090	0	0.018	0.000
30cd (Ceiling) Strobe	0	0.022	0.000	2	0.022	0.044	2	0.022	0.044	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.910		Total	0.583		Total	0.637		Total	0.000
Circuit Length:	400			460			465			0		
Circular mils:	6530			6530			6530			4110		
Volts dropped:	1.20			0.89			0.98			0.00		
Percent voltage drop:	**5.02%**			**3.69%**			**4.08%**			**0.00%**		

Building (FA-6)

Device Type	Circuit: V18/A16 Devices	x Current	Total Current	Circuit: V19/A17 Devices	x Current	Total Current	Circuit: V20/A18 Devices	x Current	Total Current	Circuit: V20A A18A Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	5	0.029	0.143	0	0.029	0.000	1	0.029	0.029	2	0.029	0.057
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	1	0.107	0.107	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	3	0.148	0.444	0	0.148	0.000	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	2	0.172	0.344	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	1	0.063	0.063	5	0.063	0.315	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	2	0.111	0.222	0	0.111	0.000	0	0.111	0.000	2	0.111	0.222
95cd (Ceiling) Speaker/Strobe	1	0.134	0.134	0	0.134	0.000	1	0.134	0.134	1	0.134	0.134
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	7	0.018	0.126	6	0.018	0.108	7	0.018	0.126	4	0.018	0.072
30cd (Ceiling) Strobe	3	0.022	0.066	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
		Total	0.897		Total	1.066		Total	0.604		Total	0.485
Circuit Length:	400			554			460			464		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	1.19			1.95			0.92			0.74		
Percent voltage drop:	**4.94%**			**8.14%**			**3.83%**			**3.10%**		

Building (FA-7)

Device Type	Circuit: V21/A19 Devices	x Current	Total Current	Circuit: V22/A20 Devices	x Current	Total Current	Circuit: V23/A21 Devices	x Current	Total Current	Circuit: V24/A22 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	2	0.029	0.057	0	0.029	0.000	2	0.029	0.057	2	0.029	0.057
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000	0	0.043	0.000
30cd Wall Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd Wall Speaker/Strobe	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000	0	0.107	0.000
110cd Wall Speaker/Strobe	0	0.148	0.000	0	0.148	0.000	6	0.148	0.888	0	0.148	0.000
135cd Wall Speaker/Strobe	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000	0	0.172	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	4	0.041	0.164	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	2	0.063	0.126	0	0.063	0.000	1	0.063	0.063	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	5	0.111	0.555	2	0.111	0.222	1	0.111	0.111	5	0.111	0.555
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	3	0.018	0.054	12	0.018	0.216	2	0.018	0.036	1	0.018	0.018
30cd (Ceiling) Strobe	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
		Total	0.998		Total	0.438		Total	1.319		Total	0.630
Circuit Length:	350			400			465			510		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	1.16			0.58			2.03			1.06		
Percent voltage drop:	**4.81%**			**2.41%**			**8.45%**			**4.43%**		

Building (FA-8)

Device Type	Circuit: V25/A23 Devices	x Current	Total Current	Circuit: V26/A24 Devices	x Current	Total Current	Circuit: V27/A25 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	1	0.02857	0.029	2	0.02857	0.057	1	0.02857	0.029	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000
30cd Wall Speaker/Strobe	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000
75cd Wall Speaker/Strobe	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000
110cd Wall Speaker/Strobe	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	2	0.111	0.222	5	0.111	0.555	5	0.111	0.555	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000
30cd (Ceiling) Strobe	1	0.022	0.022	0	0.022	0.000	0	0.022	0.000	1	0.022	0.022
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	1	0.070	0.070
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.479		Total	0.612		Total	0.584		Total	0.092
Circuit Length:	320			350			300			0		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	0.51			0.71			0.58			0.00		
Percent voltage drop:	**2.11%**			**2.95%**			**2.41%**			**0.00%**		

Building (FA-9)

Device Type	Circuit: V28/A26 Devices	x Current	Total Current	Circuit: V29/A27 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	3	0.02857	0.086	0	0.02857	0.000	0	0.02857	0.000	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000
30cd Wall Speaker/Strobe	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000
75cd Wall Speaker/Strobe	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000
110cd Wall Speaker/Strobe	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	6	0.111	0.666	5	0.111	0.555	0	0.111	0.000	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000	2	0.018	0.036
30cd (Ceiling) Strobe	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000	1	0.022	0.022
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.958		Total	0.555		Total	0.000		Total	0.058
Circuit Length:	350			530			0			0		
Circular mils:	6530			6530			6530			6530		
Volts dropped:	1.11			0.97			0.00			0.00		
Percent voltage drop:	**4.62%**			**4.05%**			**0.00%**			**0.00%**		

Building (FA-10)

Device Type	Circuit: V30/A28 Devices	x Current	Total Current	Circuit: V31/A29 Devices	x Current	Total Current	Circuit: V32/A30 Devices	x Current	Total Current	Circuit: 0 Devices	x Current	Total Current
Exteior Speaker @ 2 watt tap	2	0.02857	0.057	2	0.02857	0.057	1	0.02857	0.029	0	0.02857	0.000
NAC Panel	1	0.206	0.206	0	0.206	0.000	0	0.206	0.000	0	0.206	0.000
15cd Wall Speaker/Strobe	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000	0	0.030	0.000
30cd Wall Speaker/Strobe	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000	0	0.040	0.000
75cd Wall Speaker/Strobe	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000	0	0.115	0.000
110cd Wall Speaker/Strobe	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000	0	0.200	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd (Ceiling) Speaker/Strobe	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000	0	0.041	0.000
30cd (Ceiling) Speaker/Strobe	3	0.063	0.189	3	0.063	0.189	1	0.063	0.063	0	0.063	0.000
75cd (Ceiling) Speaker/Strobe	0	0.111	0.000	0	0.111	0.000	0	0.111	0.000	0	0.111	0.000
95cd (Ceiling) Speaker/Strobe	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000	0	0.134	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
15cd Wall Strobe	1	0.057	0.057	1	0.057	0.057	0	0.057	0.000	0	0.057	0.000
30cd Wall Strobe	0	0.085	0.000	0	0.085	0.000	2	0.085	0.170	0	0.085	0.000
75cd Wall Strobe	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000	0	0.135	0.000
110cd Wall Strobe	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000	0	0.182	0.000
135cd Wall Strobe	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000	0	0.205	0.000
185cd Wall Strobe	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000	0	0.253	0.000
15cd (Ceiling) Strobe	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000	0	0.018	0.000
30cd (Ceiling) Strobe	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000	0	0.022	0.000
75cd (Ceiling) Strobe	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000	0	0.070	0.000
95cd (Ceiling) Strobe	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000	0	0.075	0.000
0	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000	0	0.000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
0	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000	0	0.00000	0.000
		Total	0.509		Total	0.303		Total	0.262		Total	0.000
Circuit Length:	200			800			600			0		
Circular mils:	6530			6530			4110			4110		
Volts dropped:	0.34			0.80			0.82			0.00		
Percent voltage drop:	**1.40%**			**3.34%**			**3.44%**			**0.00%**		

