

# DONLON ELEMENTARY SCHOOL CAMPUS WIDE FIRE ALARM REPLACEMENT

4150 DORMAN ROAD, PLEASANTON, CA 94588 PLEASANTON UNIFIED SCHOOL DISTRICT

DSA FILE NUMBER 01-32 DSA APPLICATION NUMBER 01-119913

# **OPSC TRACKING NUMBER 75101-104**

### **GENERAL NOTES**

CONTRACTOR SHALL VISIT THE PROJECT AREA IN ORDER TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND THE REQUIREMENTS OF THE PROJECT. THE CONTRACTOR MAY CONTACT THE ARCHITECT DURING THE BIDDING PHASE REGARDING CLARIFICATIONS AND PROJECT REQUIREMENTS.

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

CONTRACTOR SHALL REIMBURSE THE OWNER FOR REPAIR AND REPLACEMENT, INCLUDING ARCHITECT'S FEES, FOR ANY DAMAGE CAUSED TO STRUCTURES, LANDSCAPE, SITE WORK, OR EXISTING SYSTEMS TO REMAIN, AS THE RESULT OF CONSTRUCTION OPERATIONS.

ALL EXISTING CONDITIONS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND BUILDING DATA AT THE JOB SITE. ANY DISCREPANCIES REQUIRING MODIFICATION TO THE CONSTRUCTION DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY. NO MODIFICATIONS SHALL BE MADE BY THE CONTRACTOR WITHOUT PRIOR APPROVAL FROM THE ARCHITECT.

COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVED LOCATION OF JOB SITE ACCESS, PARKING, AND LOCATION OF CONTRACTOR'S EQUIPMENT AND MATERIAL STORAGE AREA. SEE SITE PLAN FOR ADDITIONAL NOTES.

### UTILITY SHUT-DOWNS AND CONNECTIONS

ALL REQUIRED UTILITY SHUT DOWNS SHALL HAVE PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE. REQUEST SHALL BE SUBMITTED WITH ADEQUATE ADVANCE NOTICE PER PROJECT REQUIREMENTS.

THE OWNER/OPERATOR AND CONTRACTOR SHALL BE AWARE THAT BUILDINGS CONSTRUCTED PRIOR TO 1978 (OR THERE ABOUT) POSSIBILITY CONTAIN ASBESTOS IN SOME EXISTING CONSTRUCTION MATERIALS. AND WILL LIKELY BE ENCOUNTERED DURING ALTERATIONS OR REMODELING.

UNDER CALIFORNIA TITLE 8, THE OWNER AND CONTRACTOR BOTH HAVE RESPONSIBILITIES TO DETERMINE THE EXISTENCE OF ASBESTOS CONTAINING MATERIALS IN AREAS TO BE ALTERED OR REMODELED PRIOR TO COMMENCEMENT OF WORK AND TO TAKE APPROPRIATE MEASURES TO PROTECT PERSONNEL. CAL-OSHA HAS JURISDICTION OVER ASBESTOS RELATED WORK. ASBESTOS RELATED WORK SHALL BE DONE IN ACCORDANCE WITH CALIFORNIA GENERAL INDUSTRIAL SAFETY ORDERS, TITLE 8, SECTION 341.6 THROUGH 341.14. ASBESTOS IN THE WORK ENVIRONMENT IS REGULATED BY TITLE 8, SECTION 5208.

THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AND DISTRICT REGULATION 11-2-401.3 REQUIRES EVERY RENOVATION INVOLVING THE REMOVAL OF 100 SQ.FT., LN.FT, OR GREATER OF REGULATED ASBESTOS CONTAINING MATERIAL AND FOR EVERY DEMOLITION (EVEN WHEN NO ASBESTOS IS PRESENT), A NOTIFICATION MUST BE SENT TO THE BAAQMD AT LEAST 10 WORKING DAYS PRIOR TO COMMENCEMENT OF DEMOLITION / RENOVATION.

### ALL BUILDING MATERIALS MUST BE ASBESTOS FREE.

THESE DOCUMENTS DO NOT ADDRESS CONTAINMENT FOR EXISTING CONSTRUCTION. THE OWNER'S ABATEMENT SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR THE DETECTION, REMOVAL, AND THE DISPOSAL OF ANY EXISTING ASBESTOS MATERIAL. ARCHITECTURAL AND ENGINEERING FEES FOR ADDITIONAL DESIGN EFFORT TO OBTAIN STATE APPROVALS, AS WELL AS THE COST OF ANY REPAIRS, FOR DAMAGE CAUSED OR REPLACEMENT OF EXISTING SYSTEMS TO REMAIN DUE TO WORK PERFORMED BY THE ASBESTOS ABATEMENT SUBCONTRACTOR, SHALL BE THE RESPONSIBILITY OF SAID SUBCONTRACTOR.

### CONSTRUCTION SCHEDULING

CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION OPERATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO SCHEDULING AND START OF THE WORK. CONTRACTOR SHALL PROVIDE PROTECTION TO ALL EXISTING SPACES AND SYSTEMS WHICH ARE IN USE, ADJOINING THE PROJECT, AND NOT PART OF THE PROJECT.

### **INTERIOR FINISHES**

INTERIOR FINISHES AND ALL WALL COVERING MATERIAL SHALL CONFORM TO CCR TITLE 24, PART 2, CHAPTER 8.

PIPES, DUCTS AND CONDUIT - SUPPORT AND BRACING PIPES, DUCTS, AND CONDUITS SHALL BE SUPPORTED AND BRACED PER THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", OPM 0052-13 SEISMIC

### DRILLED-IN EXPANSION ANCHORS

BRACING AND SUPPORT SYSTEMS.

WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.

### TITLE 24 COMPLIANCE

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS (2019 CBC). SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR. A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.

ADMINISTRATIVE REQUIREMENTS FROM PART 1., TITLE 24, C.C.R. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT, AND APPROVED BY DSA, AS PER SECTION 4-338 - A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY DSA SHALL PROVIDE CONTINUOUS INSPECTION OF WORK, PER SECTION 4-342.

- A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT SHALL CONDUCT ALL REQUIRED TEST AND INSPECTIONS FOR THE - SPECIAL INSPECTION PER SECTION 4-333 (C)

- CONTRACTOR SHALL SUBMIT VERIFIED REPORT OR SECTION 4-336 & 4-343

- ADMINISTRATION OR CONSTRUCTION PER PART 1. TITLE 24. C.C.R. - DUTIES OF ARCHITECT, STRUCTURAL ENGINEER, OR PROFESSIONAL ENGINEER PER SECTION 4-333 (A) AND 4-341 - DUTIES OF CONTRACTOR PER SECTION 4-343 - VERIFIED REPORTS PER SECTION 4-343 AND 4-336 A COPY OF PARTS 1 TO 5 OF TITLE 24 SHALL BE KEPT AND AVAILABLE IN

THE FIELD DURING CONSTRUCTION - DSA SHALL BE NOTIFIED AT START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE PER SECTION 4-331 - SUPERVISION BY DSA PER SECTION 4-334 - DSA IS NOT SUBJECT TO ARBITRATION

### GENERAL NOTES, cont.

- ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY DSA NO CHANGES OR REVISIONS SHALL BE MADE FOLLOWING WRITTEN APPROVAL WHICH AFFECTS ACCESS COMPLIANCE ITEM UNLESS SUCH CHANGES TO REVISIONS ARE
- SUBMITTED TO DSA FOR APPROVAL. SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE SUBMITTED AS A
- CONSTRUCTION CHANGE DOCUMENT OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY THE FOLLOWING:
- -- ARCHITECT OR ENGINEER OF RECORD STRUCTURAL ENGINEER (WHEN APPLICABLE)
- -- DELEGATED PROFESSIONAL ENGINEER
- MATERIALS AND THEIR INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES. PER CBC 11B-104.1 "ALL DIMENSIONS ARE SUBJECT TO CONVENTIONAL INDUSTRY TOLERANCES EXCEPT WHERE THE REQUIREMENT IS STATED AS A RANGE WITH SPECIFIC MINIMUM AND MAXIMUM END POINTS.

### COMPLIANCE WITH LOCAL ORDINANCES

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

ABOVE FINISHED FLOOR LAMINATE LAVATORY ACOUSTIC TILE MACHINE BOLT ADJUSTABLE MACHINE SCREW MANHOLE **ANCHOR BOLT** APPROX APPROXIMATELY MARKER BOARD ASPHALTIC CONCRETE MECHANICAL BENCH MARK MINIMUM MISCELLANEOUS BOTH WAYS BUILDING NOMINAL BUILT-UP ROOFING NOT IN CONTRACT CEILING NOT TO SCALE CEMENT NO. or # NUMBER C.C or O.C. CENTER TO CENTER OCCUPANT(CY) CENTERLINE ON CENTER CER. TILE CERAMIC TILE OPENING CLEANOUT OPPOSITE C.O.T.G. CLEANOUT TO GRADE OPPOSITE HAND CLEAR O.F.O.S. OUTSIDE FACE OF STUD C.A.H.R. CLEAR ALL HEART O.H.W.S. OVAL HEAD WOOD SCREW REDWOOD OVERFLOW DRAIN and/or COLD WATER OUTSIDE DIAMETER COLUMN OWNER FURNISHED and COM. COMMON CONTRACTOR INSTALLED CONCRETE CONST. CONSTRUCTION PARTITION CONSTRUCTION HEART PLATE CONSTRUCTION JOINT PENNY (NAILS) **CONTINUOUS** PLASTER CONTR. CONTRACTOR PLYWD. PLYWOOD CTR. COUNTER P.V.C. POLY VINYL CHLORIDE COUNTER SUNK PRESSURE TREATED PROPERTY LINE DIAMETER R. or RAD. RADIUS DIMENSION R.W.L. RAIN WATER LEADER DISABLED ACCESS RWD./R.W. REDWOOD REINF. REINFORCING DOWNSPOUT REQUIRED DRAWING RETURN AIR GRILLE DRINKING FOUNTAIN RIM ELEVATION and/or DOUGLAS FIR ROOF DRAIN E.W. **EACH WAY** ROUGH OPENING ELECTRIC or ELECTRICAL R.H.M.S. ROUND HEAD METAL SCREW ELEV. ELEVATION R.H.W.S. ROUND HEAD WOOD SCREW ENCLOSE and/or ENCLOSURE SSD. SEE STRUCTURAL DRAWINGS S.T.S.M.S. SELF TAPPING SHEET EQUIPMENT EXISTING SHEATHING **EXPANSION** SHEET METAL **EXPANSION JOINT** SHEET METAL SCREW **EXPOSED** S.O.V. SHUT OFF VALVE **EXTERIOR** FACE OF CONCRETE SOLID CORE FACE OF MASONRY **SPECIFICATION** FACE OF STUD SQUARE F.O.F. FACE OF FINISH SQUARE FEET STAGGERED FINISHED FLOOR STANDARD FINISH SLAB STAINLESS STEEL FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET STORAGE STRUCT. STRUCTURAL F.H.M.S. FLAT HEAD METAL SCREW F.H.W.S. FLAT HEAD WOOD SCREW THRES. THRESHOLD TONGUE & GROOVE FLOOR DRAIN TOOLED JOINT FOOTING TOP OF BEAM FOUNDATION TOP OF CURB or CONCRETE T.O.C. GALVANIZED T.O.S. TOP OF STEEL or SHEATHING GALVANIZED IRON T.O.W. TOP OF WALK GAUGE TYPICAL GLASS UNLESS OTHERWISE NOTED U.O.N. GLU-LAM GLUE-LAMINATED UNLESS OTHERWISE SHOWN GRADE VENT THROUGH ROOF GYP. BD. GYPSUM BOARD VERT. VERTICAL HARDWARE VERTICAL GRAIN VERIFY IN FIELD HFIGHT VINYL COMPOSITION TILE **HOLLOW CORE** VINYL WALL COVERING V.W.C. HOLLOW METAL HORIZ. HORIZONTAL VOICE OVER INTERNET PROTOCOL V.O.I.P. HOSE BIBB

WATER CLOSET

WATER HEATER

WATER RESISTANT

WELDED WIRE MESH

WINDOW DIMENSION

WATERPROOF

WITH

WITHOUT

WOOD

W/O

INSIDE DIAMETER

INSULATION

JOIST HANGER

KILN DRIED

INTERIOR

INVERT

JOINT

# **BUILDING CODES** AND STANDARDS:

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R. 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, C.C.R. (2018 INTERNATIONAL BUILDING CODE, VOLUMES 1 AND 2, WITH 2019 CALIFORNIA AMENDMENTS.) 2019 CALIFORNIA ELECTRIC CODE (CEC), PART 3, TITLE 24, C.C.R.

(2018 NATIONAL ELECTRIC CODE WITH 2019 CALIFORNIA AMENDMENTS). 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, C.C.R. (2018 UNIFORM MECHANICAL CODE WITH 2019 CALIFORNIA AMENDMENTS).

2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, C.C.R. (2018 UNIFORM PLUMBING CODE WITH 2019 CALIFORNIA AMENDMENTS). CALIFORNIA ENERGY CODE (CENC), PART 6, TITLE 24, C.C.R. 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R. (2018 INTERNATIONAL FIRE CODE WITH 2019 CALIFORNIA AMENDMENTS)

CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24, 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24, C.C.R. 2016 ASME A17.1 (W/A17.1a/CSA B44a-08 ADDENDA) SAFETY CODE FOR ELEVATORS AND ESCALATORS

2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (28 CFR PART 35 FOR TITLE II ENTITIES)

CCR TITLE-19, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

NFPA 13	INSTALLATION OF SPRINKLER SYSTEMS	2016 EDITION
-	(CA AMENDED)	
NFPA 14	INSTALLATION OF STANDPIPE & HOSE SYSTEMS	2016 EDITION
NFPA 17	(CA AMENDED) DRY CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION
NFPA 17 NFPA 17A	WET CHEMICAL EXTINGUISHING SYSTEMS	2017 EDITION 2017 FDITION
NFPA 17A NFPA 20	STATIONARY FIRE PUMPS TO FIRE PROTECTION	2016 EDITION
NFPA 20 NFPA 22	WATER TANKS FOR PRIVATE FIRE PROTECTION	2013 EDITION
NFPA 22 NFPA 24	PRIVATE FIRE SERVICE MAINS	2013 EDITION 2016 EDITION
NFPA 24	(CA AMENDED).	2010 EDITION
NFPA 25	INSPECTION, TESTING AND MAINTENANCE OF	2013
INI FA 23	WATER BASED FIRE PROTECTION SYSTEMS	CALIFORNIA
	WATER BASED FIRE FROTE CHOICE STOTE MIS	EDITION
NFPA 72	NATIONAL FIRE ALARM CODE	2016 EDITION
14117772	(CA AMENDED)	2010 EDITION
NFPA 80	FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
NFPA 92	STANDARD FOR SMOKE CONTROL SYSTEMS	2015 EDITION
NFPA 110	EMERGENCY AND STANDBY POWER SYSTEMS	2016 EDITION
NFPA 170	STANDARD FOR FIRE SAFETY AND EMERGENCY	2018 EDITION
	SYMBOLS	
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING	2015 EDITION
	SYSTEMS	
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
ICC 200	STANDADDS FOR BLEACHEDS FOLDING AND	2017 EDITION
ICC 300	STANDARDS FOR BLEACHERS, FOLDING AND	2017 EDITION

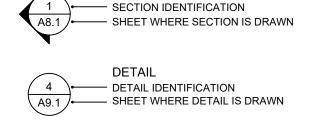
FM 12-10-1 POWER OPERATED EXIT DOORS	SCOPIC SEATING, AND GRANDSTAN	TEL		
FM 12-10-2 SINGLE POINT LATCHING OR LOCKING DEVICE	SINGLE POINT LATCHING OR LOCK	12-10-2	M 12	F۱
FM 12-10-3 EMERGENCY EXIT & PANIC HARDWARE	EMERGENCY EXIT & PANIC HARDW.	12-10-3	M 12	۲

UL 38	MANUAL OPERATING SIGNAL BOXES	1999/2005 EDITION
UL 268	SMOKE DETECTORS FOR FIRE PROTECTIVE	2009 EDITION
	SIGNALING SYSTEMS	
UL 268A	SMOKE DETECTORS DUCT APPLICATIONS	1998/2003 EDITION
UL 300	FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS	2005 (R2010)
	FOR PROTECTION OF COMMERCIAL COOKING	
	EQUIPMENT	
UL 305	PANIC HARDWARE	2012 EDITION
UL 464	AUDIBLE SIGNALING DEVICES FOR FIRE ALARM	
	AND SIGNALING SYSTEMS, AND ACCESSORIES	2003 EDITION
UL 521	HEAT DETECTORS FOR FIRE PROTECTIVE	1999 EDITION
	SIGNALING SYSTEMS	
111 064	CONTROL LINITS FOR FIRE DROTECTIVE	2002 EDITION

### 2003 EDITION UL 864 CONTROL UNITS FOR FIRE PROTECTIVE SIGNALING SYSTEMS (W/ REVISIONS THROUGH DEC. 2014) UL 1971 SIGNALING DEVICES FOR THE HEARING IMPAIRED 2002 EDITION COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION WILL

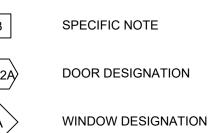
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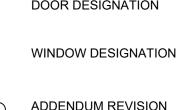
# SYMBOLS LEGEND





### **ROOM IDENTIFICATION** CLASSROOM— ROOM NAME 102 ROOM NUMBER





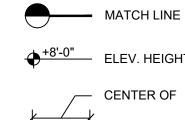
ADDENDUM REVISION



FINISH NUMBER SEE SPECS AND I.E. DWGS.







FACE OF

# PROJECT SUMMARY

REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND EM/VOICE EVACUATION

# THERE ARE NO DEFERRED SUBMITTALS FOR THIS PROJECT.

**DESIGN TEAM** 

SUGIMURA FINNEY ARCHITECTS 2155 SOUTH BASCOM AVENUE SUITE 200 CAMPBELL, CALIFORNIA 95008 (408) 879-0600 (408) 377-6066 FAX ATTN: MARK FINNEY MARK@SUGIMURA.COM

**ELECTRICAL AND FIRE ALARM ENGINEER AURUM CONSULTING ENGINEERS** 1798 TECHNOLOGY DRIVE, SUITE 242 SAN JOSE, CA 95110 (408) 564-7925

# DRAWING INDEX

T3 SITE PLAN - FIRE LIFE SAFETY

FA0.1 FIRE ALARM SYMBOLS, ABBRE., EQUIPMENT LIST, OPERATIONAL MATRIX, DETAILS & NOTES FA0.2 FIRE ALARM DETAILS

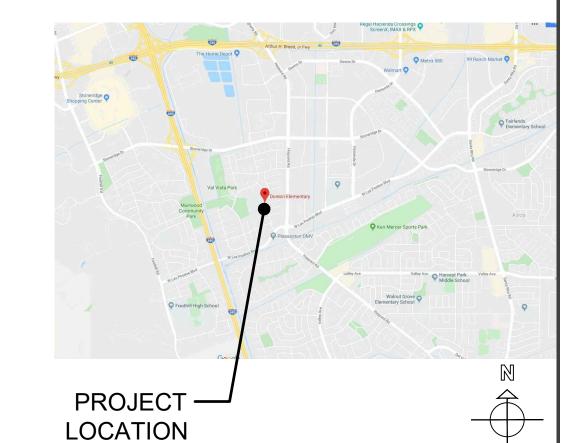
FA1.1 FIRE ALARM RISER DIAGRAM FA1.2 FIRE ALARM RISER DIAGRAM FA1.3 BATTERY & VOLTAGE DROP CALCULATIONS

FA2.1 FIRE ALARM SITE PLAN FA3.1 FIRE ALARM DEMOLITION PLAN FA4.1 FIRE ALARM PLAN - BUILDING C FA4.2 FIRE ALARM PLAN - BUILDING B

FA4.3 FIRE ALARM PLAN - BUILDING A, D, E, F & G

### SHEET TOTAL = 12

### **VICINITY MAP**



STATEMENT OF GENERAL

CONFORMANCE FOR ARCHITECTS / ENGINEERS WHO UTILIZE PLANS. INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND / OR OTHER CONSULTANTS APPLICATION NO.: 01-119913 ☑ THE DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET ☐ THIS DRAWING, PAGE OF SPECIFICATIONS / CALCULATIONS HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS

THIS STATE. IT HAS BEEN EXAMINED BY ME FOR: ) DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND

WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN

2) COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT. THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336, 4-341 AND 4-344" OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B))

12/01/2021

9/30/2023

EXPIRATION DATE

☐ THIS DRAWING OR PAGE IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND X HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND

LICENSE NUMBER

SPECIFICATIONS.