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ARCHITECT OF RECORD

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ENGINEER OF RECORD

RBV FIRE ALARM UPGRADE

RANCHO BUENA VISTA HIGH SCHOOL

1601 LONGHORN DRIVE
VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln

MODEL FILE:
23-018_RBV FIRE ALARM_DRAFT.pln

PLOT DATE:
7/5/2023

REGISTERED PROFESSIONAL ENGINEER MONICA GRESE-HANSEN No. E 14781 Exp. 6-30-2025 ELECTRICAL STATE OF CALIFORNIA

#23011.01 4/22/2025

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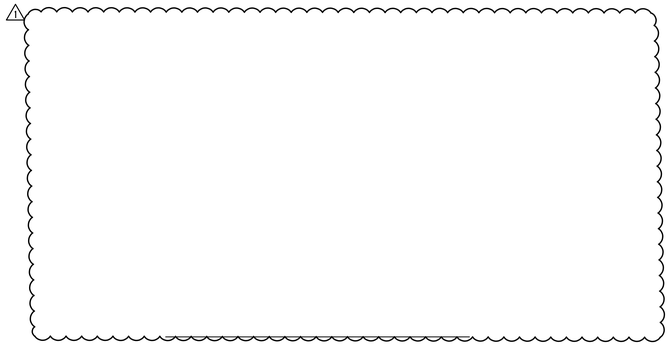
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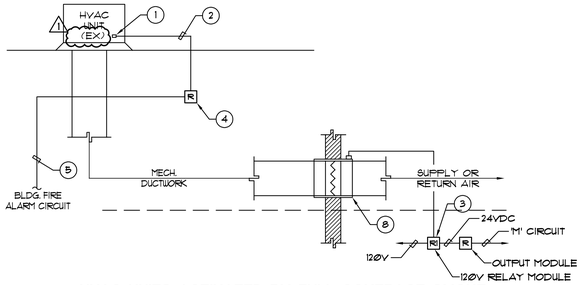
FIRE ALARM CALCULATIONS

E-5.20

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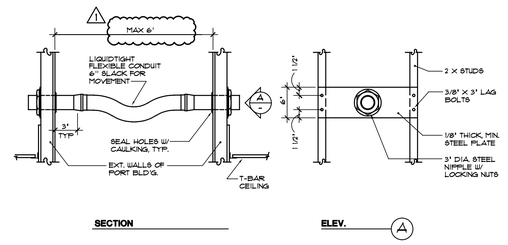


HVAC UNITS ACTIVATED BY FULL COVERAGE SMOKE DETECTION SYSTEM DAMPER CONTROL DIAGRAM

KEY NOTES:

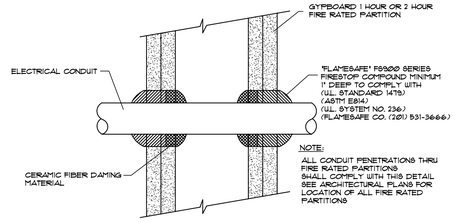
1. ALL A/C UNITS SHALL SHUT DOWN, WHETHER IN HEATING OR COOLING MODE, UPON ACTIVATION OF ANY FIRE ALARM DEVICE IN THE BUILDING INCLUDING SMOKE/HEAT DETECTORS, MANUAL STATIONS, DUCT DETECTORS, AREA DETECTORS, CONTROLLING SMOKE DAMPERS, SPRINKLER ACTIVATION. 45 SECONDS AFTER THE A/C UNITS HAVE BEEN SHUT DOWN, ALL SMOKE DAMPERS SHALL CLOSE.
2. 1/2" CONDUIT PROVIDED BY (ELECTRICAL) WITH CONTROL WIRING PROVIDED BY (FIRE ALARM). FINAL CONNECTIONS TO A/C UNIT BY (MECHANICAL) AND ALL CONNECTIONS AT FIRE ALARM DEVICES BY (FIRE ALARM) CONTRACTOR.
3. FIRE ALARM CONTROL MODULE MOUNTED AT FACP OR FA PANELS, BOXES AND INTERCONNECTING CONDUITS BY (ELECTRICAL) CONTRACTOR. WIRING BY (FIRE ALARM) CONTRACTOR.
4. FIRE ALARM CONTROL MODULE MOUNTED TO J-BOX ADJACENT TO A/C UNIT, BOXES AND INTERCONNECTING CONDUITS BY (ELECTRICAL) CONTRACTOR. WIRING BY (FIRE ALARM) CONTRACTOR.
5. 1/2" CONDUIT PROVIDED BY (ELECTRICAL) WITH CONTROL WIRING PROVIDED BY (FIRE ALARM) CONTRACTOR.
6. NOT USED
7. NOTE USED.
8. SMOKE/FIRE DAMPER (EXISTING).

DAMPER/HVAC UNIT FIRE ALARM CONTROL DIAGRAM — 1 / E5.21
NO SCALE

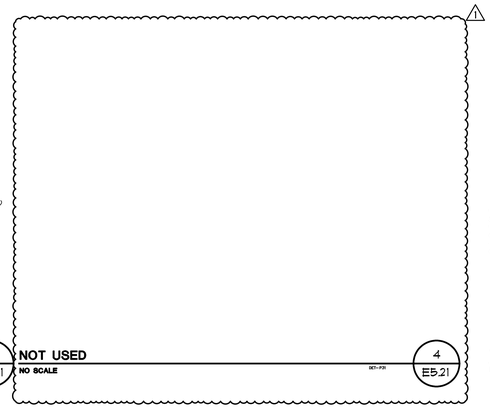


SECTION **ELEV. A**

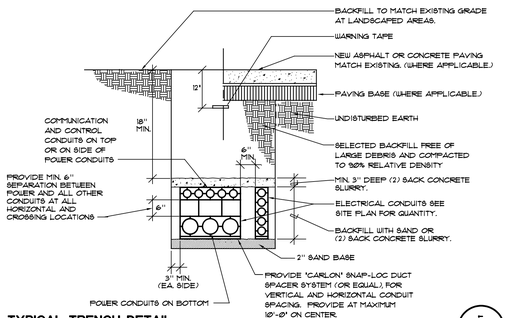
CONDUIT CONNECTIONS AT BUILDING SEPARATIONS — 2 / E5.21
NO SCALE



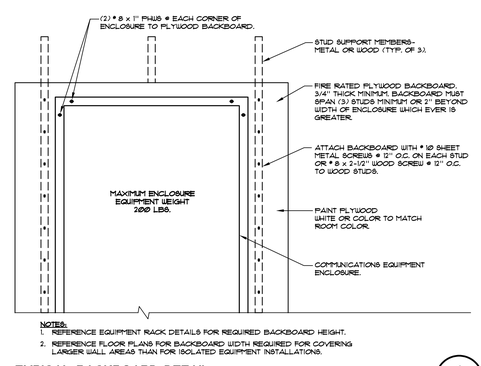
CONDUIT PENETRATION THRU FIRE RATED PARTITIONS — 3 / E5.21
NO SCALE



NOT USED — 4 / E5.21
NO SCALE

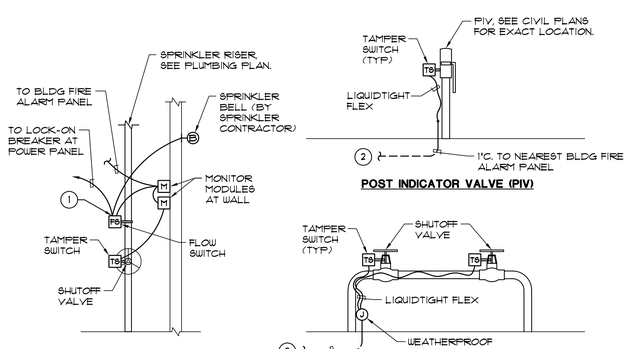


TYPICAL TRENCH DETAIL — 5 / E5.21
NO SCALE



NOTES:
1. REFERENCE EQUIPMENT RACK DETAILS FOR REQUIRED BACKBOARD HEIGHT.
2. REFERENCE FLOOR PLANS FOR BACKBOARD WIDTH REQUIRED FOR COVERING LARGER WALL AREAS THAN FOR ISOLATED EQUIPMENT INSTALLATIONS.