**CHECKED BY** 

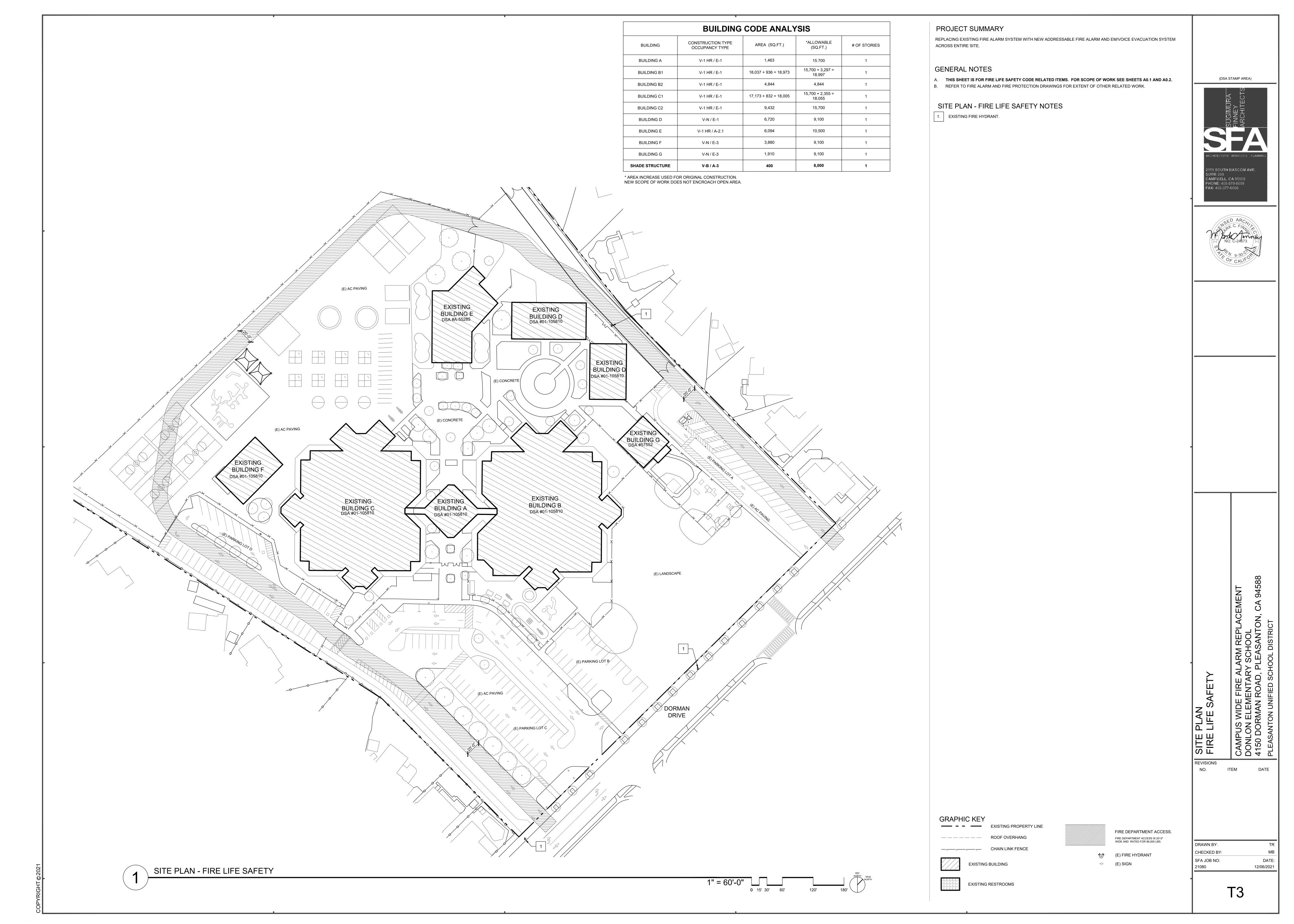
REVISIONS

WIDI ELEN RMAN

(DSA STAMP AREA)

FAX: 408-377-6066

SFA JOB NO: 12/06/2021



	FIRE ALARM EQUI	PMENT	LIST
SYMBOL	DESCRIPTION AND MODEL NUMBER	MFGR'S PART No.	CSFM LISTING
FACP	ADDRESSABLE FIRE ALARM CONTROL PANEL, NOTIFIER NFS2 SERIES. UDACT, FIBER MODULES FOR EACH AMPLIFIER CONNECTION. INSTALL SEMI-FLUSH MOUNTING CABINET, CAB-4 SERIES. PROVIDE & INSTALL FIRE ALARM DOCUMENT CABINET NEXT TO FACP.	NFS2-3030	7165-0028:0224
[DVC]	DIGITAL VOICE COMMAND CONTROL SYSTEM WITH DIGITAL AUDIO LOOP TECHNOLOGY, WITH UP 8 CHANNELS OF AUDIO AND UP TO 5 CHANNELS OF FIREFIGHTER TELEPHONE COMMUNICATIONS, LOCAL KEYPAD FOR LOCAL ANNUNCIATION AND CONTROLS (DVC-KD).	NOTIFIER DVC-EM	7165-0028:0224
[ANN]	SEMI FLUSH FIRE ALARM REMOTE ANNUNCIATOR WITH 640 CHARACTER LIQUID CRYSTAL DISPLAY. WHITE FINISH NOTIFIER LCD SERIES.	LCD-160	7165-0028:0224
MIC	SEMI FLUSH FIRE ALARM REMOTE MICROPHONE. PROVIDE & INSTALL INSIDE STAND ALONE CABINET.	RM-1SA	7165-0028:0224
RPS	10.0A AUXILIARY POWER SUPPLY WITH 4 NAC OUTPUT CIRCUITS AND BUILT-IN SYNCHRONIZATION. NOTIFIER PSE-10 SERIES.	PSE-10	7315-0028:0513
DAA	50 WATT, 70.7VRMS DIGITAL AUDIO AMPLIFIER WITH CHARGING POWER SUPPLY AND 2 CLASS B OR 2 CLASS A OUTPUTS. NOTIFIER DAA SERIES.	DAA2-5070	7165-0028:0224
<b>②</b>	ADDRESSABLE PHOTO ELECTRIC FIRE ALARM SMOKE DETECTOR AND BASE, NOTIFIER FSP-951 SERIES.	FSP-951	7272-0028:0503
<b>(</b> )	ADDRESSABLE FIRE ALARM HEAT DETECTOR AND BASE, 135 DEG. FIXED TEMPERATURE AND RATE-OF RISE, NOTIFIER FST-951 SERIES.	FST-951	7270-0028:0502
<b>③</b> co	ADDRESSABLE MULTI-CRITERIA SMOKE/CARBON MONOXIDE DETECTOR, NOTIFIER FCO-951 SERIES.	FCO-951(A)	7272-0028:0510
H →DH	ADDRESSABLE REFLECTOR-TYPE LINEAR OPTICAL BEAM SMOKE DETECTOR, NOTIFIER FS-OSI-RI SERIES.	FS-OSI-RI	7260-0028:0509
M	ADDRESSABLE MONITOR MODULE NOTIFIER FMM-1 SERIES.	FMM-1	7300-0028:0219
С	ADDRESSABLE CONTROL MODULE NOTIFIER FCM-1 SERIES.	FCM-1	7300-0028:0219
¤	WALL MOUNTED MULTI-CANDELA, STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 110 CANDELA. SYSTEM SENSOR, SRL SERIES.	SRL	7125-1653:0504
$\mathbf{z}_{\mathbf{c}}$	CEILING MOUNTED MULTI-CANDELA STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA. SYSTEM SENSOR, SCRL SERIES.	SCRL	7125-1653:0504
<b>∨</b>	WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 & 110 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSR SERIES.	SPSR	7320-1653:0505
× ×	CEILING MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 & 115 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSCR SERIES.	SPSCR	7320-1653:0505
<b>∇</b> WP	WALL MOUNTED WEATHERPROOF FIRE ALARM/VOICE EVACUATION SPEAKER WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/2, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPRK SERIES.	SPRK	7320-1653:0201
EOL	END OF LINE DEVICE.	-	-

### FIRE ALARM GENERAL NOTES

- 1. WIRING MUST BE LISTED FOR USE AS REQUIRED BY TITLE 24/CEC, ARTICLE
- 2. WIRE USED IN WET LOCATIONS SHALL BE OF AN APPROVED TYPE IN ACCORDANCE WITH 3-310-8, T24/CEC (I.E. THHW OR EQUAL).
- 3. UNDER GROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRES APPROVED FOR WET LOCATION.
- 4. ALL CONDUCTORS SHALL BE ROUTED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS, MINIMUM CONDUIT SIZE SHALL BE 3/4."
- 5. THE CONDUIT AND WIRE SHOWN ON THESE PLANS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE

FIELD TO SUIT FIELD CONDITIONS. "AS-BUILT" PLANS SHALL BE MAINTAINED

- AND BE PROVIDED AS REQUIRED BY THE PROJECT INSPECTOR OF RECORD. PENETRATIONS OF FIRE RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH CALIFORNIA BUILDING CODE, CHAPTER 7, TITLE 24. PROVIDE DETAILS OF THROUGH PENETRATION FIRE-STOP SYSTEMS FOR ALL
- PIPE/CABLE/CONDUIT PASSING THROUGH FIRE RATED WALLS/FLOORS REQUIRING PROTECTED OPENINGS.
- 7. ALL DEVICES SHALL BE "CSFM" LISTED.
- 8. EXTERIOR DEVICES SHALL BE LISTED FOR EXTERIOR USE BY "CSFM."
- 9. AUDIBLE FIRE ALARM SOUND LEVEL SHALL BE AT LEAST 15DBA ABOVE THE AVERAGE SOUND LEVEL.
- 10. AUDIBLE SIGNALS INTENDED FOR OPERATION IN THE PUBLIC SHALL HAVE A SOUND LEVEL OF NOT LESS THAN 75DBA AT 10 FEET OR MORE THAN 110DBA AT THE MINIMUM HEARING DISTANCES FROM THE AUDIBLE APPLIANCE.
- 11. WHERE VISUAL DEVICES ARE REQUIRED, VISUAL DEVICE SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. NO PLACE IN ANY ROOM SHALL BE MORE THAN 50 FEET FROM A DEVICE.
- 12. APPROVED BY THE "DIVISION OF THE STATE ARCHITECT/OFFICE OF REGULATION SERVICES." CONTRACTOR SHALL PROVIDE COPIES OF APPROVED PLANS TO THE PROJECT INSPECTOR OF RECORD PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING TO ENGINEER PRIOR TO PURCHASE FOR REVIEW. THE FIRE PROTECTION SYSTEM SHALL NOT BE INSTALLED UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED TO AND RECEIVED BY THE ENGINEER OF RECORD.
- 13. FINAL ALARM TEST SHALL BE WITNESSED BY THE DSA INSPECTOR OF RECORD (IOR). BOTH THE DSA INSPECTOR OF RECORD (IOR) AND THE LOCAL FIRE AUTHORITY SHALL BE NOTIFIED OF DATE AND TIME OF FINAL FIRE ALARM TESTING BY THE FIRE ALARM CONTRACTOR, FIRE ALARM CONTRACTOR SHALL PROVIDE "RECORD OF COMPLETION" TO THE INSPECTOR OF RECORD (IOR)/DSA AFTER COMPLETION OF OPERATIONAL ACCEPTANCE TEST.
- 14. POWER SERVICE SHALL BE ON A DEDICATED, 120V BRANCH CIRCUIT, WITH A RED MARKING AND IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL."
- 15. AUTOMATIC FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY CFC CHAPTER 80. 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.
- 16. EXISTING FIELD DEVICES AND FACP SHALL REMAIN IN PLACE UNTIL NEW FIELD DEVICES ARE IN PLACE AND NEW WIRING HAS BEEN HOMERAN TO NEW LOCATION OF FACP. COORDINATE THE RELOCATION OF THE FACP TO MINIMIZE THE DOWN TIME OF FIRE ALARM SYSTEM. CONTRACTOR SHALL COORDINATE WITH SCHOOL DISTRICT TO PROVIDE AN APPROVED 24 HOUI FIRE WATCH UNTIL NEW FIRE ALARM SYSTEM IS OPERATIONAL.

### GENERAL CONSTRUCTION NOTES

- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
- 2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY
- CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BIDDING AND ALLOW FOR ALL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN INFORMATION AND BE FAMILIAR WITH ALL OTHER TRADES WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY AND PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
- CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE
- ACCURATE "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT. 6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO
- PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK.
- CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
- 10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS.
- 11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12s WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR ROUGH ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
- 12. ALL BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS. SHARED NEUTRALS ON MULTIWIRE CIRCUITS IS NOT ALLOWED.

NECESSARY. WHERE IT IS NECESSARY TO CUT OR BORE EXISTING STRUCTURAL WALLS FOR NEW ELECTRICAL

- 13. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID
- 14. CONTRACTOR SHALL PROVIDE IN EVERY NEW EMPTY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION.

15. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. CUT AND PATCH EXISTING WALLS WHERE

- WORK OBTAIN PERMISSION FROM THE ARCHITECT PRIOR TO STARTING WORK. REUSE EXISTING CONDUIT 16. WHERE IT IS NOT POSSIBLE TO REUSE EXISTING CONDUIT OR RUN NEW CONCEALED CONDUIT USE
- APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.

17. EXTENSION RINGS OR RESET BOXES TO BE FLUSH WITH NEW WALL THICKNESS.

18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING UNDERGROUND SYSTEMS (GAS, WATER, TELEPHONE, ELECTRICAL, SEWER, ETC.), THE CONTRACTOR SHALL REPAIR & PAY ALL EXPENSES FOR DAMAGE TO EXISTING UNDERGROUND SYSTEMS AS A RESULT OF NEW WORK, REPAIR TO DAMAGED UNDERGROUND SYSTEMS SHALL BE TO THE OWNERS SATISFACTION WITHOUT EXTRA EXPENSE TO THE

NON-METALLIC SURFACE RACEWAY AND BOXES. ROUTING OF ALL NON-METALLIC RACEWAYS SHALL BE

- 19. EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT DOCUMENTS.
- 20. WHERE NON-METALLIC SHEATHED CONDUCTORS ARE FOUND. THE CONTRACTOR SHALL REMOVE TO FULLEST EXTENT PER THE GENERAL DEMOLITION NOTES AND REPLACE WITH CONDUIT. METAL CLAD CABLE WILL BE PERMITTED ON A CASE-BY-CASE BASIS ONLY BY WRITTEN APPROVAL FROM THE ARCHITECT.
- 21. ALL INSTALLATION OF EXPOSED SURFACE MOUNTED RACEWAY IN PUBLIC AREAS SHALL BE REVIEWED BY ARCHITECT BEFORE ROUGH-IN. CONTRACTOR IS TO DETERMINE THE ACCESSIBILITY OF ATTIC, FURRED SPACE, HOLLOW MULLIONS, ETC. IN EACH AREA AND REVIEW WITH ARCHITECT. IF SYSTEM CAN BE ROUTED CONCEALED EITHER BY FISHING OR ACCESSIBILITY. CONTRACTOR IS TO DO SO. IF INACCESSIBILITY IS DETERMINED, CONTRACTOR SHALL INSTALL SURFACE MOUNTED RACEWAY IN THE MOST AESTHETICALLY PLEASING MEANS AS DETERMINED BY THE ARCHITECT. NO ALLOWANCE FOR ADDITIONAL COMPENSATION DUE TO ROUTING AS DIRECTED BY THE ARCHITECT WILL BE MADE.

### SYMBOLS & ABBREVIATIONS

### SYMBOLS MANUAL PULL STATION BELL (GONG) STROBE ONLY FACP FIRE ALARM CONTROL PANEL STROBE ONLY (CEILING MOUNTED) RPS REMOTE POWER SUPPLY AMP DIGITAL AUDIO AMPLIFIER SPEAKER ONLY EOL END OF LINE JUNCTION BOX - CEILING/WALL MOUNTED, SIZE PER CODE, TAPE AND TAG WIRES MINI HORN

SPEAKER/STROBE PULLBOX CONDUIT - HOME RUN TO PANEL, SPEAKER/STROBE TERMINAL CABINET, ETC. AS INDICATED (CEILING MOUNTED) RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES WHEN MORE THAN TWO. SIZE CONDUIT ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE.

(1) HEAT DETECTOR - CROSS HATCHES WITH NUMBER HEAT DETECTOR
(ABOVE ACCESSIBLE CEILING) ADJACENT INDICATES WIRE SIZE OTHER THAN #12 AWG. ---- CONDUIT - EXISTING CONDUIT - CONCEALED IN WALLS OR CEILING.

(2) SMOKE DETECTOR DUCT SMOKE DETECTOR ---- CONDUIT - IN OR BELOW FLOOR: 3/4"C MIN. TAMPER SWITCH CONDUIT CONTINUATION.