TYPICAL BACKBOARD DETAIL — 6 / E5.21
NO SCALE



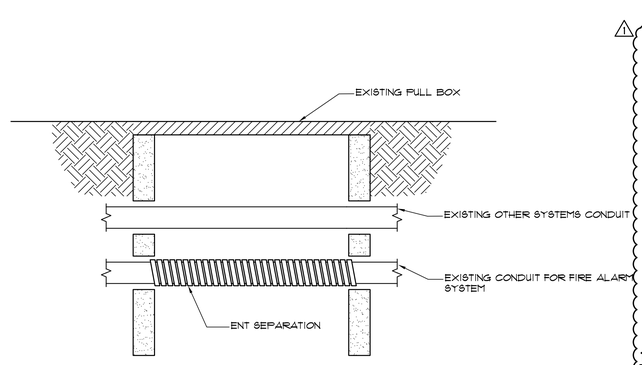
BUILDING SPRINKLER RISER

POST INDICATOR VALVE (PIV)

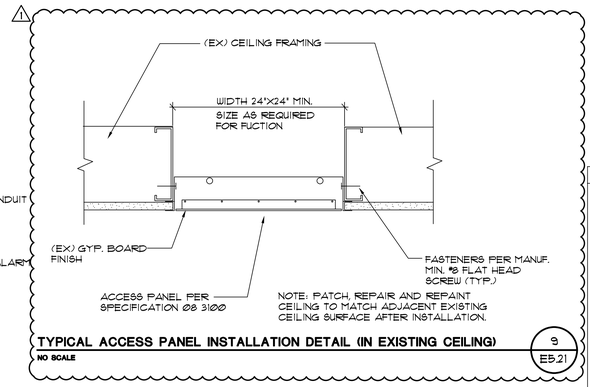
BACKFLOW PREVENTION ASSEMBLY

KEY NOTES:
1. TAMPER SWITCH AUXILIARY CONTACTS TO ACTIVATE SPRINKLER BELL.
2. PROVIDE CONNECTION TO MONITOR MODULE LOCATED IN FIRE RISER ROOM OR ABOVE NEAREST ACCESSIBLE CEILING IN NEAREST BUILDING.

TYPICAL FIRE SPRINKLER SYSTEM CONNECTION DETAILS — 7 / E5.21
NO SCALE



TYPICAL SEPARATION ON EXISTING PULLBOXES SHARING FIRE ALARM CONDUITS WITH OTHER SYSTEMS DETAIL — 8 / E5.21
NO SCALE



TYPICAL ACCESS PANEL INSTALLATION DETAIL (IN EXISTING CEILING) — 9 / E5.21
NO SCALE

KEYPLAN



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STATE OF CALIFORNIA

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RBV FIRE ALARM UPGRADE

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VISTA, CA 92081

VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #PIn
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE

TYPICAL DETAILS

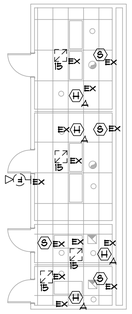
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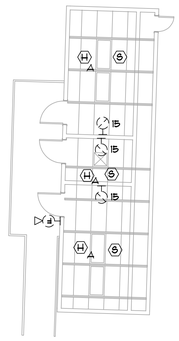
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No. E 14781
Exp. 6-30-2025
ELECTRICAL
STATE OF CALIFORNIA

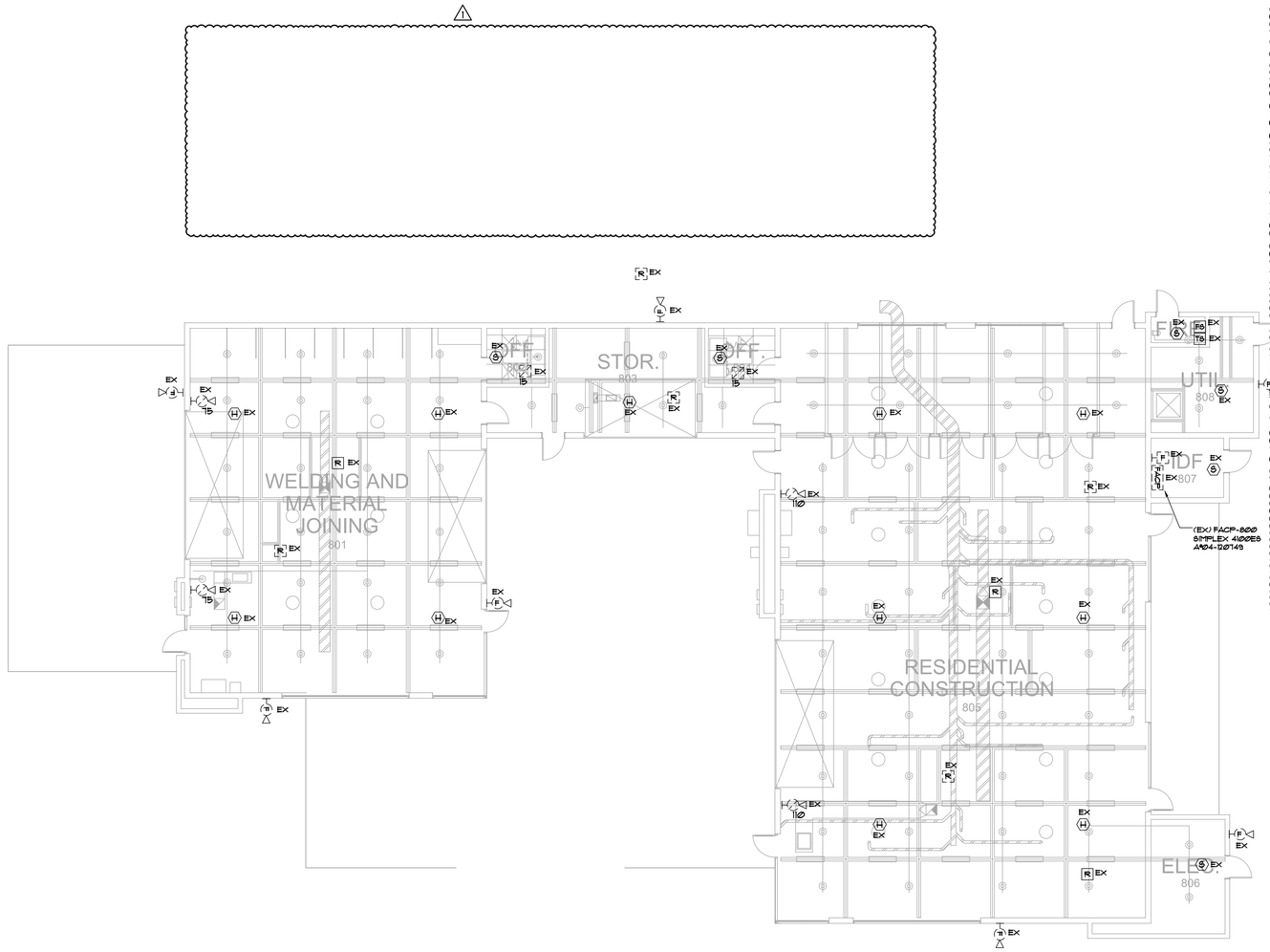
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1 DEMOLITION PLAN - FIRE ALARM
SCALE: 1/8" = 1'-0"

NORTH

0 4' 8' 16'

DEMOLITION GENERAL NOTES:

1. ALL ITEMS SHOWN ON THIS DRAWING ARE EXISTING TO BE REMOVED UNLESS OTHERWISE NOTED. SEE REQUIREMENTS BELOW FOR SCOPE OF WORK. ALL OTHER ELECTRICAL ITEMS IN THIS BUILDING ARE EXISTING TO REMAIN. MAINTAIN POWER CIRCUIT CONTINUITY UNTIL NEW SOURCE IS ENERGIZED AND READY FOR TRANSFER. REFER TO POWER AND LIGHTING PLANS.
2. ALL ELECTRICAL DEMOLITION WORK SHALL BE DIRECTED BY THE ELECTRICAL CONTRACTOR AND COMPLY WITH CFC CH 33.