CHIME/STROBE

FLOW SWITCH

BKR

CB

CKT

CLG

SHEET NOTE REFERENCE SYMBOL: POST INDICATING VALVE SEE ASSOCIATED NOTE ON SAME

TYPICAL

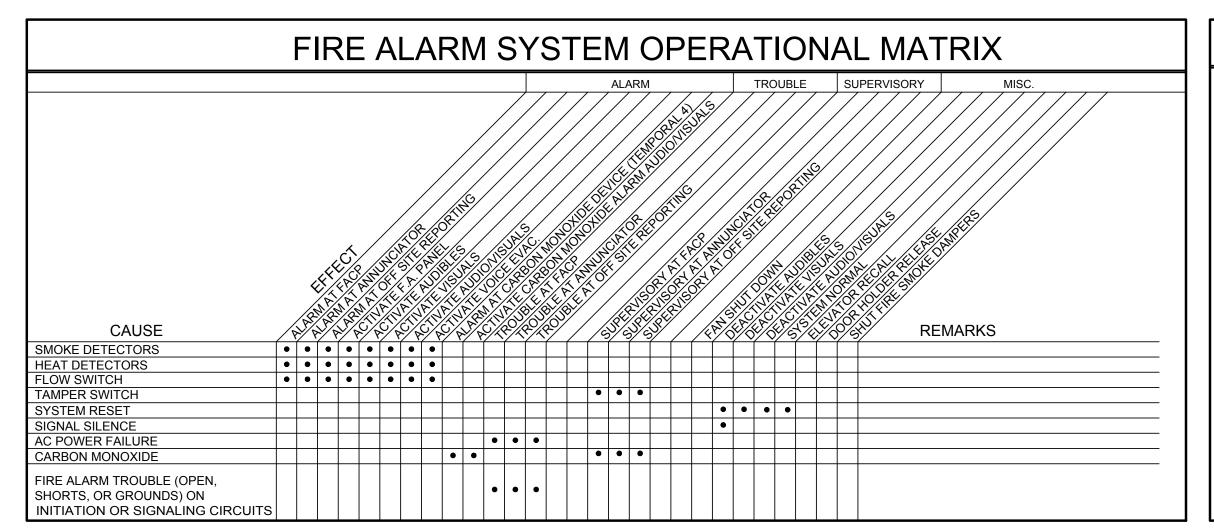
DETAIL OR SECTION DESIGNATION.

ABBREVIATIONS ARCH. ARCHITECT FSD FIRE SMOKE DAMPER AMERICAN WIRE INITIATING DEVICE GAUGE BREAKER NEW CONDUIT NOTIFICATION APPLIANCE CONDUIT ONLY CIRCUIT BREAKER NOT IN CONTRACT CIRCUIT NUMBER CEILING SLC SIGNALING LINE CIRCUITS EXISTING

END OF LINE UON UNLESS OTHERWISE FIRE ALARM FACP FIRE ALARM WP WEATHERPROOF CONTROL PANEL

FBO FURNISHED BY OTHERS TYPICAL ZONE NOMENCLATURE ----- "S2" DENOTES SIGNAL CIRCUIT #2 75 "75CD" DENOTES CANDELA RATING ---- "4" DENOTES DEVICE #4 --- "M" DENOTES MODULE DEVICE; "D" DENOTES DETECTOR ----- "1" DENOTES LOOP# M1-5 ─ "5" DENOTES DEVICE #5 

> CROSSHATCH INDICATES NUMBER OF WIRES REQUIRED SUBSCRIPT LETTER INDICATES TYPE OF CIRCUIT. SEE GENERAL NOTES THIS SHEET FOR NUMBER & TYPE OF WIRES AND CIRCUIT TYPE.



# SHEET INDEX

- FA0.1 FIRE ALARM SYMBOLS, ABBREVIATIONS, EQUIPMENT LIST, OPERATIONAL MATRIX, DETAILS & NOTES.
- FA0.2 FIRE ALARM DETAILS.
- FA1.1 FIRE ALARM RISER DIAGRAM.
- FA1.2 FIRE ALARM RISER DIAGRAM.
- FA1.3 FIRE ALARM BATTERY & VOLTAGE DROP CALCULATIONS.
- FA2.1 FIRE ALARM SITE PLAN.
- FA3.1 FIRE ALARM DEMOLITION PLAN.
- FA4.1 FIRE ALARM PLAN BUILDING C. FA4.2 FIRE ALARM PLAN - BUILDING B.
- FA4.3 FIRE ALARM PLAN BUILDING A, D, E, F, & G.

### PROJECT DESCRIPTION

SCOPE OF WORK: SYSTEM COMPLETE.

SYSTEM DESCRIPTION SLC = CLASS B IDC = CLASS B NAC = CLASS B

FIRE ALARM SYSTEM DESIGN BY: NAJIB ANWARY

# **EQUIPMENT ANCHORAGE**

### M/E/P COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTION 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 & 30:

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- 2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED(e.g. HARD WIRE) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 120 / 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 FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT NEED NOT BE DETAILED IN THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FELXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

A. COMPONENTS WEIGHTING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT

B. COMPONENTS WEIGHTING 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 OF 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 ABOVE REQUIREMENTS.

THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

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 SECTION 13.6.6, 13.6.7, 13.6.8 AND 2019 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 PRE-APPROVED INSTALLATION GUIDE (e.g. OSHPD 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 MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #)

FIRE ALARM SYSTEM REPLACEMENT FOR EXISTING CAMPUS TO MEET CURRENT CODE REQUIREMENTS. THE INTENT OF THE PROJECT IS TO REPLACE EXISTING FIRE ALARM

# APPLICABLE CODES & STANDARDS

### CODES:

- . 2019 CALIFORNIA ADMINISTRATIVE CODE C.C.R., TITLE 24, PART 1.
- 2019 CALIFORNIA BUILDING CODE (CBC) C.C.R., TITLE 24, VOL. 1 & 2 BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA RESIDENTIAL CODE C.C.R., TITLE 24, PART 2.5 BASED ON THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) C.C.R., TITLE 24, PART 3 BASED ON THE 2017 NATIONAL ELECTRICAL CODE (NEC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA MECHANICAL CODE (CMC) C.C.R., TITLE 24, PART 4 BASED ON THE 2018 UNIFORM MECHANICAL CODE (UMC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA PLUMBING CODE (CPC) C.C.R., TITLE 24, PART 5 BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA ENERGY CODE C.C.R., TITLE 24, PART 6.
- 8. 2019 CALIFORNIA FIRE CODE (CFC) C.C.R., TITLE 24, PART 9 BASED ON THE 2018 INTERNATIONAL FIRE CODE (IFC) WITH CALIFORNIA AMENDMENTS.
- 9. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE C.C.R., TITLE 24, PART 11.
- 10. 2019 CALIFORNIA REFERENCED STANDARDS CODE C.C.R., TITLE 24, PART 12.
- 11. TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS. 12. NATIONAL FIRE ALARM CODE (NFPA 72) 2016.

# STANDARDS:

- AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- 2. ELECTRONICS INDUSTRIES ASSOCIATION (EIA) B. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- 4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
- 5. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA) 6. UNDERWRITER LABORATORIES (UL)

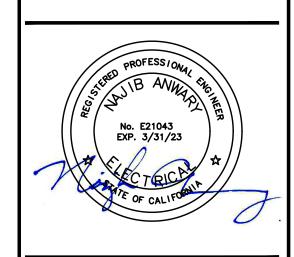
(NFPA 720)

- 7. CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS (CAL/OSHA) NATIONAL FIRE PROTECTION ASSOCIATION; INSTALLATION OF CARBON MONOXIDE
- FA0.1

X/XX/2021

(DSA STAMP AREA)







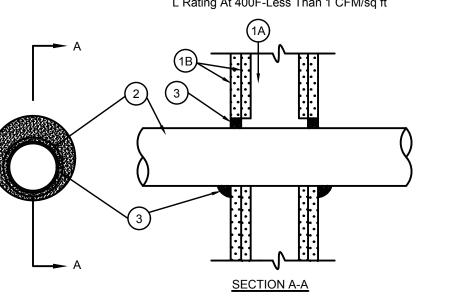
EQUIPI VIATIONS **∞** 

REVISIONS

DRAWN BY: CHECKED BY: SFA JOB NO: DATE:

21080

### SEE FLOOR PLAN DRAWINGS FOR RATED WALL LOCATIONS U.L. System No. W-L-1049 F Rating-1 and 2 Hr (See Item 1B) T Rating-0 HR L Rating At Ambient-Less Than 1 CFM/sq ft L Rating At 400F-Less Than 1 CFM/sq ft



1. Wall Assembly-The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the

following construction features: A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.

B. Wallboard, Gypsum\*-5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 25-3/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant-One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1-3/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe-Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe-Nom 24 in. diam (or smaller) cast or ductile iron pipe.

C. Conduit-Nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) steel conduit or nom I in. diam (or

D. Copper Tubing-Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

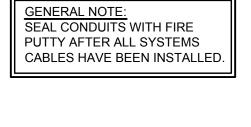
E. Copper Pipe-Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe. 3. Fill, Void or Cavity Material\*-Sealant-Min 5/8 in. thickness of fill

material applied within annulus, flush with both surfaces of wall. At the point contact location between through penetrant and gypsum wallboard, a min 3/8 in. diam bead of fill material shall be applied at the gypsum wallboard/through penetrant interface on both surfaces

SEE FLOOR PLAN DRAWINGS

FOR RATED WALL LOCATIONS

Specified Technologies Inc.-SpecSeal 100, 101, 102 or 105 Sealant 'Bearing the UL Classification Marking



DETAIL NOTES:

EXPANSION JOINT.

T-BAR CEILING

INSTALLED.

CONDUIT TRANSITION BETWEEN BUILDINGS

TO NEXT ADDRESSABLE

DEVICE IN THE SAME

WALL -J

— FINISHED FLOOR

LOOP

— MANUAL PULLSTATION

) DETAIL NOTES:

CONDUIT STRAP.

FINISHED ROOF.

1. PULLCAN, NEMA 4 LOCKABLE.

4. 4 x 4 SLEEPER, SET IN MASTIC.

6. PRESSURE TREATED LUMBER.

PULLCAN AT ROOF DETAIL

TYPICAL MANUAL PULL STATION WIRING DIAGRAM

48" TO TOP

OF DEVICE

RIGID STEEL CONDUITS.

TO FACP OR PREVIOUS

THE SAME LOOP———

CONCEALED CONDUIT ->

PULLSTATION OUTLET SHALL

BE RECESSED 2-GANG BOX

WITH SINGLE GANG RING.

NO SCALE

ADDRESSABLE DEVICE IN

2. SEALTITE FLEX CONDUIT, TYP

WATERTIGHT CONNECTIONS.

RELOCATABLE CLASSROOMS.

STUB ABOVE T-BAR. INSTALL

AT EACH END OF ACCESSIBLE

DEEP NEMA 1 PULL CAN FOR

PROVIDE 12" MIN. SLACK IN

CONDUIT TRANSITION.

CEILING, CONTRACTOR SHALL

PROVIDE & INSTALL 32" SQ. x 12"

FIRE PUTTY AFTER ALL CABLES

EMT, TYP.



# U.L. System No. W-L-1062 T Rating-0 HR L Rating At Ambient-Less Than 1 CFM/sq ft L Rating At 400F-Less Than 1 CFM/sq ft

1. Wall Assembly-The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in OC. Steel studs to be min 3|Q5|W/|A8|S in. wide and spaced max 24 in. OC.

SECTION A-A

B. Wallboard Gypsum\*-One Layer of nom |Q5|W/|A8|S in. thick gypsum wallboard as specified in the individual Wall and Partition Design. Max diam of opening is 4|Q3|W/|A4|S

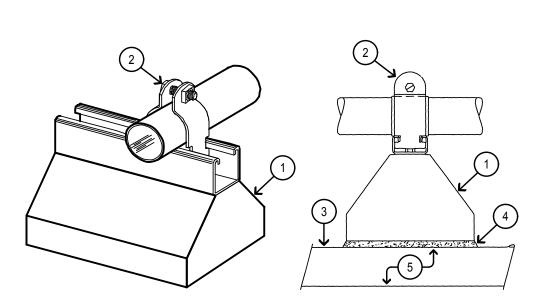
2. Through Penetrants-One metallic conduit to be installed within the firestop system. The space between the conduit and periphery of opening shall be a min |Q1|W/|A4|S in. to a max |Q3|W/|A8|S in. Conduit to be rigidly supported on both sides of wall assembly. A nominal 4 in. diameter (or smaller) electrical metallic tubing or steel conduit may be used.

3. Fill, Void or Cavity Material\*-Caulk-Min 1|Q1|W/|A2|S in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

General Electric Co.-Pensit 100 Caulk.

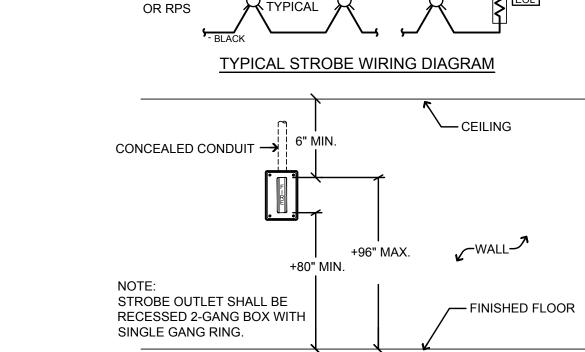
Specified Technologies Inc.-Pensil 100 Sealant and Pensit 300 Sealant. \*Bearing the UL Classification Marking

# 1-HR FIRE-RATED WALL PENETRATION

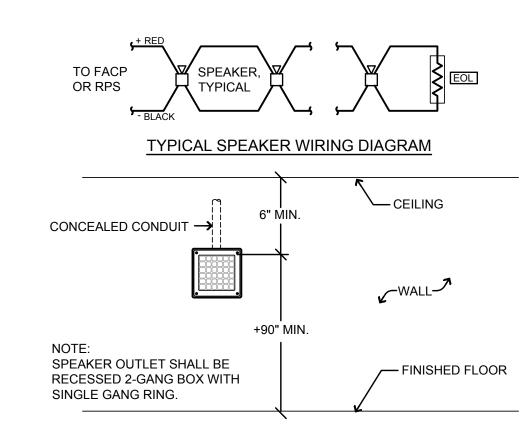


### DETAIL NOTES: 1. ROOF TOP CONDUIT SUPPORT; 5" x 6" x 9.5" WITH 1" HIGH 14 GA. GALVANIZED CHANNEL

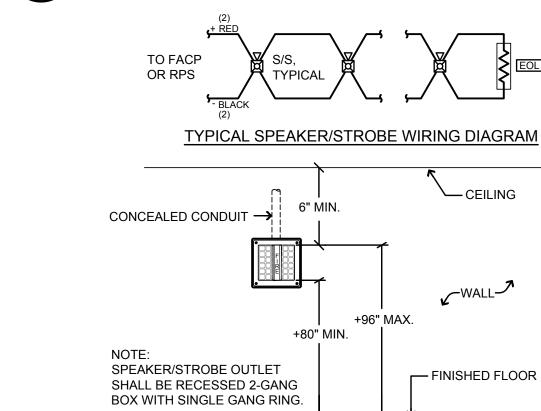
- STRUT. COOPER B-LINE "DB" SERIES. 14 GA. RIGID CONDUIT CLAMP WITH RECESS HEX HEAD MACHINE SCREW AND SQUARE NUT COMBINATION. COOPER B-LINE B2000
- 3. CLEAN (E) ROOF AREA AS REQUIRED.
- 4. SET SUPPORT IN MASTIC.
- ROOF STRUCTURE.



# STROBE INSTALLATION DETAIL



# SPEAKER INSTALLATION DETAIL



SPEAKER/STROBE

**INSTALLATION DETAIL** 

# UNDERGROUND CONDUIT RISER DETAIL

DETAIL NOTES:

UNISTRUT BRACKET.

3. SCHEDULE 40 PVC.

UNISTRUT CHANNEL

GENERAL NOTES: A. FOR WOOD STUD WALL:

B. FOR CONCRETE WALL

USE ¾" LAG BOLT WITH MIN. ¾"

(ONE AT EACH END OF BRACKET)

USE 3/8" WEDGE ANCHOR WITH MIN. 2 1/2" EMBEDMENT INTO CONCRETE WALL. (ONE

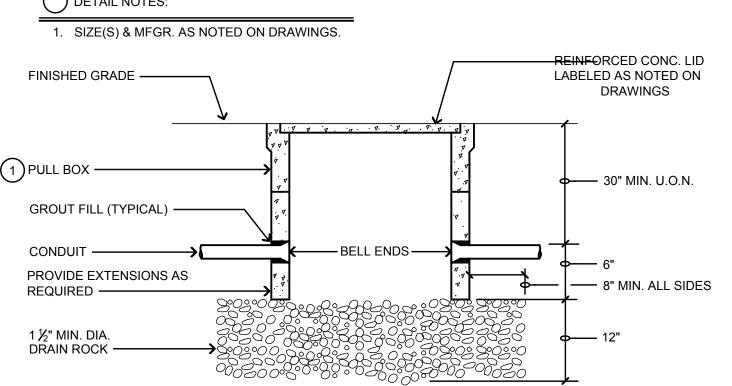
EMBEDMENT INTO STUDS.

AT EACH END OF BRACKET)

2. GALVANIZED RIGID STEEL CONDUIT.

STEEL ELBOW AND UNDERGROUND

4. WRAPPED GALVANIZED RIGID



UNPAVED AREAS PAVED AREAS

SAW CUT, TRENCH & BACKFILL FOR (N) CONDUITS. PATCH WALKWAY TO MATCH (E) SURROUNDING

EXISTING A.C. SHALL BE CUT AND REMOVED IN SUCH A MANNER SO AS NOT TO TEAR BULGE OR

DISPLACE ADJACENT PAVEMENT. EDGES SHALL BE CLEAN AND VERTICAL. ALL CUTS SHALL BE

BASE MATERIAL TO BE REPLACED TO THE DEPTH OF EXISTING BASE AND COMPACTED TO A MIN.

95% RELATIVE COMPACTION. A.C. MAY BE SUBSTITUTED FOR BASE MATERIAL. WHEN USED AS

A TACK COAT OF ASPHALTIC EMULSION OR PAVING ASPHALT SHALL BE APPLIED TO EXISTING A.C.

ALL A.C. RESURFACING SHALL BE SEAL COATED WITH AN EMULSIFIED ASPHALT AND COVERED WITH

SURFACES. CARE SHALL BE TAKEN TO PROTECT EXISTING TREES. RESEED OR RESOD (E)

DISTURBED PLANTED AREAS TO ARCHITECT'S SATISFACTION.

AT ALL CONTACT SURFACES, PRIOR TO RESURFACING.

TYPICAL TRENCH SECTION

ASPHALTIC CONCRETE RESURFACING;

B) A.C. SHALL BE HOT PLANT MIX.

CLEAN SAND.

PARALLEL OR PERPENDICULAR TO STREET CENTERLINE, WHEN PRACTICAL.

BACKFILL, CLASS 100-E-100 P.C.C. MAY BE SUBSTITUTED FOR BASE MATERIAL.

A) MINIMUM TOTAL THICKNESS SHALL BE ONE INCH GREATER THAN EXISTING A.C.

- SAW CUT (E) AC PAVING

- 6" CLASS 2 AGGREGATE

BASE, 95% COMPACTION

- MIN. 95% COMPACT EARTH

CONDUIT, SEE PLANS

FOR QUANTITY, SIZE

AND USAGE

WHEN OCCURS

WHEN OCCURS

FILL, SEE SPECS

— 3" THICK AC PAVING

AC PAVING OR CONC.

WHEN OCCURS —

WARNING MARKER TAPE

CONTINUOUS LENGTH OF

FINISHED

GRADE —

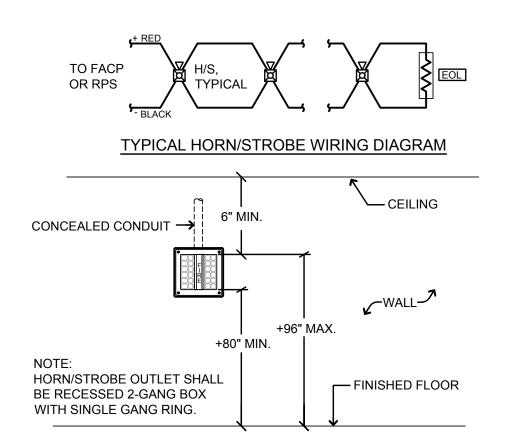
TRENCH —

SAND BACKFILL -

[NATIVE SOIL]

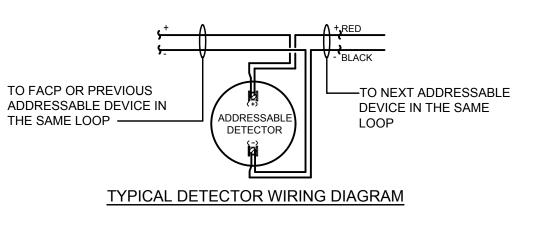
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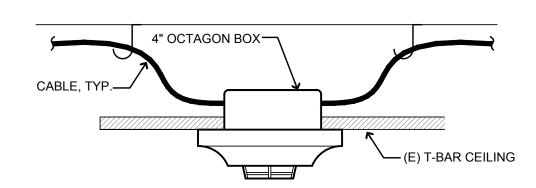
# TYPICAL PULLBOX DETAIL



TO FACP OR PREVIOUS -TO NEXT ADDRESSABLE ADDRESSABLE DEVICE IN DEVICE IN THE SAME THE SAME LOOP — TYPICAL DETECTOR WIRING DIAGRAM 4" OCTAGON BOX — UNDER ROOF OR UNDER FLOOR -← ACCESSIBLE CEILING SPACE →

# **DETECTOR MOUNTING DETAIL**





# DETECTOR MOUNTING DETAIL

FA0.2

X/XX/2021

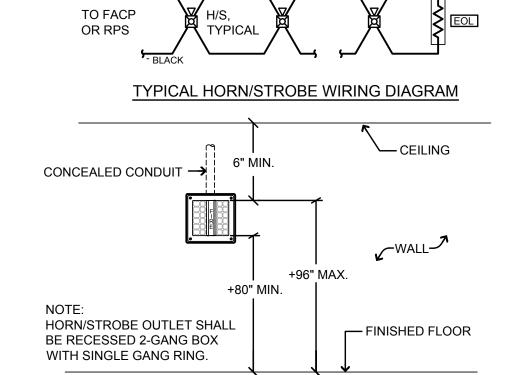
(DSA STAMP AREA)

PULL STATION MOUNTING DETAIL

NO SCALE

ROOF MOUNTED CONDUIT SUPPORT DETAIL

DETAIL NOTES: (1) PULL BOX —



# HORN/STROBE INSTALLATION DETAIL

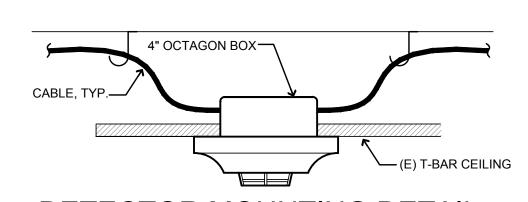
(ABOVE CEILING)

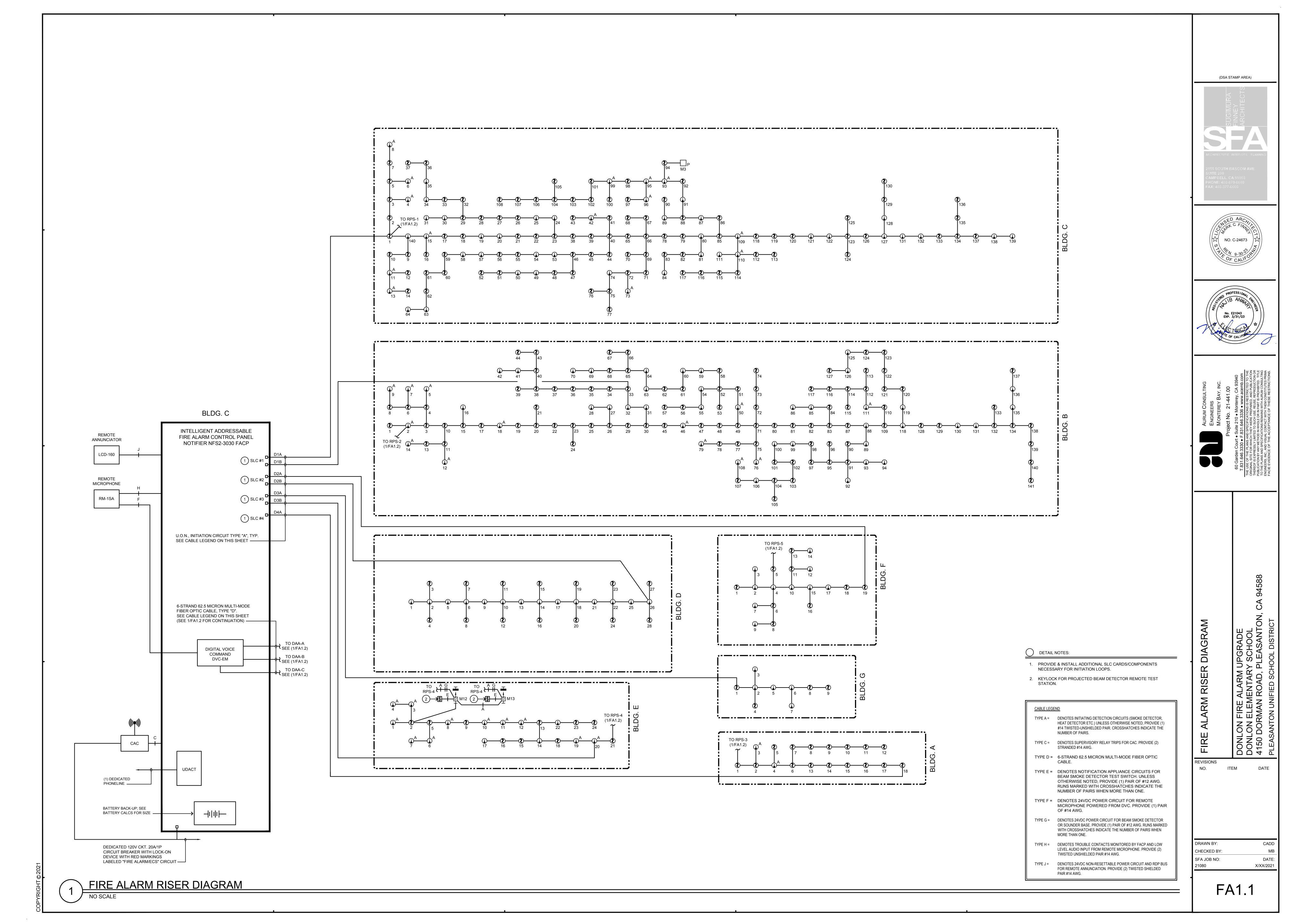
REVISIONS

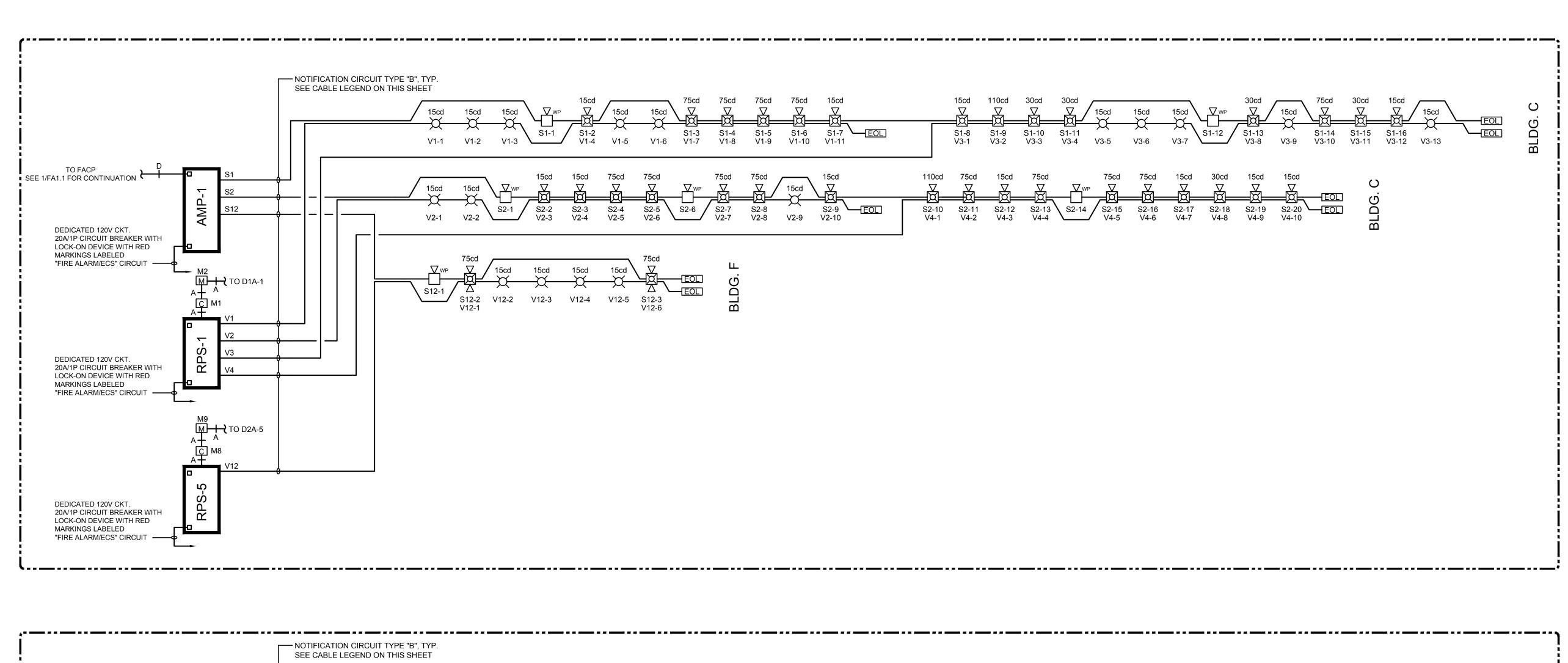
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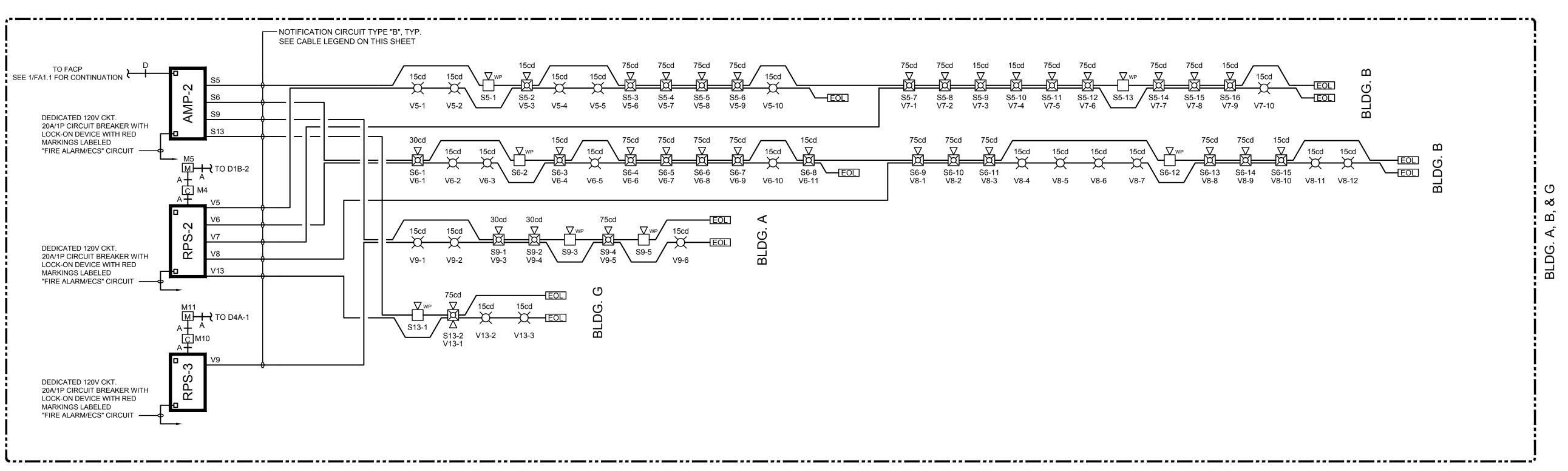
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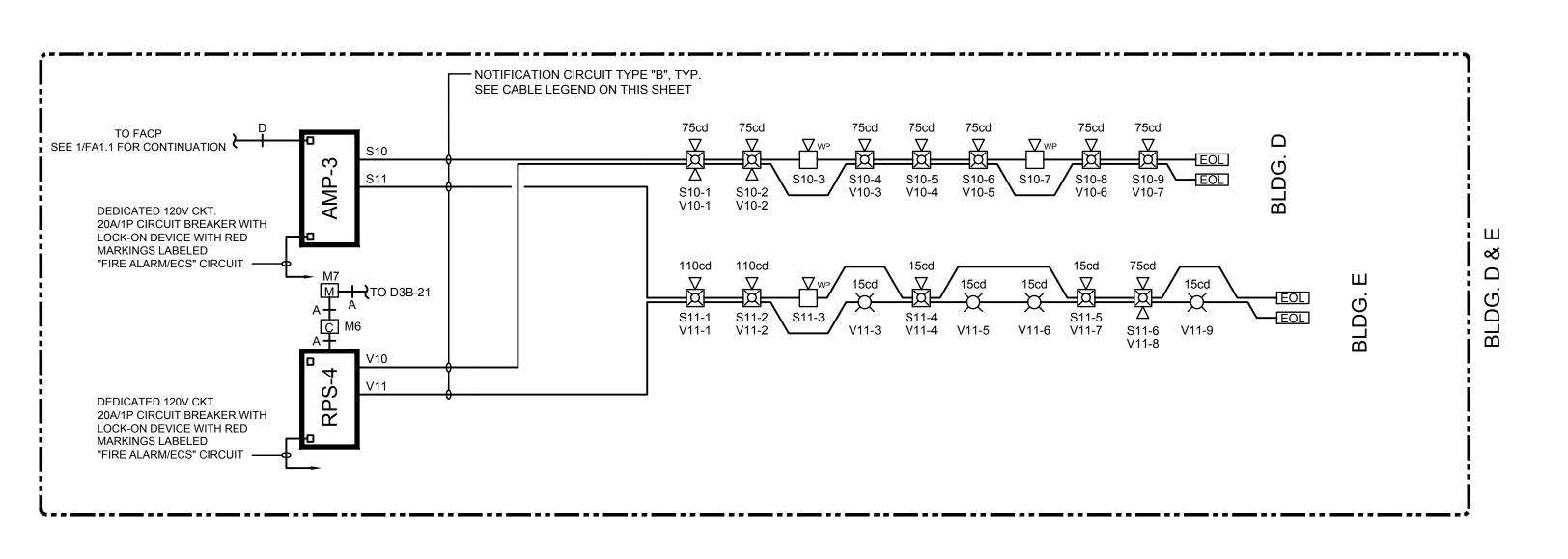
SFA JOB NO:











CABLE LEGEND TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS. TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (HORN, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED,

PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS. TYPE D = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC

FA1.2

X/XX/2021

RIS

REVISIONS

DRAWN BY:

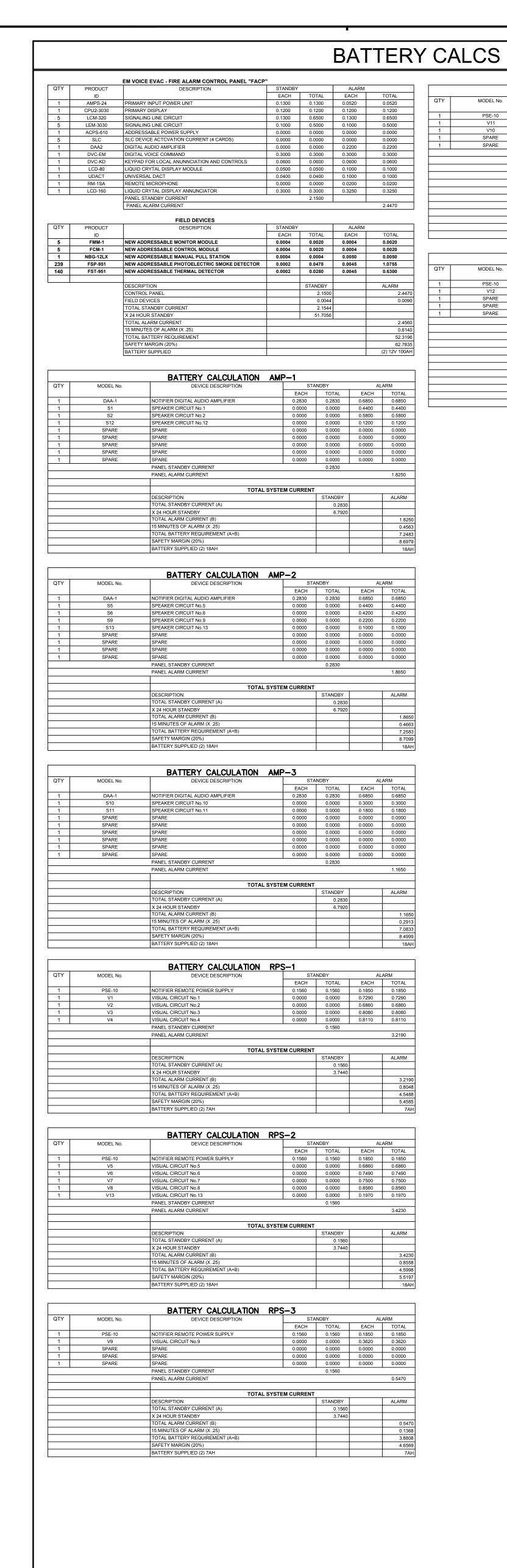
CHECKED BY:

SFA JOB NO:

21080

(DSA STAMP AREA)

FIRE ALARM RISER DIAGRAM



_	
-	ARM
]	TOTAL 0.1850
	0.6650 0.7770
	0.0000
	1.6270
1	
$\exists$	ALARM
_	1.62
068 508	0.4
9	4.980
	7AH
	ARM
	0.1850
	0.3940
١	0.0000
l	0.5790
	ALARM
	2.5700
	0.5790 0.1448
	3.8888 4.6665
	7AH
	1 1
	11
	1 [
	11
	1 1
1	
1	I
M   T   T   T   T   T   T   T   T   T	M T T D W
Nor Min Total Tota	Min Tot: Tot: Dist Wir  I N Dev
Mi Tc Di W De De De De De	Mi Tc Tc Di W Di
Mi Tc Tc Di W De De De De	Mi Tc Tc Di W W De

BATTERY CALCULATION RPS-4

BATTERY CALCULATION RPS-5

DEVICE DESCRIPTION

TOTAL SYSTEM CURRENT

PANEL STANDBY CURRENT
PANEL ALARM CURRENT

DESCRIPTION
TOTAL STANDBY CURRENT (A
X 24 HOUR STANDBY
TOTAL ALARM CURRENT (B)

ISUAL CIRCUIT No.12

DESCRIPTION
TOTAL STANDBY CURRENT (A

TOTAL ALARM CURRENT (B)