GENERAL DEMOLITION REQUIREMENTS

1. WIRING DEVICES
   WHERE EXISTING DEVICES ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSE OF ALL WIRING AS REQUIRED.
2. FIRE ALARM
   WHERE EXISTING FIRE ALARM PANELS AND ASSOCIATED SMOKE, HEAT, DUCT DETECTORS, PULL STATIONS AND STROBE OR HORN UNITS ARE TO BE REMOVED, THE CONTRACTOR SHALL DISPOSED OF ALL DEVICES AND EQUIPMENT AS REQUIRED.
3. ALL BOXES, EXPOSED CONDUIT, WIRE, AND OTHER ITEMS ASSOCIATED WITH FIRE ALARM SYSTEM TO BE REMOVED, SHALL BE DISCONNECTED, REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED, UNLESS SPECIFICALLY NOTED OTHERWISE. CUT AND CAP CONCEALED CONDUITS. PATCH, SEAL AND REPAIR SURFACE TO MATCH ADJACENT AREA WHERE BOXES ARE REMOVED.

FIRE ALARM SYMBOLS LEGEND TO BE REMOVED

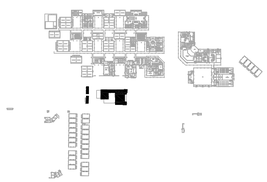
- MANUAL PULL STATION (SR: C = CONDUIT (TYP.), SR = SURFACE RACEWAY (TYP.))
- WALL MOUNTED FLASHING LIGHT STROBE
- WALL MOUNTED FLASHING LIGHT HORN/STROBE
- WALL MOUNTED WEATHERPROOF EXTERIOR HORN
- CEILING MOUNTED FLASHING LIGHT HORN/STROBE
- CEILING MOUNTED SMOKE DETECTOR
- CEILING MOUNTED HEAT DETECTOR
- HEAT DETECTOR MOUNTED ABOVE CEILING
- FACP — MAIN FIRE ALARM CONTROL PANEL
- FA — REMOTE FIRE ALARM POWER EXTENDER
- KHS — KITCHEN HOOD FIRE SUPPRESSION SYSTEM CONTROL PANEL
- ANN — REMOTE ANNUNCIATOR
- FS — FLOW SWITCH WITH [M]
- TS — TAMPER SWITCH WITH [M]
- DSM — DUAL SYNC MODULE (SEE RISER DIAGRAM FOR LOCATION)
- [R] — ADDRESSABLE RELAY MODULE
- [M] — ADDRESSABLE MONITOR MODULE

ALPHASTUDIO DESIGN GROUP
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CARLSBAD, 92009
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ARCHITECT OF RECORD
LICENSED ARCHITECT JOSHUA T. ECKLE No. C31020 EXP. 12/25 STATE OF CALIFORNIA

ENGINEER OF RECORD

KEYPLAN



REVISIONS

MARK	DATE	DESCRIPTION

PROJECT NO: #Pln
MODEL FILE: 23-018_RBV FIRE ALARM_DRAFT.pln
PLOT DATE: 7/5/2023

SHEET TITLE
DEMOLITION PLAN - FIRE ALARM

REGISTERED PROFESSIONAL ENGINEER No. E 14781 Exp. 6-30-2025 ELECTRICAL STATE OF CALIFORNIA
JOHNSON CONSULTING ENGINEERS, INC.
Power | Lighting | Multimedia
Communications | Data Networking
12875 Brookprinter Place, Suite 300
Poway, CA 92064
P 858.679.4030 | F 858.513.0559
www.jce-inc.com
#23011.01 4/22/2025

RBV FIRE ALARM UPGRADE
RANCHO BUENA VISTA HIGH SCHOOL
1601 LONGHORN DRIVE
VISTA, CA 92081
VISTA UNIFIED SCHOOL DISTRICT
1234 ARCADIA AVENUE VISTA CA 92084

E-10.9

T:\ASDG Projects\Active Projects\23-018 RBV Fire Alarm Upgrade\Archicad\23-018_RBV FIRE ALARM_DRAFT.pln

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

I. Field offices.

1.02 RELATED REQUIREMENTS

A. Section 01 5100 - Temporary Utilities.

B. Section 01 5213 - Field Offices and Sheds.

C. Section 01 5500 - Vehicular Access and Parking.

1.03 TEMPORARY UTILITIES - SEE SECTION 01 5100

A. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

1.04 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Temporary telephone service in common-use facilities for use by all construction personnel.
   2. Install one telephone line for each field office.
   3. Provide a list of important telephone numbers including police and fire departments, contractor's main office, archtiect's office, owner's office, and primary sub contractors main office.
   4. Provide superintendent with cellular telephone or portable two-way radio when away from field office.

1.05 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.
   1. Provide temporary toilets, wash facilities, and drinking water for use by construction personnel. Comply with authority having jurisdiction regarding type, quantity and maintentance of fixtures and facilities.

B. Maintain daily in clean and sanitary condition.

1.06 BARRIERS

A. Provide barriers with sound proofing to prevent unauthorized entry to construction areas as well as mitigate noise pollution into the active school site and publice right away. Barrier should be constructed to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.07 FENCING

A. Provide 6 foot (1.8 m) high fence with steel pipe posts and galvanized steel base for supporting posts. Posts to be a minimum 2-3/8" OD line posts, 2-7/8" OD corner and pull posts, and 1-5/8" OD top and bottom rails.

B. Fencing to be located around construction site and equipped with vehicular and pedestrian gates with locks.

C. Provide screen on all temporary construction fence panles to limit the visibility of the construction site from the public.

D. Minimum 2 inch, 9 gauge galvanized steel, chain link fencing fabric.

1.08 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.09 SECURITY - SEE SECTION 01 3553

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

1.10 VEHICULAR ACCESS AND PARKING - SEE SECTION 01 5500

A. Coordinate access and haul routes with governing authorities and Owner.

B. Provide and Maintain access to all fire lanes and fire hydrants, free of obstruction, during all construction activities.

C. Provide means of removing mud from vehicle wheels before entering streets.

D. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.11 WASTE REMOVAL

A. See Section 01 7419 - Construction Waste Management and Disposal, for additional requirements.

B. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

C. Provide containers with lids. Remove trash from site periodically.

D. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

E. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.12 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction indicated on drawings.

B. Erect on site at location indicated.

C. No other signs are allowed without Owner permission except those required by law.

1.13 FIELD OFFICES - SEE SECTION 01 5213

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 8 persons.

C. Provide field trailer for Inspector of Record and Bond Program Manager. Seperate offices shall be provided within the same field trailer.

D. Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.14 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 08 3100
ACCESS DOORS AND PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Wall access door and frame units.

B. Ceiling access door and frame units.

1.02 REFERENCE STANDARDS

A. ITS (DIR) - Directory of Listed Products; current edition.

B. UL (FRD) - Fire Resistance Directory; current edition.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide sizes, types, finishes, hardware, scheduled locations, and details of adjoining work.

C. Shop Drawings: Indicate exact position of each access door and/or panel unit.

PART 2 PRODUCTS

2.01 ACCESS DOOR AND PANEL APPLICATIONS

A. Walls, Unless Otherwise Indicated:
   1. Material: Steel.
   2. Size: 12 by 12 inch (305 by 305 mm), unless otherwise indicated or required by function.
   3. Standard duty, hinged door.
   4. Tool-operated spring or cam lock; no handle.
   5. In Gypsum Board: Drywall bead frame with door surface flush with wall surface.
   6. In Plaster: Drywall bead frame with door surface flush with wall surface.
   7. In Masonry: Surface mounted frame with door surface flush with frame surface.

B. Walls in Wet Areas:
   1. Material: Steel, hot-dipped zinc or zinc-aluminum-alloy coated.
   2. Size: 12 by 12 inch (305 by 305 mm), unless otherwise indicated or required by function.
   3. Standard duty, hinged door.
   4. Tool-operated spring or cam lock; no handle.

C. Fire Rated Walls: See drawings for wall fire ratings.
   1. Material: Steel.
   2. Size: 12 by 12 inch (305 by 305 mm), unless otherwise indicated or required by function.
   3. Uninsulated, single thickness door panel.
   4. Tool-operated spring or cam lock; no handle.

D. Ceilings, Unless Otherwise Indicated: Same type as for walls.

2.02 WALL AND CEILING UNITS

A. Access Doors: Factory fabricated door and frame units, fully assembled units with corner joints welded, filled, and ground flush; square and without rack or warp; coordinate requirements with assemblies that units are to be installed in.
   1. Material: Steel.
   2. Frames and flanges: 0.058 inch (1.5 mm) steel.
   3. Door panels: 0.070 inch (1.8 mm) single thickness steel sheet.
   4. Units in Fire Rated Assemblies: Fire rating as required by applicable code for the fire rated assembly that access doors are being installed.
      a. Provide products listed by ITS (DIR), UL (FRD), ITS (DIR), or UL (FRD) as suitable for the purpose indicated.
   5. Steel Finish: Primed.
   6. Hardware:

a. Hinge: Non-Fire-Rated Units: 175 degree steel hinges with removable pin.
b. Hinge: Concealed constant force closure spring type.
c. Latch/Lock: Screw driver slot for quarter turn cam latch.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that rough openings are correctly sized and located.

3.02 INSTALLATION

A. Install units in accordance with manufacturer's instructions.

B. Install frames plumb and level in openings. Secure rigidly in place.

C. Position units to provide convenient access to the concealed work requiring access.

END OF SECTION

SECTION 28 3001

FIRE ALARM VOICE EVACUATION SYSTEM

PART 1 – GENERAL

1.1 Work Included:

1.1.1 Furnish and install all equipment, accessories, and materials in accordance with these specifications and drawings to provide a complete and operating fire alarm system.

1.2 Related Work:

1.2.1 Division 26 01 00: Electrical General Provisions
1.2.2 Division 26 05 33: Conduit and Fittings
1.2.3 Division 26 05 34: Outlet and Junction Boxes

1.3 The equipment and installation shall comply with the current applicable provisions of the following standards:

NFPA 72-2022. . . . . National Fire Alarm Code with California Amendments.
CBC - 2022. . . . . California Building Code (CBC), Part 2, Title 24, CCR.
CEC - 2022. . . . . California Electrical Code, (CEC), Part 3, Title 24, CCR.
CFC - 2022. . . . . California Fire Code (CFC), Part 9, Title 24, CCR.

1.4 The system and all components shall be listed by Underwriters Laboratories, Inc. for use in Fire Protective Signaling Systems.

1.5 Only Fire Alarm Control Panel Equipment and Peripheral Field Devices have been shown on the Contract Bid Single Line Block Diagram. Specific and complete wiring between Control Equipment and Peripheral Equipment has been deleted for clarity.

1.6 Fire Alarm system and installation shall meet all of the following DSA Requirements:

1.6.1 Applicable Standard NFPA 72, as adopted and amended in CBC Chapter 35

1.6.2 A stamped set of approved fire alarm design documents shall be on the job site and used for installation.

1.6.3 Any discrepancies between the drawings and the code or recognized standards shall be brought to the attention of DSA and the architect/engineer of the project.

1.6.4 Wall mounted visible notification devices shall have their bottoms mounted at 80” minimum and 96” maximum from finished floor.

1.6.5 Wall mounted Audible devices shall have their tops mounted at 90” minimum and 100” maximum from finished floor and no closer then 6” to a horizontal structure.

1.6.6 Audible devices shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or five dBA above the maximum sound level having a duration of at least 60 seconds, whichever is greater, in every occupiable space within the building.

1.6.7 Audible devices shall be synchronized temporal code 3 pattern.

1.6.8 The contractor shall adjust/install all devices to maximize performance and minimize false alarms.

1.6.9 Visible devices shall not exceed two flashes per second and should not be slower than one flash every second. The device shall have a pulsing light source not less than 15 candela. Visible devices within 55' from each other shall be synchronized.

1.6.10 Underground and exterior conduits to have watertight fittings and wire to be approved for wet locations.

1.6.11 All fire alarm wiring shall be FPL OR FPLP (fire power limited or fire power limited plenum) as required for application. Wiring in conduit above grade may be type THHN or THWN.

1.6.12 Smoke detectors shall not be any closer than 1' from fire sprinklers or 3' from any supply diffuser. In area of construction or possible damage/contamination on newly installed fire alarm, devices shall be covered until that area is ready to be turned over to owner.

1.6.13 Fire alarm panel, remotes, and components shall be secured to mounting surfaces per manufacturers specifications. No single device shall exceed 20 lbs without special mounting details.

1.6.14 A dedicated branch circuit shall be provided for fire alarm equipment. This circuit shall be energized from the 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 alarm panel/extenders.

1.6.15 The installing contractor shall provide a completed "System Record of Completion" per NFPA 72, figure 17.8.2.

1.6.16 Fire alarm control panels and remote annunciators shall be installed with their bottoms mounted at 48" above the finished floor.

1.6.17 Microphones associated with emergency voice alarm communication systems (EVAC) shall be accessible for use. Installed in compliance with CBC sections 11B-305 and 11B-308.

1.6.18 The installing contractor shall provide system programming for supervisory monitoring per CBC section 901.6.2.

1.6.19 Supervisory monitoring shall be tested and verified as sending correct signals in conjunction with final acceptance test.

1.6.20 Owner shall be responsible for establishing a fire system monitoring contract or provisions.

1.7 Submittal shall be made **in accordance with Division 26 01 00 – Shop Drawings and Submittals.** This submittal shall include the following:

1.7.1 Complete bills of quantities, including all materials, components, devices, wiring and equipment required for this work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each item listed:

1.7.1.1 Quantity of each type of equipment item.
1.7.1.2 Quantities of 10% spare devices as per 1.17.
1.7.1.3 Description of each item.
1.7.1.4 Manufacturer's Name and Model Number.
1.7.1.5 Manufacturer's Specification Sheet.
1.7.1.6 Back box type and dimensions per device type.
1.7.1.7 California State Fire Marshall Listing Sheets for all components.
1.7.1.8 Equipment items which have individual components, will require that all component parts be listed individually.