15 MINUTES OF ALARM (X .25)
TOTAL BATTERY REQUIREMENT (A+B)
SAFETY MARGIN (20%)
BATTERY SUPPLIED (2) 7AH

15 MINUTES OF ALARM (X .25)

TOTAL BATTERY REQUIREMENT (A+B)

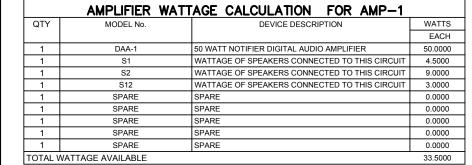
SAFETY MARGIN (20%)

BATTERY SUPPLIED (2) 7AH

nal Speake um Device		( 25 or 70 )	SPEAKE	R CIRCU	25 20				Nominal Speaker Voltage ( 25 or Minimum Device Voltage		KER CIRCUI	T No.S9 25 20				DEVICE #	VO
Circuit Cur Circuit Pov	rrent in an	nps	0.440 11.000		Wire Gauge	Ohm's Per 1000			Total Circuit Current in amps Total Circuit Power	0.220 5.500		Wire Gauge	Ohm's Per 1000			GAUGE WIRE DISTANCE (FT)	2
Gauge for			Calculated	50	12 12 Voltage	1.98 1.98			Distance from source to 1st device Wire Gauge for balance of circuit from	i	50 ed	12 12 Voltage	1.98			AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV	
mber	Device Power	previous device	Device Current	At Device	Drop from source	Percent Drop			Device Device previo	ous Device ce Curren	e At t Device	Drop from source	Percent Drop			DEVICE#	1
e 1 e 2 e 3	2.000 0.500 0.500	65 60 80	0.080 0.020 0.020	24.89 24.80 24.69	0.113 0.199 0.307	0.45% 0.80% 1.23%			Device 1         0.500         188           Device 2         0.500         35           Device 3         2.000         50	5 0.0	20 24.81	0.161 0.189 0.225	0.64% 0.76% 0.90%			GAUGE WIRE DISTANCE (FT)	
e 4 e 5 e 6	0.500 0.500 0.500	30 50 30	0.020 0.020 0.020	24.66 24.60 24.56	0.345 0.404 0.437	1.38% 1.62% 1.75%			Device 4         0.500         30           Device 5         2.000         55           Totals         5.500         35	5 0.0	80 24.75	0.236 0.254 ne Voltage	0.95% 1.02% 24.75			AMPS OF DEVICE TOTAL AMPS@DEV.	
e 7 e 8	0.500 0.500	60 90	0.020 0.020	24.50 24.42	0.499 0.584	2.00% 2.34%			Point to Point Method		nd of Line M			Centering N	lethod	VOLT. DROP @ DEV	0.0
e 9 e 10 e 11	0.500 0.500 0.500	50 40 35	0.020 0.020 0.020	24.37 24.34 24.32	0.628 0.660 0.685	2.51% 2.64% 2.74%			Totals Volta		JIT IS WITHI	Voltage	Totals	T IS WITHIN	Voltage	TOTAL CIRCUIT AMPS =	= 0.7
e 12 e 13	2.000 0.500	75 30	0.080 0.020	24.27 24.26	0.732 0.742	2.93% 2.97%			Current         Distance         Dro           0.220         355         0.2	DP Curren 5 0.220	t Distance 355	Drop 0.309	Current 0.220	Distance 355	Drop 0.155	TOTAL VOLT DROP =	0.6
e 14 e 15 e 16	0.500 0.500 0.500	65 35 55	0.020 0.020 0.020	24.24 24.24 24.23	0.757 0.763 0.767	3.03% 3.05% 3.07%			End of Line Voltage 24.7  Percent Drop 1.		ine Voltage Percent Drop	24.69 1.24%	End of Line	Voltage ercent Drop	24.85 0.62%	CKT VOLTAGE =	20
'	11.000	850	End		ine Voltage	24.23	Centering M	lethod			ER CIRCUI					% VOLTAGE DROP =	3.2
IRCUIT IS	Point Me			of Line M	IN LIMITS		T IS WITHIN		Nominal Speaker Voltage ( 25 or Minimum Device Voltage Total Circuit Current in amps	0.300		25 20 Wire	Ohm's				VC
otals rrent [ 440	Distance 850	Voltage Drop 0.77	Totals Current 0.440	Distance 850	Voltage Drop 1.481	Totals Current 0.440	Distance 850	Drop 0.741	Total Circuit Power  Distance from source to 1st device.	7.500 ce	50	Gauge 12	Per 1000 1.98			DEVICE # GAUGE WIRE	-
f Line Volta		24.23 3.07%	End of Line		23.52	End of Line		24.26 2.96%	Wire Gauge for balance of circuit  from  Device Device previo	m Calculat	_	Voltage Drop from				DISTANCE (FT)  AMPS OF DEVICE	0.0
			SPEAKE	R CIRCUI	IT No.S2				Number         Power         devi           Device 1         0.500         90           Device 2         0.500         45	0.0	20 24.89	0.107 0.157	Drop 0.43% 0.63%			TOTAL AMPS@DEV. VOLT. DROP @ DEV.	
um Device	e Voltage	( 25 or 70 )		2,1,001	25 20	-			Device 3         2.000         65           Device 4         0.500         40	0.0	80 24.78 20 24.75	0.224 0.252	0.89% 1.01%			TOTAL CIRCUIT AMPS =	= 0.6
Circuit Cur Circuit Pov nce from so	wer		0.580 14.500	50	Wire Gauge 12	Ohm's Per 1000 1.98			Device 5         0.500         45           Device 6         0.500         80           Device 7         2.000         65	0.0	20 24.67	0.281 0.325 0.356	1.12% 1.30% 1.42%			TOTAL VOLT DROP =	0.6
Gauge for	balance o		Calculated		12 Voltage	1.98			Device 8         0.500         40           Device 9         0.500         45	0.0	20 24.64 20 24.63	0.362 0.366	1.45% 1.46%			CKT VOLTAGE =	20.
mber e 1	Power 2.000	device 50	Device Current 0.080	At Device 24.89	source 0.115	Percent Drop 0.46%			Totals 7.500 519 Point to Point Method	<u>'</u>	End of Li	ne Voltage ethod	24.63	Centering M	lethod	% VOLTAGE DROP =	3.3
e 2 e 3 e 4	0.500 0.500 0.500	55 30 55	0.020 0.020 0.020	24.78 24.72 24.62	0.224 0.281 0.381	0.89% 1.12% 1.52%			CIRCUIT IS WITHIN LIMITS	CIRCU	IT IS WITHI	N LIMITS	CIRCUI	T IS WITHIN	LIMITS		
e 5 e 6	0.500 2.000	30 60	0.020 0.080	24.57 24.47	0.433 0.533	1.73% 2.13%			Totals         Volta           Current         Distance         Dro           0.300         515         0.3	7 0.300	t Distance 515	Drop 0.612	Totals Current 0.300	Distance 515	Voltage Drop 0.306	DEVICE # GAUGE WIRE	VO
e 7 e 8 e 9	0.500 0.500 0.500	80 25 70	0.020 0.020 0.020	24.36 24.33 24.24	0.641 0.672 0.756	2.56% 2.69% 3.02%			End of Line Voltage 24.6	End of L	ine Voltage Percent Drop	24.39 2.45%	End of Line	Voltage ercent Drop	24.69 1.22%	DISTANCE (FT)  AMPS OF DEVICE	0.0
e 10 e 11	0.500 0.500	65 25 50	0.020 0.020	24.17 24.15	0.828 0.853	3.31% 3.41% 3.60%					ER CIRCUI					TOTAL AMPS@DEV.  VOLT. DROP @ DEV.	0.8
e 12 e 13 e 14	0.500 0.500 2.000	60 70	0.020 0.020 0.080	24.10 24.05 23.99	0.901 0.953 1.009	3.81% 4.03%			Nominal Speaker Voltage ( 25 or Minimum Device Voltage   Total Circuit Current in amps	0.180		25 20 Wire	Ohm's			DEVICE#	1
e 15 e 16 e 17	0.500 0.500 0.500	75 30 55	0.020 0.020 0.020	23.96 23.94 24.08	1.044 1.056 0.918	4.18% 4.22% 3.67%			Total Circuit Power  Distance from source to 1st device	4.500 ce	50	Gauge 12	Per 1000 1.98			GAUGE WIRE DISTANCE (FT)	
e 18 e 19	0.500 0.500	55 50	0.020 0.020	24.09 24.04	0.914 0.961	3.66% 3.84%			Wire Gauge for balance of circuit  fror  Device Device previo	m Calculat	_	12 Voltage Drop from	1.98 Percent			AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV	
e 20	0.500 14.500	55 1045	0.020		0.905 ine Voltage	3.62% 23.94			Number Power devi Device 1 0.500 75	ce Curren	t Device 20 24.95	source 0.053	Drop 0.21%			VOLT. BROT & BEV	0.0
Point to	Point Me			of Line M	ethod IN LIMITS		Centering M T IS WITHIN		Device 2         0.500         55           Device 3         2.000         75           Device 4         0.500         120	0.0	80 24.87	0.088 0.130 0.158	0.35% 0.52% 0.63%			TOTAL CIRCUIT AMPS =	= 0.8
otals rrent [	Distance	Voltage Drop	Totals Current	Distance	Voltage Drop	Totals Current	Distance	Voltage Drop	Device 5         0.500         65           Device 6         0.500         30           Totals         4.500         42	0.0	20 24.83	0.169 0.171 ne Voltage	0.67% 0.68% 24.83			TOTAL VOLT DROP =	0.8
580 f Line Volta	1045 tage cent Drop	1.06 23.94 4.22%	0.580 End of Line	1045 Voltage cent Drop	2.400 22.60 9.60%	0.580 End of Line	1045 Voltage Percent Drop	1.200 23.80 4.80%	Point to Point Method	En	d of Line M	ethod	Load	Centering N		CKT VOLTAGE =	20.
1 010	ociii Diop	4.22/0	1 01	ociii Diop	3.00 /0		Crock Brop	4.00 %	CIRCUIT IS WITHIN LIMITS	CIRCU	JIT IS WITHI	N LIMITS	CIRCUI	T IS WITHIN		% VOLTAGE DROP =	4.4
									Totals Volta	age Totals		Voltage	Totals		Voltage		
um Device	e Voltage	( 25 or 70 )	SPEAKE	R CIRCUI	T No.S5 25 20				Current         Distance         Dro           0.180         420         0.1	7 Curren	t Distance 420	Drop 0.299	Current 0.180	Distance 420 Voltage	Drop 0.150		
um Device Circuit Cur Circuit Pov	e Voltage rrent in an wer	nps	0.440 11.000	R CIRCUI	25	Ohm's Per 1000			Current         Distance         Dro           0.180         420         0.1           End of Line Voltage         24.8	P Curren 7 0.180 33 End of L	t Distance	Drop 0.299 24.70	Current 0.180 End of Line	420	Drop 0.150 24.85	DEVICE # GAUGE WIRE DISTANCE (FT)	,
um Device Circuit Cur Circuit Pov ace from so Gauge for	e Voltage irrent in an wer cource to 1 balance o	st device f circuit from	0.440 11.000	50	25 20 Wire Gauge 12 12 Voltage	Per 1000 1.98 1.98			Current         Distance         Dro           0.180         420         0.1           End of Line Voltage         24.8	P Curren 7 0.180 33 End of L 68% F	t Distance 420 ine Voltage	Drop 0.299 24.70 1.20%	Current 0.180 End of Line	420 Voltage	Drop 0.150 24.85		1 0.1
um Device Circuit Cur Circuit Povince from so Gauge for	e Voltage rrent in an wer source to 1	nps st device f circuit	0.440	50 At Device	25 20 Wire Gauge 12 12	Per 1000 1.98			Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps	P Curren 7 0.180 33 End of L 68% F SPEAK 70)	t Distance 420 ine Voltage Percent Drop	Drop 0.299 24.70 1.20%  T No.S12 25 20 Wire	Current 0.180 End of Line P	420 Voltage	Drop 0.150 24.85	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE	1 0.1 0.8
um Device Circuit Cur Circuit Pov ace from so Gauge for vice mber e 1 e 2 e 3	Device Power 2.000 0.500 0.500	st device f circuit from previous device 70 60 80	0.440 11.000 Calculated Device Current 0.080 0.020	50 At Device 24.88 24.79 24.68	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315	Per 1000 1.98 1.98 Percent Drop 0.49% 0.83% 1.26%			Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.6 Percent Drop 0.  Nominal Speaker Voltage ( 25 or Minimum Device Voltage	P Curren 7 0.180 83 End of L 68% F  SPEAK 70) 0.120 3.000 68	t Distance 420 ine Voltage Percent Drop	Drop 0.299 24.70 1.20%  T No.S12 25 20 Wire Gauge 12 12	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98	420 Voltage	Drop 0.150 24.85	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV.	1 0.1 0.8 ' 0.3
um Device Circuit Cur Circuit Pov noe from so Gauge for  vice be 1 e 2 e 3 e 4 e 5 e 6	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500 0.500 0.500 0.500	st device f circuit from previous device 70 60 80 25 50 30	0.440 11.000 Calculated Device Current 0.080 0.020 0.020 0.020 0.020	50 At Device 24.88 24.79 24.68 24.65 24.59 24.56	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315 0.347 0.406 0.440	Per 1000 1.98 1.98 Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 1.76%			Current Distance Dro  0.180 420 0.1  End of Line Voltage 24.8  Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps  Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit from Device Device previe	P Curren 7 0.180 83 End of L 68% F  SPEAK 70) 0.120 3.000 ce in Calculat ous Device	t Distance 420 ine Voltage Percent Drop  EER CIRCUI 50 ed At	Drop 0.299 24.70 1.20%  T No.S12 25 20 Wire Gauge 12	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98	420 Voltage	Drop 0.150 24.85	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =	1 0.1 0.8 0.8 0.3 = 0.8
um Device Circuit Cur Circuit Pov nce from sc Gauge for vice mber e 1 e 2 e 3 e 4 e 5	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500 0.500 0.500	st device f circuit from previous device 70 60 80 25 50	0.440 11.000 Calculated Device Current 0.080 0.020 0.020 0.020	50  At Device 24.88 24.79 24.68 24.56 24.48 24.46	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315 0.347 0.406	Per 1000 1.98 1.98 Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63%			Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage ( 25 or Minimum Device Voltage Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit fro Device Device previc Number Power devi Device 1 2.000 220 Device 2 0.500 45	P Curren 7 0.180 83 End of L 68% F  SPEAK 70) 0.120 3.000 86 8 Calculat ous Device Ce Curren 0 0.0 6 0.0	t Distance 420 ine Voltage Percent Drop  SER CIRCUIT 50 ed 2 At t Device 80 24.90 20 24.89	Drop 0.299 24.70 1.20%  TNo.S12 25 20 Wire Gauge 12 12 Voltage Drop from source 0.105 0.112	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 Percent Drop 0.42% 0.45%	420 Voltage	Drop 0.150 24.85	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV. TOTAL CIRCUIT AMPS =  TOTAL VOLT DROP =	1 0.1 0.8 7. 0.3 = 0.8 0.8
um Device Circuit Cur Circuit Pov ice from sc Gauge for  vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11	e Voltage rrent in an wer source to 1 balance of the power 2.000 0.500	st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65	0.440 11.000  Calculated Device Current 0.080 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020	50  At Device 24.88 24.79 24.68 24.65 24.59 24.46 24.42 24.39 24.34	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315 0.347 0.406 0.440 0.517 0.580 0.611	Per 1000 1.98 1.98 1.98 Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.07% 2.16% 2.32% 2.45% 2.63%			Current Distance Dro  0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit for Device Device previculation of Device Device previculation of Device 1 2.000 226	P Curren 7 0.180 83 End of L 68% F  SPEAK 70) 0.120 3.000 86 Calculat 000 Device cce Curren 0 0.0 6 0.0 6 0.0	t Distance 420 ine Voltage Percent Drop  SER CIRCUI* 50 ed 2 At 1 Device 80 24.90 20 24.89 20 24.88	Drop 0.299 24.70 1.20%  T No.S12 25 20 Wire Gauge 12 12 Voltage Drop from source 0.105	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 Percent Drop 0.42% 0.45% 0.47% 24.88	420 Voltage ercent Drop	Drop 0.150 24.85 0.60%	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =	1 0.1 0.8 0.3 0.3 0.8 0.8 0.8
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um Device Circuit Cur Circuit Pov ice from sc Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 12 e 13 e 14 e 15 e 16 e 16	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	mps st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 55 60 830	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.79 24.68 24.65 24.59 24.46 24.42 24.39 24.34 24.30 24.27 24.26 End of Line M	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315 0.347 0.406 0.541 0.580 0.611 0.658 0.696 0.726 0.742 0.746 0.750 ne Voltage	Per 1000 1.98 1.98 1.98 1.98 Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.16% 2.216% 2.245% 2.63% 2.78% 2.91% 2.97% 2.98% 3.00% 24.25	Centering M		Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit Number Power devi Device 1 2.000 22 Device 1 2.000 22 Device 2 0.500 45 Device 3 0.500 80 Totals 3.000 344  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage 0.120 345 0.1 End of Line Voltage 24.8	P Curren 7 0.180 83 End of L 68% F  SPEAK 70 )  0.120 3.000 ce 6 Curren Calculat 000 Device ce Curren 0 0.0 6 0.0 6 0.0 6 0.0 6 0.0 7 CIRCL 899 Totals 899 Totals 899 Curren 2 0.120 838 End of L 447% F	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed At t Device 80 24.90 20 24.89 End of Line M JIT IS WITHI  t Distance 345 ine Voltage Percent Drop	Drop   0.299   24.70   1.20%     24.70     1.20%     25   20     Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage     Voltage     Voltage   Drop   Drop   Drop   Drop   Drop   Drop   Drop   Drop   D.164   24.84   0.66%     0.66%	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 2.88  CIRCUI  Totals Current 0.120 End of Line	420 Voltage ercent Drop	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  TOTAL VOLT DROP =  CKT VOLTAGE =  % VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE	0.1 0.8 0.3 - 0.8 0.8 20 4.4
um Device Circuit Cur Circuit Pov ice from sc Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 i i i i i i i i i i i i i i i i i i i	e Voltage Irrent in an wer ource to 1 balance o  Device Power 2.000 0.50	st device f circuit from previous device 70 60 80 25 50 30 75 25 40 65 65 25 60 830 830 830 830 830 830 830 830 830 83	0.440 11.000  Calculated Device Current 0.080 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 Totals Current  Current	50  At Device 24.88 24.79 24.68 24.69 24.59 24.56 24.48 24.40 24.32 24.39 24.34 24.30 24.27 24.26 24.25 End of Line M IS WITHI Distance 830	25 20 Wire Gauge 12 12 Voltage Drop from source 0.122 0.208 0.315 0.347 0.406 0.440 0.517 0.541 0.658 0.611 0.658 0.726 0.742 0.746 0.750 me Voltage  ethod N LIMITS  Voltage Drop 1.446	Per 1000 1.98 1.98 1.98 1.98 1.98  Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.07% 2.16% 2.32% 2.45% 2.63% 2.91% 2.91% 2.98% 3.00% 24.25  Load CIRCUI  Totals Current 0.440	T IS WITHIN  Distance 830	Voltage Drop 0.723	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit Number Power devi Device 1 2.000 22 Device 1 2.000 22 Device 2 0.500 45 Device 3 0.500 80 Totals 3.000 344  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage 0.120 345 0.1 End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed At Device 80 24.90 20 24.89 End of Line M JIT IS WITHI  t Distance 345 ine Voltage	Drop   0.299   24.70   1.20%     24.70     1.20%     25   20     Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage     Voltage     Voltage   Drop   Drop   Drop   Drop   Drop   Drop   Drop   Drop   D.164   24.84   0.66%     0.66%	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 2.88  CIRCUI  Totals Current 0.120 End of Line	420 Voltage ercent Drop	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.	10.1 0.8 0.3 0.8 0.8 20. 4.4
um Device Circuit Cur Circuit Pov ice from sc Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 i i i i i i i i i i i i i i i i i i i	e Voltage Irrent in an wer ource to 1 balance o  Device Power 2.000 0.50	nps st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 55 65 25 60 830  thod LIMITS  Voltage Drop	0.440 11.000  Calculated Device Current 0.080 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 0.020 Totals CIRCUIT  Totals Current 0.440 End of Line	50  At Device 24.88 24.79 24.68 24.69 24.59 24.56 24.48 24.40 24.32 24.39 24.34 24.30 24.27 24.26 24.25 End of Line M IS WITHI Distance 830	25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.122   0.208   0.315   0.347   0.406   0.440   0.517   0.541   0.580   0.611   0.658   0.696   0.726   0.742   0.746   0.750   ne Voltage   w Limits   Voltage   Drop   1.446   23.55	Per 1000 1.98 1.98 1.98 1.98 1.98 Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.07% 2.16% 2.32% 2.45% 2.63% 2.78% 2.91% 2.91% 2.98% 3.00% 24.25  Load CIRCUI Totals Current 0.440 End of Line	T IS WITHIN  Distance 830	Voltage Drop 0.723 24.28	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage (25 or Minimum Device Voltage Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit Fron Device Device previc Number Power devi Device 1 2.000 22 Device 2 0.500 45 Device 3 0.500 80 Totals 3.000 344  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage Current Distance Dro 0.120 345 0.1 End of Line Voltage 24.8 Percent Drop 0.	P Curren 7 0.180 83 End of L 68% F  SPEAK 70)  0.120 3.000 28 Curren 0 0.00 6 0.0 6 0.0 6 0.0 6 0.0 6 0.0 7 CIRCL 1000 1000 1000 1000 1000 1000 1000 10	t Distance 420 ine Voltage Percent Drop  SER CIRCUIT 50 ed 2 At t Device 80 24.90 20 24.89 End of Line M. JIT IS WITHI  t Distance 345 ine Voltage Percent Drop	Drop   0.299   24.70   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   T No.S13   25   20   Wire   Gauge   Gauge   Gauge   Gauge   Color   Col	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 2.88  Percent Drop 0.42% 0.45% 0.47% 24.88  Load CIRCUI  Totals Current 0.120 End of Line P	420 Voltage ercent Drop	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE DROP =  DEVICE #  GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =	10.1 0.8 0.3 0.8 0.8 20. 4.4 VC
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um Device Circuit Cur Circuit Pov ice from sc Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 f Circuit Is  Point to IRCUIT IS  August State	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	mps  st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 55 65 25 60 830  thod LIMITS  Voltage Drop 0.75 24.25 3.00%  ( 25 or 70 ) mps  st device f circuit from previous device 30 55 55 65	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.79 24.68 24.65 24.56 24.42 24.39 24.34 24.30 24.27 24.25 End of Line M IS WITHI	25	Per 1000 1.98 1.98 1.98 1.98 1.98 1.98  Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.76% 2.16% 2.32% 2.45% 2.63% 2.91% 2.91% 2.91% 2.98% 3.00% 2.4.25  Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98  Percent Drop 0.20% 0.55% 0.83% 1.14%	Distance 830	Voltage Drop 0.723 24.28	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Number Power devi Device 2 0.500 45 Device 3 0.500 80 Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Number Power devi Device 1 2.000 22: Device 2 0.500 45 Device 3 0.500 80 Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage Total Circuit Current in amps Total Circuit Current in amps Total Circuit Current in amps Total Circuit Power Distance from source to 1st devic Wire Gauge for balance of circuit Fower Device Device previce Number Power devi Device 1 2.000 168 Device 2 0.500 55 Totals 2.500 22:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage Device previce Device	P   Curren     7   0.180     33   End of L     68%   F	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 do f Line Milli Is Withli  51 t Device 80 24.93 End of Line Milli Is Withli  52 cercent Drop  SER CIRCUI  50 do f Line Milli Is Withli  51 t Device 80 24.93 End of Line Milli Is Withli  51 t Distance 24.93 End of Line Milli Is Withli  52 t Distance 80 24.93 End of Line Milli Is Withli  53 End of Line Milli Is Withli  54 End of Line Milli Is Withli  55 End of Line Milli Is Withli  56 End of Line Milli Is Withli  57 End of Line Milli Is Withli  58 End of Line Milli Is Withli  59 End of Line Milli Is Withli  50 End of Line Milli Is Withli  51 End of Line Milli Is Withli  52 End of Line Milli Is Withli  53 End of Line Milli Is Withli  54 End of Line Milli Is Withli  55 End of Line Milli Is Withli  56 End of Line Milli Is Withli  57 End of Line Milli Is Withli  58 End of Line Milli Is Withli  59 End of Line Milli Is Withli  50 End of Line Milli Is Withli  50 End of Line Milli Is Withli  50 End of Line Milli Is Withli Is	Drop   0.299   24.70   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   0.66%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.085   0.070   ne Voltage   Drop from   Source   0.087   Voltage   Drop from   Source   O.087   Voltage   Drop from   Source   O.087   Voltage   Drop from   Source   O.087   Voltage   Drop from   O.087   Voltage   Drop fro	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N I IS WITHIN  Distance 345 Voltage ercent Drop  Centering N I IS WITHIN  Distance 325  Distance 220	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  CKT VOLTAGE =	1 0.1 0.8 0.8 0.8 0.8 20. 0.6 0.6 0.6 0.6 0.6 0.0 0.7
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um Device Circuit Cur Circuit Pov ice from sc Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 i i i i i i i i i i i i i i i i i i i	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 65 65 25 60 830 thod LIMITS  Voltage Drop 0.75 24.25 3.00% (25 or 70) mps  st device f circuit from previous device 30 55 55 65 30 55 65 50 50	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.79 24.68 24.65 24.56 24.49 54.60 24.79 24.66 24.79 24.26 24.25 24.25 End of Line M IS WITHI	25	Per 1000 1.98 1.98 1.98 1.98 1.98 1.98  Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 1.76% 2.16% 2.32% 2.45% 2.91% 2.98% 3.00% 24.25  Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98  Percent Drop 0.20% 0.55% 0.83% 1.14% 1.27% 1.59% 1.83% 2.04%	Distance 830	Voltage Drop 0.723 24.28	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   25 or Minimum Device Voltage   Total Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit   Number Power devi   Device Device previce   Device 3 0.500 80   Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Percent Drop 0.  Nominal Speaker Voltage   24.8   Percent Drop 0.  Nominal Speaker Voltage   7 otal Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit Wire Gauge for balance of circuit Power   Device Device previce   Device previce   Number Power devi   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Total Supplies   Total Circuit Current Distance of Circuit Current Distance of Circuit Current Distance   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Current Distance Dro 0.100 220 0.00   End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  4 Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 4 At Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 6 At Device 80 24.93 End of Line Milli Is Withli 15 Distance 16 At Device 80 24.93 End of Line Milli Is Withli 16 Distance 220 ine Voltage	Drop   0.299   24.70   1.20%   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   Source   0.087   24.91   0.087   24.91	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N IS WITHIN  Distance 345 Voltage ercent Drop  Centering N IS WITHIN  Distance 220 Voltage	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE	1
um Device Circuit Cur Circuit Pov ice from sc Gauge for I  vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 f Circuit Tis  Perc  Point to I  RCUIT IS	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	mps  st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 830  thod LIMITS  Voltage Drop 0.75 24.25 3.00%  (25 or 70) mps  st device f circuit from previous device 30 30 70 65 40 30 155	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.69 24.68 24.46 24.42 24.39 24.30 24.25 End of Line M IS WITHI Distance 830 Evoltage cent Drop 24.95 24.66 24.79 24.66 24.79 24.66 24.79 24.76 24.68 24.60 24.54 24.46 24.44 24.36	25   20   Wire   Gauge   12   12   Voltage   D. 1446   D. 150   D. 150	Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.99 0.49% 0.83% 1.26% 1.39% 1.63% 1.76% 2.16% 2.216% 2.245% 2.63% 2.91% 2.98% 3.00% 2.425 Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98 1.98 Percent Drop 0.20% 0.55% 0.83% 1.14% 1.27% 1.47% 1.59% 1.83% 2.215% 2.23% 2.257%	Distance 830	Voltage Drop 0.723 24.28	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   25 or Minimum Device Voltage   Total Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit   Number Power devi   Device Device previce   Device 3 0.500 80   Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Percent Drop 0.  Nominal Speaker Voltage   24.8   Percent Drop 0.  Nominal Speaker Voltage   7 otal Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit Wire Gauge for balance of circuit Power   Device Device previce   Device previce   Number Power devi   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Total Supplies   Total Circuit Current Distance of Circuit Current Distance of Circuit Current Distance   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Current Distance Dro 0.100 220 0.00   End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  4 Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 4 At Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 6 At Device 80 24.93 End of Line Milli Is Withli 15 Distance 16 At Device 80 24.93 End of Line Milli Is Withli 16 Distance 220 ine Voltage	Drop   0.299   24.70   1.20%   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   Source   0.087   24.91   0.087   24.91	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N IS WITHIN  Distance 345 Voltage ercent Drop  Centering N IS WITHIN  Distance 220 Voltage	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT)  AMPS OF DEVICE TOTAL AMPS@DEV.  VOLT. DROP @ DEV.	1
um Device Circuit Cur Circuit Pov ice from sc Gauge for I  vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 c 17 e 8 e 17 e 8 e 18 e 19 e 19 e 10 e 11 e 12 e 13 e 14 e 15 e 16 e 17 e 8 e 18	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	mps  st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 830  thod LIMITS  Voltage Drop 0.75 24.25 3.00%  ( 25 or 70 )  mps  st device f circuit from previous device 3.00%	0.440	50  At Device 24.88 24.69 24.68 24.46 24.42 24.39 24.34 24.30 24.27 24.25 End of Line M IS WITHI  Distance 830 24.07 24.26 24.25 24.25 24.25 24.25 24.25 24.26 24.35 24.34	25	Per 1000 1.98 1.98 1.98 1.98 1.98 1.98  Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 2.16% 2.16% 2.32% 2.45% 2.63% 2.91% 2.91% 2.98% 3.00% 24.25  Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98  Percent Drop 0.20% 0.55% 0.83% 1.14% 1.27% 1.59% 1.83% 2.91% 2.	Distance 830	Voltage Drop 0.723 24.28	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   25 or Minimum Device Voltage   Total Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit   Number Power devi   Device Device previce   Device 3 0.500 80   Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Percent Drop 0.  Nominal Speaker Voltage   24.8   Percent Drop 0.  Nominal Speaker Voltage   7 otal Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit Wire Gauge for balance of circuit Power   Device Device previce   Device previce   Number Power devi   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Total Supplies   Total Circuit Current Distance of Circuit Current Distance of Circuit Current Distance   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Current Distance Dro 0.100 220 0.00   End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  4 Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 4 At Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 6 At Device 80 24.93 End of Line Milli Is Withli 15 Distance 16 At Device 80 24.93 End of Line Milli Is Withli 16 Distance 220 ine Voltage	Drop   0.299   24.70   1.20%   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   Source   0.087   24.91   0.087   24.91	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N IS WITHIN  Distance 345 Voltage ercent Drop  Centering N IS WITHIN  Distance 220 Voltage	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  TOTAL VOLT DROP =  CKT VOLTAGE =  % VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL VOLT DROP =  CKT VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV.  VOLT. DROP @ DEV.	10.11 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.6 0.6 0.6 0.6 0.6 0.7 0.0 0.7 0.1 1 0.0 0.0 0.0 0.0 0.7 0.1
um Device Circuit Cur Circuit Pov ice from ss Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 i  Point to I IRCUIT IS  Percuit Cur Circuit Cur Circuit Cur Circuit Cur Circuit Cur Circuit Pov ice from ss Gauge for I vice mber e 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 2 e 13 e 14 e 15 e 16 i i i i i i i i i i i i i i i i i i i	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	mps  st device f circuit from previous device 70 60 80 25 50 30 75 25 45 40 65 60 830  thod LIMITS  Voltage Drop 0.75 24.25 3.00%  ( 25 or 70 )  mps  st device f circuit from previous device 30 65 65 30 70 65 40 30 155 50 25 60 810	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.79 24.68 24.69 24.59 24.25 End of Line M IS WITHI Distance 830 2 Voltage cent Drop P CIRCUI 24.86 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.66 24.79 24.72 24.86 24.79 24.70 24.86 24.79 24.70 24.80 24.70 24.80	25   20   Wire   Gauge   12   Voltage   D. C.	Per 1000 1.98 1.98 1.98 1.98 1.98 1.98  Percent Drop 0.49% 0.83% 1.26% 1.39% 1.63% 1.76% 2.16% 2.32% 2.45% 2.91% 2.97% 2.98% 3.00% 24.25  Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98  Percent Drop 0.20% 0.55% 0.83% 1.14% 1.27% 1.47% 1.59% 1.83% 2.04% 2.25% 2.62% 2.65% 2.65% 2.4.34	Distance 830 Voltage Percent Drop	Voltage Drop 0.723 24.28 2.89%	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   25 or Minimum Device Voltage   Total Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit   Number Power devi   Device Device previce   Device 3 0.500 80   Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Percent Drop 0.  Nominal Speaker Voltage   24.8   Percent Drop 0.  Nominal Speaker Voltage   7 otal Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit Wire Gauge for balance of circuit Power   Device Device previce   Device previce   Number Power devi   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Total Supplies   Total Circuit Current Distance of Circuit Current Distance of Circuit Current Distance   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Current Distance Dro 0.100 220 0.00   End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  4 Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 4 At Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 6 At Device 80 24.93 End of Line Milli Is Withli 15 Distance 16 At Device 80 24.93 End of Line Milli Is Withli 16 Distance 220 ine Voltage	Drop   0.299   24.70   1.20%   1.20%   24.70   1.20%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.105   0.112   0.118   ne Voltage   Drop   0.164   24.84   0.66%   25   20   Wire   Gauge   12   12   Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   source   0.065   0.070   ne Voltage   Drop from   Source   0.087   24.91   0.087   24.91	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N IS WITHIN  Distance 345 Voltage ercent Drop  Centering N IS WITHIN  Distance 220 Voltage	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  % VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  % VOLTAGE DROP =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =	10.11 0.8 0.8 0.8 0.8 0.8 0.8 0.8 0.6 0.6 0.6 0.6 0.6 0.7 0.0 0.7 0.1 1 0.0 0.0 0.0 0.7 0.1 1
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um Device Circuit Cur Circuit Pov ice from sc Gauge for I  vice mber le 1 e 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 f Curr Is  vice mber le 2 e 3 e 4 e 5 e 6 e 7 e 8 e 9 e 10 e 11 e 12 e 13 e 14 e 15 e 16 f Curr Is  vice mber le 1 e 15 e 16 f Curr Is  vice mber le 1 e 15 e 16 f Curr Is  vice mber le 1 e 15 e 16 f Curr Is  vice le 1 e 10 e 11 e 12 e 13 e 14 e 15 e 16 e 17 e 18 e 19 e 19 e 10 e 11 e 12 e 13 e 14 e 15 e 16 e 17 e 18 e 19	e Voltage rrent in an wer ource to 1 balance o  Device Power 2.000 0.500	st device f circuit from previous device 70 60 80 25 50 30 75 25 65 830 830 8thod LIMITS  Voltage Drop 0.75 24.25 3.00% (25 or 70 ) 10 10 10 10 10 10 10 10 10 10 10 10 10	0.440 11.000  Calculated Device Current 0.080 0.020	50  At Device 24.88 24.79 24.68 24.65 24.59 24.25 End of Line M IS WITHI Distance 830 24.07 24.25 End of Line M IS WITHI Distance 84.00 24.27 24.26 24.25 End of Line M IS WITHI DISTANCE 84.00 24.07 24.26 24.25 End of Line M IS WITHI DISTANCE 84.00 24.0	25	Per 1000 1.98 1.98 1.98 1.98 1.98 1.99 0.49% 0.83% 1.26% 1.39% 1.63% 1.76% 2.16% 2.32% 2.45% 2.91% 2.91% 2.98% 3.00% 2.4.25  Load CIRCUI  Totals Current 0.440 End of Line F  Ohm's Per 1000 1.98 1.98 1.98 Percent Drop 0.20% 0.55% 0.83% 1.14% 1.27% 1.47% 1.59% 1.83% 2.04% 2.15% 2.23% 2.65% 2.65% 2.65% 2.64% 2.65%	T IS WITHIN  Distance 830 Voltage Percent Drop	Voltage Drop 0.723 24.28 2.89%	Current Distance Dro 0.180 420 0.1 End of Line Voltage 24.8 Percent Drop 0.  Nominal Speaker Voltage   25 or Minimum Device Voltage   Total Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit   Number Power devi   Device Device previce   Device 3 0.500 80   Totals 3.000 34:  Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Percent Drop 0.  Nominal Speaker Voltage   24.8   Percent Drop 0.  Nominal Speaker Voltage   7 otal Circuit Current in amps   Total Circuit Power   Distance from source to 1st devic Wire Gauge for balance of circuit Wire Gauge for balance of circuit Power   Device Device previce   Device previce   Number Power devi   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Total Supplies   Total Circuit Current Distance of Circuit Current Distance of Circuit Current Distance   Device 1 2.000 168   Device 2 0.500 55   Totals 2.500 220   Point to Point Method CIRCUIT IS WITHIN LIMITS  Totals Voltage   Current Distance Dro 0.100 220 0.00   End of Line Voltage 24.8	P   Curren	t Distance 420 ine Voltage Percent Drop  SER CIRCUI  50 ed 24.89 20.24.89 End of Line Milli Is Withli  t Distance 345 ine Voltage Percent Drop  SER CIRCUI  4 Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 4 At Distance 345 ine Voltage Percent Drop  SER CIRCUI  50 ed 6 At Device 80 24.93 End of Line Milli Is Withli 15 Distance 16 At Device 80 24.93 End of Line Milli Is Withli 16 Distance 220 ine Voltage	Drop	Current 0.180 End of Line P Ohm's Per 1000 1.98 1.98 1.98 1.98 1.98 1.98 1.98 1.98	420 Voltage ercent Drop  Centering N IS WITHIN  Distance 345 Voltage ercent Drop  Centering N IS WITHIN  Distance 220 Voltage	Drop   0.150   24.85   0.60%	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  CKT VOLTAGE =  % VOLTAGE DROP =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =  CKT VOLTAGE =  % VOLTAGE DROP =  CKT VOLTAGE =  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  DEVICE # GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE TOTAL AMPS@DEV. VOLT. DROP @ DEV  TOTAL CIRCUIT AMPS =	= 0.8 0.8 0.8 20. 4.4  VO 1 1 0.6 0.6 0.6 20. 3.1  VO 1 1 0.0 0.7 0.1 1 0.0 0.0 0.6 0.0 0.0 0.7 0.0 0.0 0.0 0.0 0.0 0.0 0.0