1.8 Shop drawings shall not be provided, all work shall be installed as designed as a part of the DSA approved set of plans.

1.9 **Common submittal mistakes which will result in submittals being rejected:**

1.9.1 Not including the qualifications of the installing contractor.

1.9.2 Not including all items listed in the above itemized description.

1.9.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.9.4 Not including actual manufacturer’s catalog information of proposed products.

1.9.5 Do not include multiple manufacturers for similar products and do not indicate “or approved equal” statements, or “to be determined later” statements. The products being submitted must be the products installed.

1.10 All equipment and material shall be new and unused, and listed by Underwriter's Laboratories for the specific intended purpose. All control panel components and field peripherals shall be designed for continuous duty without degradation of function or performance. All equipment covered by this specification or noted on Installation. Drawings shall be equipment suited for the application and shall be provided by a single manufacturer or be recognized and UL listed as compatible by both manufacturers.

1.11 It will be the responsibility of the Contractor to ensure proper specification adherence for system operation, final connection, test, turnover, warranty compliance, and after-market service. The distributor of the equipment specified must be factory-trained and certified.

1.12 Basic System Functional Operation, upon operation of any automatic, manual or other initiation device the following shall occur:

1.12.1 The system alarm LED shall flash.

1.12.2 A local piezo electric signal in the control panel shall sound.

1.12.3 A backlit 80-character LCD display shall indicate all information associated with the fire alarm condition, including the alarm point and its location within the protected premises.

1.12.4 History storage equipment shall log the information associated with each new fire alarm control panel condition, along with time and date of occurrence.

1.12.5 All system output programs assigned via control by event equations to be activated by the particular point in alarm shall be executed, and the associated system outputs (alarm notification appliances and/or relays) shall be activated.

1.12.6 LED display and audible signaling at the remote annunciator indicating building, fire zone, and type of device. Annunciator shall also provide a separate audible signal for CO detection with a green flashing light, with classroom number indication.

1.12.7 Automatic retransmission to a UL central station for fire department notification.

1.12.8 Automatic shut down of air conditioning units shall be performed by control modules at each unit when required as part of a complete area coverage design scheme. Each building shall shut down all A/C units and dampers within that building as one zone.

1.13 All equipment and components shall be new, and the manufacturer's current model. The materials, appliances, equipment and devices shall be tested and listed by a nationally recognized approval agency for use as part of a protective signaling system.

1.14 All equipment and components shall be installed in strict compliance with manufacturer's recommendations. Consult the manufacturer's installation manuals for all wiring diagrams, schematics, physical equipment sizes, etc., before beginning system installation.

1.15 All equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place. Fasteners and supports shall be adequate to support the required load.

1.16 All wiring shall be installed in a conduit system.

1.17 The contractor shall provide as a part of this contract additional control modules, heat detectors, smoke detectors, CO detector, duct detectors, manual pull stations, strobes, speakers, speaker/strobes exterior speakers devices etc. along with all required programming, to equal 10% of the total quantity of devices shown on the drawings, or a minimum of three (3) for each type, whichever is greater. Installation of 50’ of conduit, boxes and all wiring for each of the devices shall be included, and required locations coordinated with CSFM final approved shop drawings. Any devices not required to be included during construction shall be delivered to the District at the completion of the project. The quantities of these devices shall be listed as a part of the Phase I submittals.

1.18 The installing contractor shall provide a copy of current documentation, indicating that the contractor installing the fire alarm systems or devices and wiring, is certified by Underwriters Laboratories (UL) in its product directories under the listing category "PROTECTIVE SIGNALING SERVICES - LOCAL, AUXILIARY, REMOTE STATION, AND PROPRIETARY.” The contractor shall be certified by the manufacturer to install and program the system. The contractor must also provide complete installation of all

wiring and equipment, and software programming. Supervised installation of the wiring, devices and/or any software programming shall not be permitted.

1.18.1 The installing contractor must also be an “authorized dealer” by the equipment manufacturer, and must have completed all required training prior to the bid of this project.

1.18.2 The fire alarm system installation shall be warranted by the manufacturer’s representative.

1.18.3 The Contractor shall have a current California C-10 or C-7 Contractor’s License, and all individuals working on this project shall have passed the Department of Industrial Relations Division of Apprenticeship Standards – “Fire / Life Safety Certification Program.”

1.18.4 The installing contractor shall provide, at the time of submittal, a letter of intent to provide an extended service warranty. This warranty shall extend for a total of three (3) years, starting at the completion, testing, and training of this project. The service warranty shall cover all material and labor to keep operational all system devices installed under this project, and shall include two (2) complete U.L. system’s tests and cleaning of all devices at year two (2) and year three (3) of the warranty. Routine cleaning of devices, other than at the two (2) specified U.L. system’s testing periods, will not be included as a part of this warranty.

1.18.5 The installing contractor shall provide, at the time of submittal, a letter indicating that the installation crew for this project meets the following NICET certifications:

1.18.5.1 25% of the installing field personnel must have completed NICET Level 2 Certification.

1.18.5.2 One of the installing field personnel and /or supervisor must have completed NICET Level 3 Certification.

1.18.5.3 Contractor shop drawings shall be signed by an individual who has completed NICET Level 4 Certification.

1.19 All conduit and standard backboxes will be furnished and installed by the Division 26 Contractor. Specialty boxes will be furnished by the equipment supplier to be installed by the Division 26 Contractor.

1.20 Equipment and materials shall be the standard product of ~~**FCI**~~ ***NOTIFIER*****.**

1.21 **Provide a ~~2-year~~ *3-year* warranty and NFPA certification testing every 6 months. Upgrade software at end of 2 years**

1.22 Alternate equipment as manufactured by any other manufacturer not specifically listed above will not be approved for use on this project.

1.23 D.S.A approved drawings are included as a part of the drawing set.

PART 2 - PRODUCTS

2.1 Main Fire Alarm Control Panel:

2.1.1 Fire alarm control panel shall be ~~FCI E3~~ ***NOTIFIER NFS2 3030*** and provide Voice Evacuation.

2.1.2 The system shall be controlled and supervised by a microprocessor based monitoring fire alarm control panel. The systems shall be addressable, field configurable, programmable and editable. The system shall continuously scan devices for change of status. Each device shall have its own unique address, but shall also be grouped by building as a separate zone for remote annunciation and alarm report purposes.

2.1.3 The system shall be a fiber network and fiber cabling shall be single mode, with capabilities, software and modem to communicate with the District-wide diagnostic and annunciation network.

2.1.4 The fire alarm control panel shall be housed in a lockable, code gauge steel cabinet with 80character LCD display, master controller operators panel, indicating lamps, silence switch and reset switch mounted on cabinet front. The fire alarm control panel shall be physically and visually located in the general office for monitoring by staff, and shall sound the "Voice Message" in all zones. Signal duration shall be field programmable and initially set at three minutes. Provide all control modules, synchronous modules, etc., to provide a complete working system per all codes that apply.

2.1.5 The fire alarm control panel shall come with standardized software for on-site customization of the system. The unit shall be capable of providing a 600-event historical log with zone or point selectable alarm verification.

2.1.6 Provide a minimum 100 watts of amplification in each FACP with a minimum of 25% spare capacity.

2.1.7 The unit shall support a minimum of 3000 intelligent addressable points and one output point, SPST contact per zone. Provide the number of modules necessary to control and supervise fire alarm devices as shown on the Drawings, as well as to provide 25% spare capacity.

2.1.8 The unit shall also provide a minimum of (2) class B strobe circuits with additional circuits as indicated on the drawings.

2.1.9 The fire alarm control panel shall be capable of providing a walk test.

2.2 The power feed for the FACP shall be 3-wire, 120volt, AC, single phase (20A circuit) permanently labeled "FIRE ALARM CONTROL POWER", terminating at the master fire alarm control and supervisory panel. The label shall be red with 1/4" high white lettering. The source circuit breaker must be provided with a lock-on device.

2.3 In addition to the AC circuit, the panel shall be equipped with a DC battery to activate an audible alarm and pilot light in case of a power failure on the AC circuit.

2.3.1 Provide external battery cabinet to house DC batteries directly below fire alarm panel when fire alarm panel cabinet cannot accommodate the battery size required.

2.4 The master fire alarm panel shall be equipped with a manual pull lever type, supervised report station.

2.5 With the exception of the manually operated report station required at the master fire alarm panel and large assembly areas, the remainder of the school facility shall be equipped with approved, electronically supervised, automatic fire detection devices, such that every room, space, including concealed spaces, such as the attic spaces above ceilings, etc., is provided with approved coverage.

2.6 TRANSPONDER PANELS shall provide voice evacuation/annunciation with a minimum 100 watts of audio amplification to support 70v speaker devices and a minimum of (2) Class B Strobe NAC circuits and be fiber networked to the system. Provide for 25% additional capacity for amplification in each Transponder panel.

2.7 REMOTE POWER SUPPLIES shall provide a minimum of (4) Class B NAC circuits.

2.7.1 Remote Power Supplies shall be provided adjacent to each Fire Alarm Control Panel that is incapable of supporting NAC strobe circuit(s). Refer to Fire Alarm Riser Diagram for quantity of strobe circuits required at each of these Fire Alarm Control Panels and provide additional Remote Power Supplies as required.

2.8 MANUAL FIRE ALARM STATIONS shall be addressable test-reset lock in order that they may be tested, and so designed that after actual emergency operation, they cannot be restored to normal, except by use of a key. An operated station shall automatically condition itself so as to be visually detected, as operated, at a minimum distance of 100 feet, front or side. Manual stations shall be constructed of die-formed, satin-finished aluminum, with operating directions provided on the cover in depressed red letters. The word FIRE shall appear on each side of the stations in depressed letters, 1/2-inch in size or larger. Stations shall be suitable for semi-flush mounting on a standard single-gang box or switch plate, and shall be provided with a terminal block for connection of fire alarm system wiring. Manual pull stations must comply with CBC sections 11B-309 and 11B-403.

2.9 SPEAKER / STROBE DEVICE shall be of the semi-flush type designed for mounting to a standard 4 11/16” deep electrical back box. Each device shall be provided with a semi-flush accessory plate. Exterior speakers shall be weatherproof. The strobe unit shall have a meantime between failure (MTBF) of 1,000 hours or greater. The strobe section shall have a minimum flash rate of approximately one flash per second, with candela rating as per UL standard 1971. Housing shall be white.

2.9.1 In areas containing two or more audible devices, or three or more visual devices, these devices shall be synchronized, Per NFPA 72, Chapter 18 California Amendments (2019).

2.9.2 Speakers/strobe devices used for Carbon Monoxide alarm must not reflect the word FIRE or have any fire symbol thereon.

2.10 SPEAKERS shall operate at 70 VRMS and provide tap setting from 1/8 to 2 watts and provide efficient design for high intelligibility at a minimum wattage across a frequency range of 300 to 8000 HZ and shall be white in color. Speakers shall be ADA, NFPA and ANSI compliant.

2.10.1 Speakers for typical classrooms shall be tapped at ¼ watt with exterior speakers tapped at 2 watts. Other areas such as Theaters, Auditoriums, Gymnasiums, Team Rooms, Cafeterias, Kitchens and all shop areas shall be tapped at ½ watt.

2.10.2 Fire Alarm Speakers used for Carbon Monoxide alarm must not reflect the word FIRE or have any fire symbol thereon.

2.11 STROBES. The strobe unit shall have a meantime between failure (MTBF) of 1,000 hours or greater. The strobe section shall have a minimum flash rate of approximately one flash per second, with candela rating as per UL standard 1971. Housing shall be white.

2.11.1 In areas containing two or more audible devices, or three or more visual devices, these devices shall be synchronized, per NFPA 72, Chapter 18 California Amendments (2019).

2.11.2 Maximum pulse duration to be 0.20 of a second with an ADAAG 4.28.3(3). Visual alarms maximum duty cycle of 40%.

2.11.3 Capable of providing minimum candela. Intensity as shown on plans (effective strength measured at the source).

2.11.4 The flash rate to be a minimum of 1 Hz and a maximum of 2 Hz per NFPA 18.5.3.1.

2.11.5 Fire Alarm Strobes used for Carbon Monoxide alarm must not reflect the word FIRE or have any fire symbol thereon.

2.12 HEAT DETECTOR DEVICES shall be analog addressable, fixed temperature x rate of rise, fixed at 200□F and a 15□F/min rate of rise. In janitor rooms equipped with kilns, devices shall be fixed at 200□F.

2.13 SMOKE DETECTOR DEVICES shall be analog addressable, photo-electric.

2.14 CO – CARBON MONOXIDE detectors shall be provided in all Group E Classrooms and provided with a sounder base to alarm individual classrooms with a 4-pulse temporal pattern as well as transmitting a signal to the staffed remote annunciator.

2.15 DUCT TYPE DETECTORS shall be analog addressable, photo-electric type, provide with remote test switch and auxiliary contacts as required for control of A/C units or smoke dampers.

2.16 DIGITAL ALARM COMMUNICATOR TRANSMITTER. The control panel shall meet the requirements of UL 864 for central station connections, and shall be UL listed for use with the fire alarm control panel. The communicator shall be connected to supervise two telephone lines, all wiring required for this connection shall be provided by the fire alarm contractor Coordinate interface with District monitoring company as required.

2.17 REMOTE ANNUNCIATOR shall be an 80 character backlit, alphanumeric, LCD readout display. The display shall include alarm, supervisory, CO detection and trouble condition LEDs and tone alert. Each condition shall have a dedicated acknowledge push button switch to silence the local tone alert but leaves the LED lights on until all conditions have been restored.

PART 3- EXECUTION

3.1 All wiring shall be (min) #18 AWG copper or as noted on drawings. All underground conductors shall be UL wet location rated for use in wet locations, West Penn “Aquaseal”

or equal. There shall be no splices in underground handholes or vaults. A multi-conductor cable rated for use in wet locations will also be acceptable. It must be labeled “FIRE ALARM” in all pull boxes, using a water-tight labeling system.

3.2 Interior, dry location wiring for low voltage initiating circuits shall be #18 AWG copper, twisted shielded pair minimum, signaling circuits shall be No. 14 AWG minimum, and wiring for 120 volt circuits shall be No. 12 AWG minimum. All wiring shall be color coded, solid copper conductor. Use of power limited cable shall be restricted to controls listed for this purpose. Single conductors shall be type THHN/THWN-2 insulated copper.

3.2.1 Relays initiating HVAC unit automatic shutdown and controlling fire/smoke dampers, door holders, fire curtains, fire/smoke vents and other systems that require connection and control from fire alarm system shall be located within three feet of the fire alarm control panel where the relays are connected. The drawings indicate diagrammatic locations for these devices.