DEVICE #		GE DROP	· / -						Oth	10th	DEVICE #	_		<u> </u>	ALCULATI				
DEVICE # GAUGE WIRE DISTANCE (FT)	1st 12 20	2nd 12 30	3rd 12 40	4th 12 70	5th 12 30	6th 12 35	7th 12 60	8th 12 30	9th 12 50	10th 12 30	DEVICE # GAUGE WIRE DISTANCE (FT)	1st 12 120	2nd 12 25	3rd 12 45	4th 12 40	5th 12 65	6th 12 60	7th 12 100	
MPS OF DEVICE	0.043 0.729	0.043	0.043 0.643	0.043	0.043	0.043	0.107 0.471	0.107 0.364	0.107 0.257	0.107	AMPS OF DEVICE TOTAL AMPS@DEV.	0.107 0.75	0.107 0.643	0.043 0.536	0.043	0.107 0.45	0.043	0.107	0.10
<del></del>	0.048	0.068	0.045	0.139	0.055	0.06	0.093	0.036	0.043	0.015	VOLT. DROP @ DEV.	0.298	0.053	0.08	0.065	0.097	0.068	0.099	0.01
CE # GE WIRE	11th 12	12th	13th	14th	15th 12	16th	17th	18th	19th	20th	TOTAL CIRCUIT AMPS =	0.75			WIRE	RESIS.	CIRC.		FOF
STANCE (FT) IPS OF DEVICE	60 0.043										TOTAL VOLT DROP =	0.798			10 12	1.29 2.01	10380 6530		I * F
	0.043 0.009	0	0	0	0	0	0	0	0	0	CKT VOLTAGE =	20.4			14 16	3.19 5.08	4110 2580		$\perp$
											% VOLTAGE DROP =	3.9%							
AL CIRCUIT AMPS =	0.729	<u> </u>		WIRE SIZE	RESIS.	MILS.		FORMU				VOLTA	GE DROE	(VD) CA	ALCULATI	ON - VIS	LIAL CIR	CUIT No	V/8
TAL VOLT DROP =  T VOLTAGE =	0.651			10	2.01	10380 6530		I* FEET C.M.	* 21.6		DEVICE # GAUGE WIRE	1st 12	2nd 12	3rd 12	4th	5th	6th	7th	8
	3.2%			14 16	3.19 5.08	4110 2580					DISTANCE (FT)  AMPS OF DEVICE	115 0.107	60	25 0.107	70	30 0.043	30 0.043	30 0.043	0.10
OLINGE BROIT	J.2 /0										TOTAL AMPS@DEV. VOLT. DROP @ DEV.	0.856 0.326	0.749 0.149	0.642 0.053	0.535	0.492 0.049	0.449 0.045	0.406 0.04	0.36
		GE DROP									DEVICE #	11th	12th	13th	14th	15th	16th	17th	18
EVICE # AUGE WIRE STANCE (FT)	1st 12 50	2nd 12 35	3rd 12 70	4th 12 30	5th 12 55	6th 12 30	7th 12 115	8th 12 25	9th 12 50	10th 12 40	GAUGE WIRE DISTANCE (FT) AMPS OF DEVICE	35 0.043	12 45 0.063	12	12	12	12	12	1
PS OF DEVICE	0.043	0.043		0.043		0.107 0.407	0.107	0.107	0.043	0.043	TOTAL AMPS@DEV.  VOLT. DROP @ DEV.	0.043 0.106 0.012	0.063	0		0	0	0	0
	0.113		0.139	0.055	0.094	0.04	0.114	0.016	0.014	0.006		0.012	0.003		+		+		+
AL CIRCUIT AMPS =	0.686			WIRE	RESIS.	CIRC.		FORMU	LA I		TOTAL CIRCUIT AMPS =	0.856			WIRE	RESIS.	CIRC.		FOF
AL VOLT DROP =	0.666			10	1.29	10380 6530		I * FEET C.M.	* 21.6		TOTAL VOLT DROP =	0.989			10	1.29	10380		I * F
T VOLTAGE =	20.4			14 16	3.19 5.08	4110 2580					CKT VOLTAGE =	20.4			14 16	3.19 5.08	4110 2580		
VOLTAGE DROP =	3.3%										% VOLTAGE DROP =	4.8%							
	VOI TA	GE DROP	O (VD) CA		ON - 1/161	JAI CID	CUIT No	V3				VOI TA	GE DPOF	(VD) CA	ALCULATI	ON - 1/10	UAI CID	CHIT No	\/a
VICE #	1st 12	2nd 12	3rd 12	4th 12	5th	6th 12	7th	8th 12	9th 12	10th	DEVICE # GAUGE WIRE	1st 12	2nd 12	3rd 12	4th 12	5th 12	6th	7th	. v 9
STANCE (FT)  MPS OF DEVICE	110	50 0.148	45 0.063	35 0.063	30 0.043	35 0.043	30 0.043	50 0.063	55 0.043	35 0.107	DISTANCE (FT)  AMPS OF DEVICE	30 0.043	35 0.043	50 0.063	35	55 0.107	65 0.043		#
TAL AMPS@DEV.	0.808 0.294	0.765 0.127	0.617 0.092	0.554 0.064	0.491	0.448	0.405	0.362 0.06	0.299	0.256	TOTAL AMPS@DEV. VOLT. DROP @ DEV.	0.362 0.036	0.319	0.276 0.046	0.213	0.15 0.027	0.043	0	0
/ICE#	11th	12th	13th	14th	15th	16th	17th	18th	19th	20th	TOTAL CIRCUIT AMPS =	0.362			WIRE	RESIS.	CIRC.		FOF
JGE WIRE TANCE (FT)	12 35	12 55	12 35	12	12	12	12	12	12	12	TOTAL VOLT DROP =	0.18			SIZE 10	/M FT. 1.29	MILS. 10380		I*F
	0.063	0.043	0.043	0	0	0	0	0	0	0	CKT VOLTAGE =	20.4			12 14	2.01 3.19	6530 4110		С
LT. DROP @ DEV.	0.017	0.016	0.005	0	0	0	0	0	0	0	% VOLTAGE DROP =	0.9%			16	5.08	2580		
TAL CIRCUIT AMPS =	0.808			WIRE	RESIS.	CIRC.		FORMU	LA I										
TAL VOLT DROP =	0.899			10	1.29	10380		I* FEET	* 21.6		DEVICE#	VOLTA 1st	GE DROF	(VD) CA	ALCULATI 4th	ON - VIS	UAL CIRO	CUIT No.	.V10
T VOLTAGE =	20.4	<del>                                     </del>		14	3.19 5.08	4110 2580		O.W.			GAUGE WIRE DISTANCE (FT)	12 90	12 45	12 85	12 45	12 80	12 85	12 45	1
VOLTAGE DROP =	4.4%										AMPS OF DEVICE TOTAL AMPS@DEV.	0.111 0.777	0.111 0.666	0.111 0.555	0.444	0.111	0.111	0.111 0.111	0
	VOLTAG	CE DROE	) (\/D\ CA	LCULATI	ON MICH	IAL CID	CLUT No.	.//			VOLT. DROP @ DEV.	0.231	0.099	0.156	0.066	0.088	0.062	0.017	0
/ICE #	1st	GE DROP	3rd	4th	5th	6th	7th	8th	9th	10th	TOTAL CIRCUIT AMPS =	0.777			WIRE SIZE	/M FT.	MILS.		FOF
UGE WIRE STANCE (FT) IPS OF DEVICE	12 135 0.148	12 25 0.107	12 50 0.043	60 0.107	12 125 0.107	12 30 0.107	12 55 0.043	12 55 0.063	12 50 0.043	12 55 0.043	TOTAL VOLT DROP =	0.72			10	2.01	10380 6530		I*F C.
AL AMPS@DEV.	0.811	0.663 0.055	0.556 0.092	0.107 0.513 0.102	0.406 0.168	0.299	0.192	0.149	0.045	0.043	CKT VOLTAGE =  % VOLTAGE DROP =	3.5%			14	3.19 5.08	4110 2580		_
	0.811	0.000	0.002	WIRE		CIRC.	0.000	FORMU		0.000	% VOLTAGE DROF =	3.5%							
TAL VOLT DROP =	0.892			SIZE 10	/M FT. 1.29	MILS. 10380		I* FEET	* 21.6			VOLTA	GE DROF	(VD) CA	LCULATI	ON - VIS	UAL CIR	CUIT No.	.V11
Γ VOLTAGE =	20.4			12 14	2.01 3.19	6530 4110		C.M.			DEVICE # GAUGE WIRE	1st 12	2nd 12	3rd 12	4th 12	5th 12	6th 12	7th	8
/OLTAGE DROP =	4.4%			16	5.08	2580					DISTANCE (FT)  AMPS OF DEVICE  TOTAL AMPS@DEV.	75 0.148	55 0.148	0.043	0.043	0.043	0.043	0.043	0.11
											VOLT. DROP @ DEV.	0.665 0.165	0.517	0.369 0.134	0.326	0.283	0.24	0.197	0.15
VICE #	VOLTAC	GE DROP	(VD) CA	LCULATI	ON - VISI	UAL CIRO	CUIT No.	V5 8th	9th	10th	TOTAL CIRCUIT AMPS =	0.665			WIRE	RESIS. /M FT.	CIRC.		FOF
UGE WIRE STANCE (FT)	12	12 40	12 80	12	12	12	12	12	12	12	TOTAL VOLT DROP =	0.595			10	1.29	10380 6530		I*F
IPS OF DEVICE TAL AMPS@DEV.	0.043 0.686	0.043 0.643	0.043	0.043 0.557	0.043 0.514	0.107 0.471	0.107 0.364	0.107 0.257	0.107 0.15	0.043	CKT VOLTAGE =	20.4			14	3.19 5.08	4110	<del>                                     </del>	+
DLT. DROP @ DEV.	0.079	0.085	0.159	0.055	0.06	0.093	0.03	0.043	0.015	0.007	% VOLTAGE DROP =	2.9%					1.550	<del></del>	+
TAL CIRCUIT AMPS =	0.686			WIRE SIZE	RESIS. /M FT.	CIRC.		FORMU					05.55	(VP) 7		ON 1"		OLUZ	1/45
	0.626			10	1.29 2.01	10380 6530		I* FEET C.M.	* 21.6		DEVICE # GAUGE WIRE	1st	GE DROF 2nd 12	3rd 12	4th	ON - VIS 5th 12	6th	7th	.V12 8
T VOLTAGE DROP -	20.4			14 16	3.19 5.08	4110 2580					DISTANCE (FT)  AMPS OF DEVICE	55 0.111	45 0.043	12 25 0.043	25 0.043	12 25 0.043	45 0.111	12	#
VOLTAGE DROP =	3.1%										TOTAL AMPS@DEV.  VOLT. DROP @ DEV.	0.394	0.043	0.043	0.197 0.016	0.043 0.154 0.013	0.111	0	0
	VOLTAC	GE DROP	(VD) CA	LCULATI	ON - VISI	JAL CIRO	CUIT No.	V6			TOTAL CIRCUIT AMPS =	0.394			WIRE	RESIS.	CIRC.		FOF
EVICE # AUGE WIRE	1st 12	2nd 12	3rd 12	4th 12	5th 12	6th 12	7th 12	8th 12	9th 12	10th 12	TOTAL VOLT DROP =	0.179			SIZE 10	/M FT. 1.29	MILS. 10380		I* F
	50 0.063	25 0.043	35 0.043	70 0.043	35 0.043	50 0.107	30 0.107	50 0.107	30 0.107	50 0.043	CKT VOLTAGE =	20.4			12 14	2.01 3.19	6530 4110		C
	0.749 0.124	0.686	0.643	0.6 0.139	0.557	0.514 0.085	0.407	0.3	0.193	0.086	% VOLTAGE DROP =	0.9%			16	5.08	2580	$\pm \overline{}$	$\pm $
VICE #	11th 12	12th	13th	14th	15th 12	16th	17th	18th	19th 12	20th									
STANCE (FT)	45 0.043	12	12	12	12	12	12	12	12	12	DEVICE #	VOLTA	GE DROF	(VD) CA	ALCULATI 4th	ON - VIS	UAL CIRO	CUIT No.	.V13
OTAL AMPS@DEV.	0.043	0	0	0	0	0	0	0	0	0	GAUGE WIRE DISTANCE (FT)	12	12 45	12 25	12	12	12	12	1
											AMPS OF DEVICE TOTAL AMPS@DEV.	0.111 0.197		0.043 0.043	0	0	0	0	0
OTAL CIRCUIT AMPS =	0.749			WIRE SIZE	RESIS. /M FT.	MILS.		FORMU			VOLT. DROP @ DEV.	0.13	0.013	0.004	0	0	0	0	0
	0.673			10 12	1.29	10380 6530		I* FEET C.M.	* 21.6		TOTAL CIRCUIT AMPS =	0.197			WIRE SIZE	/M FT.	MILS.	$\perp$	FOF
KT VOLTAGE =	20.4			14 16	3.19 5.08	4110 2580					TOTAL VOLTAGE -	0.147			10	2.01	10380 6530	<del></del>	I*F
VOLTA 07 5 7	3.3%										CKT VOLTAGE =  % VOLTAGE DROP =	0.7%			14 16	3.19 5.08	4110 2580		#
VOLTAGE DROP =											17/0 1/1 11 1 / 1 1 1 1 1 1 1 1 1 1 1 1 1		1			1	1	1	1



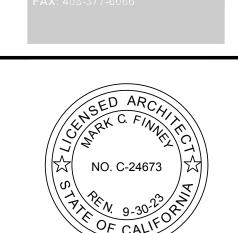


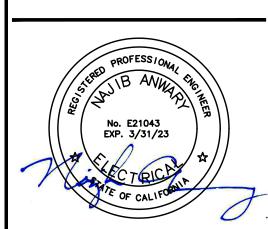
QTY	MODEL No.	DEVICE DESCRIPTION	WATTS
			EACH
1	DAA-1	50 WATT NOTIFIER DIGITAL AUDIO AMPLIFIER	50.0000
1	S5	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	11.0000
1	S6	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	10.5000
1	S9	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	5.5000
1	S13	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	2.5000
1	SPARE	SPARE	0.0000
1	SPARE	SPARE	0.0000
1	SPARE	SPARE	0.0000
1	SPARE	SPARE	0.0000

AMPLIFIER WATT	AGE CALCULATION FOR AMP-3	
MODEL No.	DEVICE DESCRIPTION	WATTS
		EACH
DAA-1	50 WATT NOTIFIER DIGITAL AUDIO AMPLIFIER	50.0000
S10	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	7.5000
S11	WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT	4.5000
SPARE	SPARE	0.0000
TTAGE AVAILABLE		38.0000



(DSA STAMP AREA)