3.3 Wire markers shall be provided for each wire connected to equipment. The marker shall be of the taped bank type, of permanent material, and shall be suitable and permanently stamped with the proper identification. The markers shall be attached in a manner that will not permit accidental detachment. Changing of wire colors within circuits shall be unacceptable.

3.4 A terminal cabinet/fire alarm panel shall be installed in the electric room for the fire alarm systems at each building. All fire alarm wiring shall terminate on UL approved strips in this terminal cabinet. All wiring shall be labeled at each termination strip. Wiring shall be configured such that all end-of-line resistors will be installed at the terminal cabinet.

3.4.1 Provide external battery cabinet to house DC batteries directly below terminal cabinet/fire alarm panel when cabinet cannot accommodate the battery size required.

3.5 Fire Sprinkler Activation detecting System(s) shall each be indicated on a separate zone in the fire alarm control panel.

3.6 Fire Alarm Control Panel and all other equipment shall be mounted with the center of all operable reset buttons, located a maximum of 48" front approach / 54" side approach above floor level.

3.7 Contractor shall provide complete wiring between all equipment.

3.8 **Any existing underground vaults the contractor is providing new work, the vaults shall be cleaned of any existing debris.**

3.9 **Prior to starting work at any site, the contractor is required to photograph the existing conditions of all areas of work, especially noting the condition of existing ceiling tiles. Any existing ceiling tiles noted as damaged at the completion of the work and not properly identified will need to be replaced by the contractor. A minimum 10% allowance will be required to be provided in the construction bid contract. Existing ceiling tiles are “Armstrong “ 755-B**

3.10 **The contractor shall protect the existing ceiling grid during construction, the ceiling tiles may only be removed, and ceiling left open for 1 week in any one space. The contractor shall clean all debris at the completion of work each day.**

3.11 **Where existing surface raceways or conduits are removed or where existing fire alarm panels are removed , the contractor shall repair and paint all wall surfaces to match the existing conditions.**

3.12 **All materials must be on site stored in a container prior to the start of any work.**

3.13 ~~**All work shall be 2nd shift and Saturdays**~~**.** ***Phase Two Construction Phase: The worksite will be available to the contractor for standard and/or swing shifts during the Phase Two period of construction from June 19, 2025 – August 10, 2025(52 days). Phase Three Construction Phase: The worksite will be available to contractor outside of instructional hours for swing shifts during the Phase Three period of construction from August 11, 2025 – December 16, 2025 (128 days).***

3.14 **All existing Fire Alarm system devices, wiring, and raceways below the ceiling are to be removed after the new system is operational and approved. Remove all existing interior and site fire alarm wiring throughout each campus, remove all cabinets and panels, and paint all of the the existing abandoned conduits and boxes above ceilings white.**

3.15 **All existing Fire alarm main panels (remove existing batteries), all remote SNAC panels, all remote annunciators and 2% of all heat detectors, 5% of all smoke detectors and (1) manual pull station of each type of existing devices are to be packaged and delivered to the district maintenance facility for stock.**

3.16 **Provide identification label on the ceiling grid identifying the location and device identification number for all above ceiling devices.**

3.17 **Provide identification of breakers serving FACP, and all remote panels. Include room location and panel breaker numbers.**

3.18 The Fire Alarm/Life Safety Installation shall comply fully with all Local, State and National Codes, and the Local Authority Having Jurisdiction (AHJ) DSA.

3.19 The Fire Alarm Control Panel and power supply shall be connected to a separate dedicated branch circuit, maximum 20 amperes. This circuit shall be labeled at the Panelboard as FIRE ALARM CIRCUIT.

3.20 The Control Panel Cabinet shall be grounded securely to a power system ground conductor. Provide a 1/2-inch conduit and 1#12 grounding conductor to the building electrical service ground bus.

3.21 Conduit shall enter into the Fire Alarm Control Panel back box only at those areas of the back box which have factory conduit knockouts.

3.22 All field wiring shall be completely supervised. In the event of a primary power failure, disconnected standby battery, removal of any internal modules, or any open circuits in the field wiring; an audible and visual trouble signal will be activated until the system and its associated field wiring are restored to normal condition.

3.23 All cables and wiring shall be listed for Fire Alarm/Life Safety use, and shall be of the type as required by and installed per CEC Article 760.

3.24 The Fire Alarm Control Panel shall be programmed to produce both 3-pulse temporal pattern and 4-pulse temporal pattern where Carbon Monoxide audible and visual notification devices are installed as part of the Fire Alarm System.

3.25 Final System Acceptance

3.25.1 Provide an NFPA Certificate of Compliance to DSA and the engineer of record. Complete fire alarm system shall comply with Chapter 14 of NFPA for testing and inspection and be sound-tested for audibility in all spaces requiring voice evacuation. This testing shall be performed in the presence of the project electrical engineer. Adjust speaker taps or provide additional speakers as required to provide correct audibility.

3.25.2 Beam detectors shall be tested by two methods:

3.25.2.1 Manual slow cover test to confirm reflector alignment is correct.

3.25.2.2 Software fire test per UL268.5 to demonstrate when signal level is reduced simulating obstruction the detector will go into alarm.

3.25.3 The system will be accepted only after a satisfactory test of the entire system has been accomplished by a Factory-Trained Distributor in the presence of a representative of the authority having jurisdiction and the Owner's representative. This contractor shall provide all personnel, ladders and testing equipment to assist the local authority in completing this test. Actuate each device and verify that the system performs as specified.

3.25.4 The Contractor will present a complete set of "as-built" Fire Alarm/Life Safety system drawings, and the factory supplied Operator's Manuals as required by the General Provisions section of this specification.

3.25.4.1 DOCUMENTATION CABINET shall be provided at the control panel and prominently labeled, “SYSTEM RECORD DOCUMENTS”. All record and testing documentation shall be stored in this cabinet. Contents shall be accessible by authorized personnel only.

3.25.5 Once the system has been tested and the certificate of compliance completed, the contract shall not be considered complete until after owner training has been completed. The contractor shall notify in writing their intent to provide the training for the system. This notification shall be given to the Division 21 Contractor, Architect and the Project Engineer a minimum of 2 weeks prior to the scheduled training session. The Division 21 Contractor and/or the architect shall be responsible for notifying the owner to confirm that the appropriate District personnel will be made available for this training session. If the Division 21 Contractor does not receive confirmation that the training session can be performed on the proposed date, then another time shall be provided. The training shall consist of the following:

3.25.5.1 Provide a minimum of one (1) four-to-six -hour training period located at the project site, to instruct District personnel in proper operation of all systems.

3.25.5.2 Provide a minimum of three (3) complete owner operation manuals for the District records.

3.25.5.3 Provide a minimum of two (2) complete as built sets of drawings for the District records.

3.25.5.4 Provide all spare parts as described in part 1 of these specifications

3.25.5.5 Provide written confirmation and proposed scheduled dates for follow up training and 1-year complete system test.

3.26 Follow up Training

3.26.1 Provide as a part of this contract, the follow up instructional training period within six (6) months after the final acceptance of the systems. This training shall include a minimum of one four-to-six-hour training period to instruct District personnel in proper operation of all systems and shall instruct the District technicians how to repair any non-operational parts of the system as required. All defective parts shall be replaced at no cost to the owner.

3.26.2 Contractor shall also include (2) additional site visits within the first year to adjust speaker output on a space by space basis as requested by the owner.

END OF SECTION