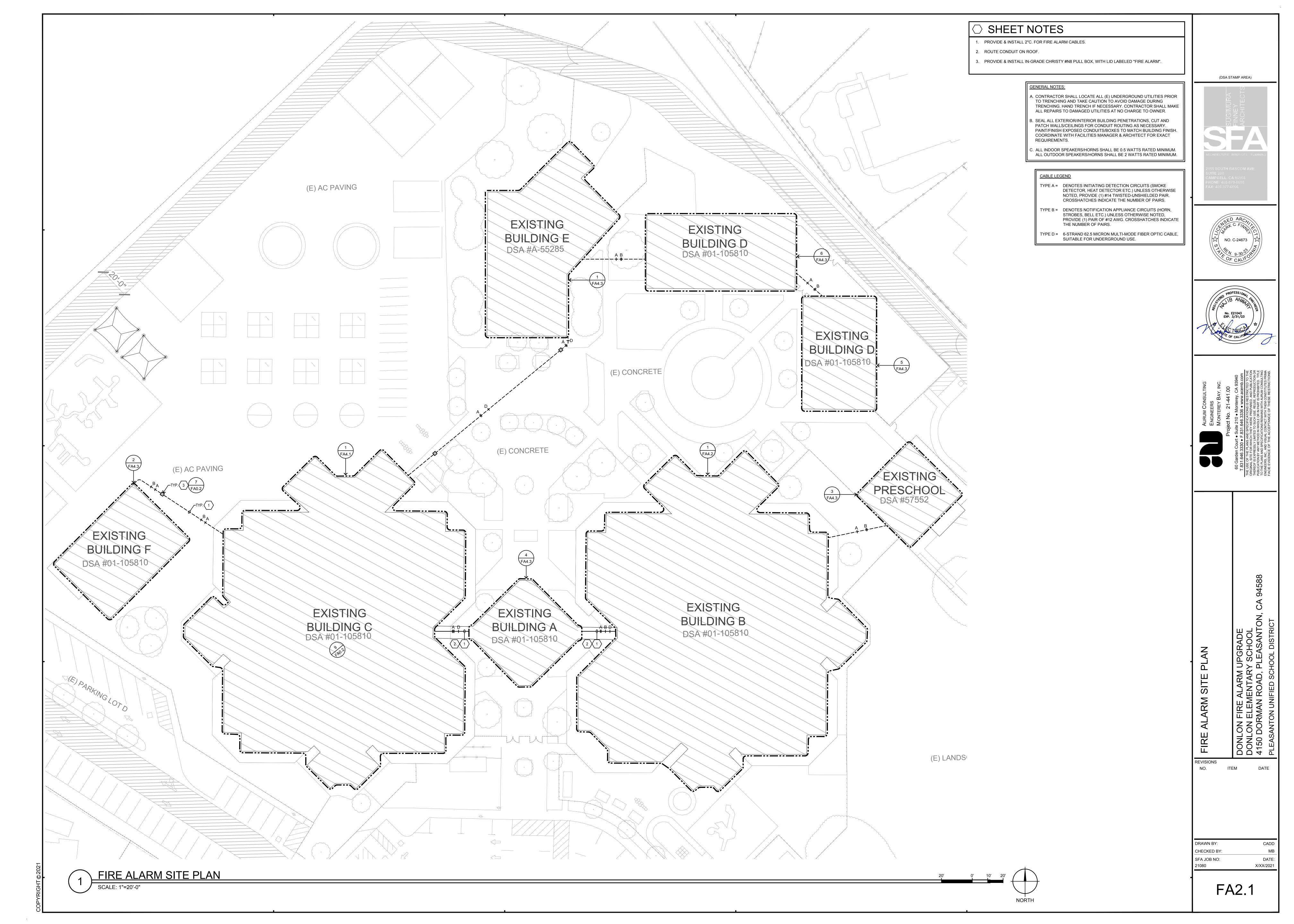


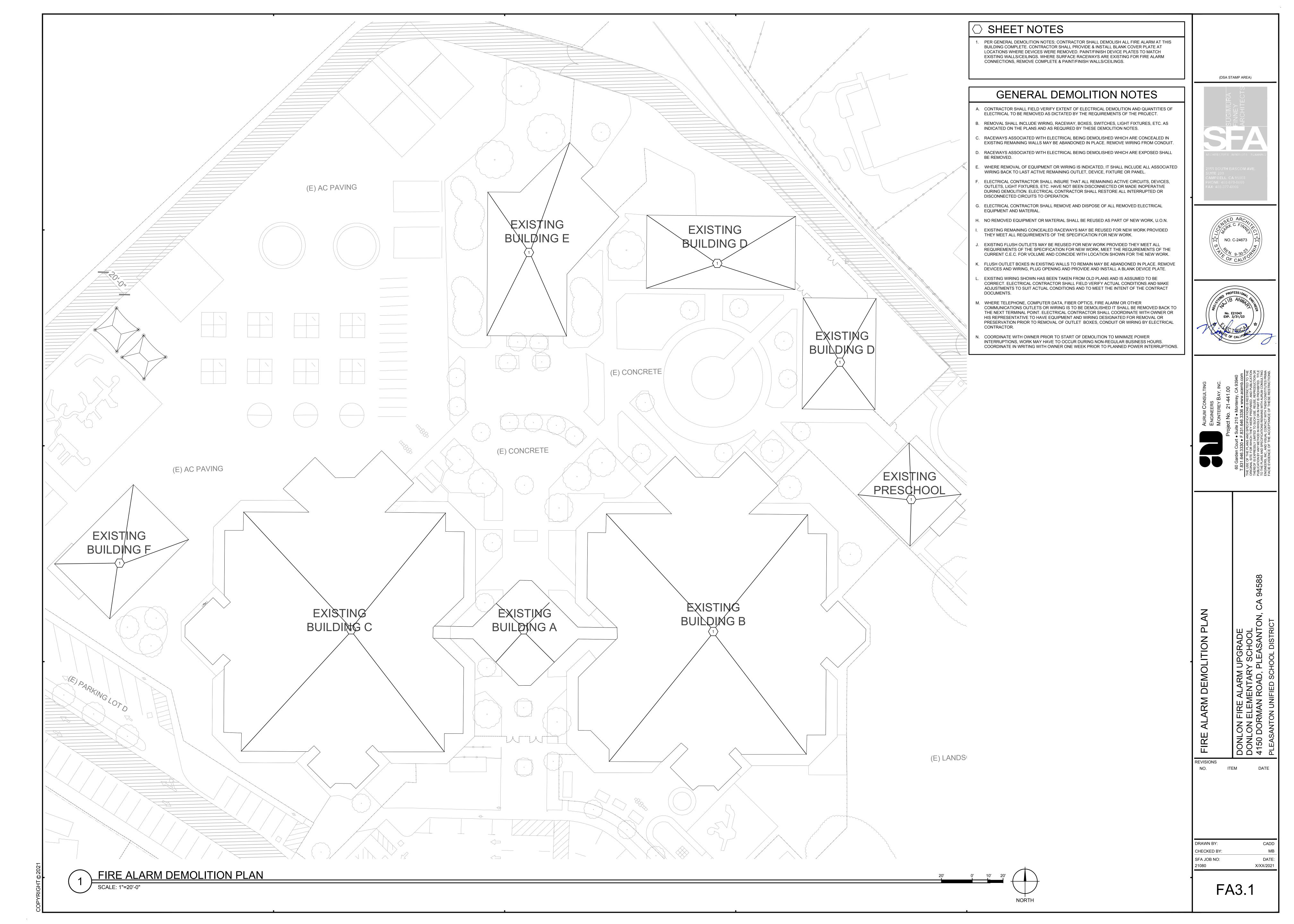
RE ALARM UPGRADE
EMENTARY SCHOOL
AN ROAD, PLEASANTON, CA 94588

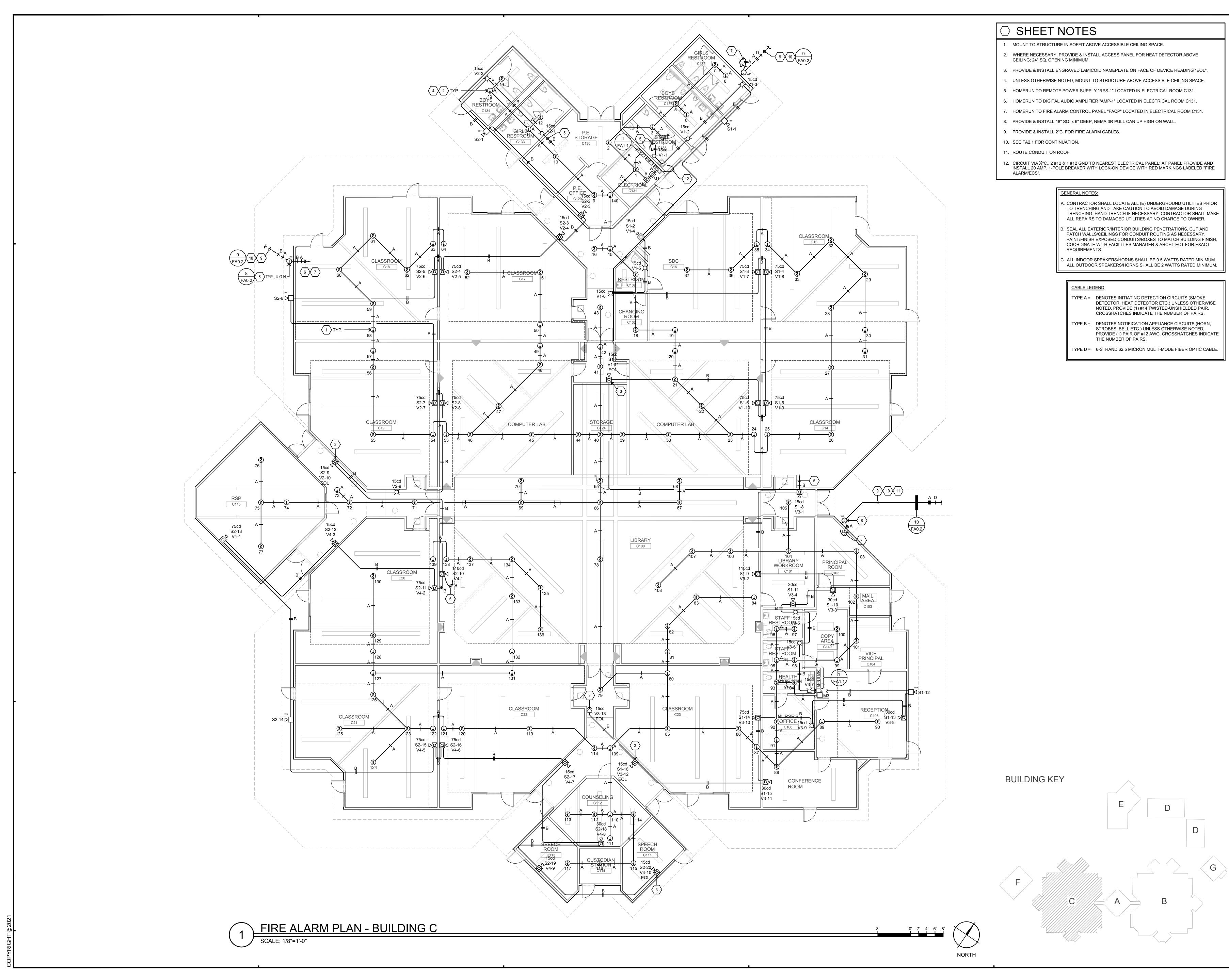
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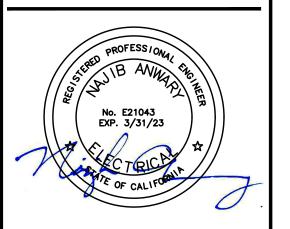


ARCHITECTURE INTERIORS PLANNING:

2155 SOUTH BASCOM AVE.
SUITE 200
CAMPBELL. CA 95003
PHONE: 403-879-0600
FAX: 403-377-6066

(DSA STAMP AREA)





ENGINEERS

MONTEREY BAY, INC.

Project No. 21-441.00

60 Garden Court • Suite 210 • Monterey, CA 9394(
T.831.646.3330 • F.831.646.3336 • www.acemb.co

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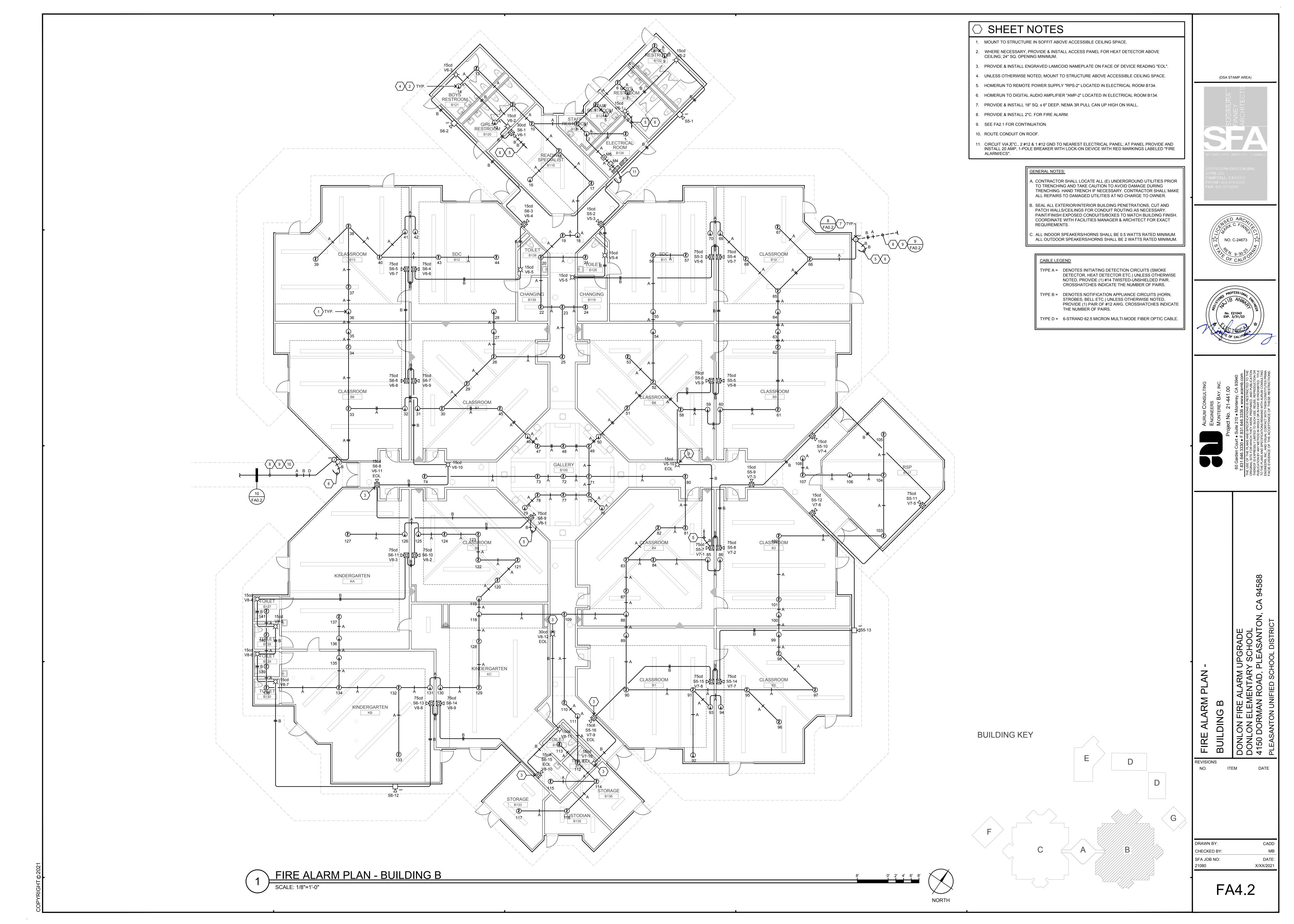
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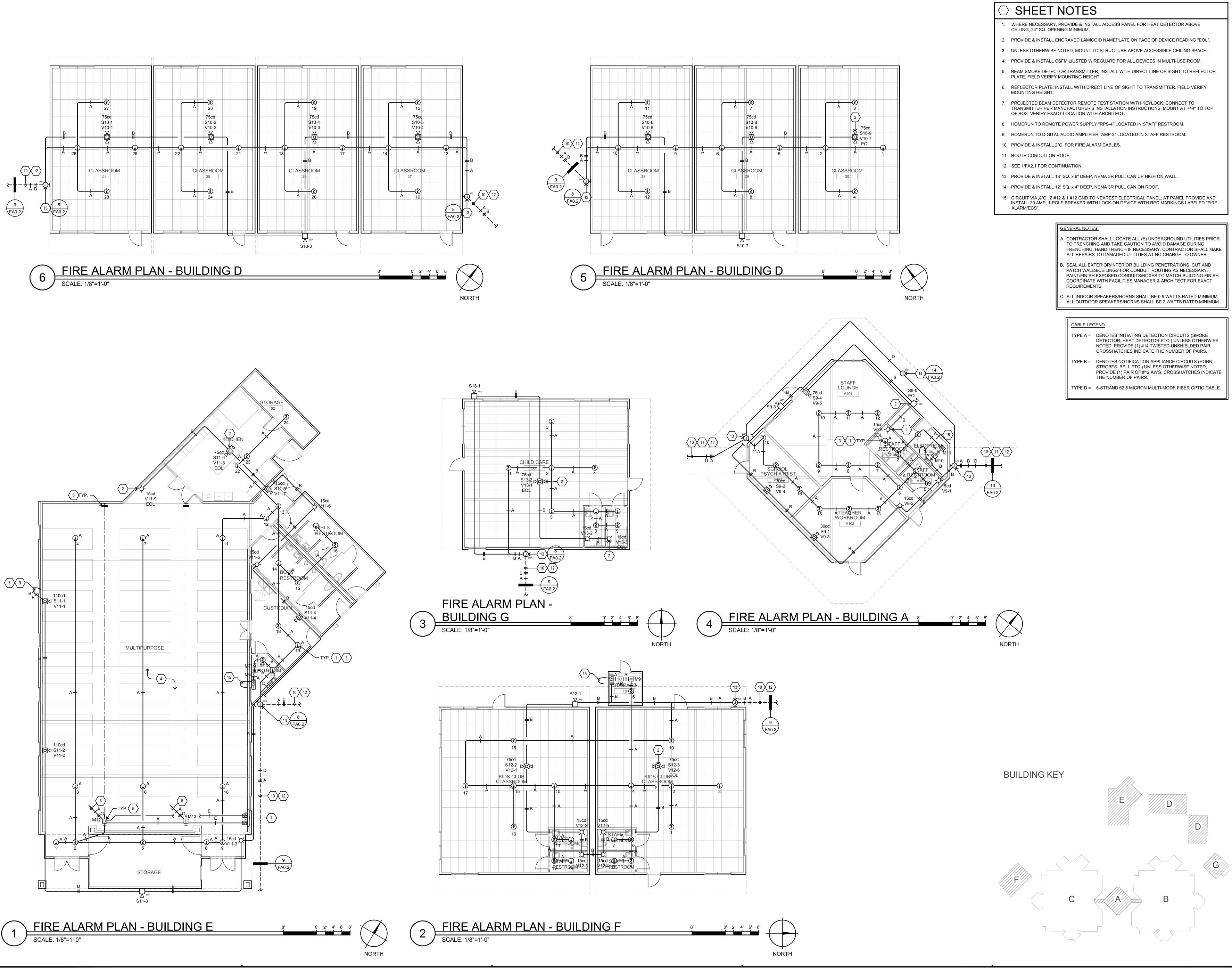
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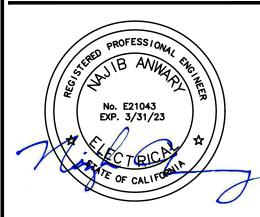
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(DSA STAMP AREA)





CHECKED BY: SFA JOB NO: X/XX/2021



# WALNUT GROVE ELEMENTARY SCHOOL CAMPUS WIDE FIRE ALARM REPLACEMENT

1999 HARVEST RD, PLEASANTON, CA 94566

PLEASANTON UNIFIED SCHOOL DISTRICT

DSA FILE NUMBER 01-32 DSA APPLICATION NUMBER 01-119914 **OPSC TRACKING NUMBER 75101-108** 

# FAX: 408-377-6066

(DSA STAMP AREA)



# **GENERAL NOTES**

CONTRACTOR SHALL VISIT THE PROJECT AREA IN ORDER TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND THE REQUIREMENTS OF THE PROJECT. THE CONTRACTOR MAY CONTACT THE ARCHITECT DURING THE BIDDING PHASE REGARDING CLARIFICATIONS AND PROJECT REQUIREMENTS.

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

CONTRACTOR SHALL REIMBURSE THE OWNER FOR REPAIR AND REPLACEMENT, INCLUDING ARCHITECT'S FEES, FOR ANY DAMAGE CAUSED TO STRUCTURES, LANDSCAPE, SITE WORK, OR EXISTING SYSTEMS TO REMAIN, AS THE RESULT OF CONSTRUCTION OPERATIONS.

ALL EXISTING CONDITIONS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND BUILDING DATA AT THE JOB SITE. ANY DISCREPANCIES REQUIRING MODIFICATION TO THE CONSTRUCTION DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY. NO MODIFICATIONS SHALL BE MADE BY THE CONTRACTOR WITHOUT PRIOR APPROVAL FROM THE ARCHITECT.

COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVED LOCATION OF JOB SITE ACCESS, PARKING, AND LOCATION OF CONTRACTOR'S EQUIPMENT AND MATERIAL STORAGE AREA. SEE SITE PLAN FOR ADDITIONAL NOTES.

### **UTILITY SHUT-DOWNS AND CONNECTIONS** ALL REQUIRED UTILITY SHUT DOWNS SHALL HAVE PRIOR APPROVAL FROM THE

OWNER'S REPRESENTATIVE. REQUEST SHALL BE SUBMITTED WITH ADEQUATE ADVANCE NOTICE PER PROJECT REQUIREMENTS.

THE OWNER/OPERATOR AND CONTRACTOR SHALL BE AWARE THAT BUILDINGS CONSTRUCTED PRIOR TO 1978 (OR THERE ABOUT) POSSIBILITY CONTAIN ASBESTOS IN SOME EXISTING CONSTRUCTION MATERIALS, AND WILL LIKELY BE ENCOUNTERED DURING ALTERATIONS OR REMODELING.

UNDER CALIFORNIA TITLE 8, THE OWNER AND CONTRACTOR BOTH HAVE RESPONSIBILITIES TO DETERMINE THE EXISTENCE OF ASBESTOS CONTAINING MATERIALS IN AREAS TO BE ALTERED OR REMODELED PRIOR TO COMMENCEMENT OF WORK AND TO TAKE APPROPRIATE MEASURES TO PROTECT PERSONNEL. CAL-OSHA HAS JURISDICTION OVER ASBESTOS RELATED WORK. ASBESTOS RELATED WORK SHALL BE DONE IN ACCORDANCE WITH CALIFORNIA GENERAL INDUSTRIAL SAFETY ORDERS, TITLE 8, SECTION 341.6 THROUGH 341.14. ASBESTOS IN THE WORK ENVIRONMENT IS REGULATED BY TITLE 8, SECTION 5208.

THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AND DISTRICT REGULATION 11-2-401.3 REQUIRES EVERY RENOVATION INVOLVING THE REMOVAL OF 100 SQ.FT., LN.FT, OR GREATER OF REGULATED ASBESTOS CONTAINING MATERIAL AND FOR EVERY DEMOLITION (EVEN WHEN NO ASBESTOS IS PRESENT), A NOTIFICATION MUST BE SENT TO THE BAAQMD AT LEAST 10 WORKING DAYS PRIOR TO COMMENCEMENT OF DEMOLITION / RENOVATION.

### ALL BUILDING MATERIALS MUST BE ASBESTOS FREE

THESE DOCUMENTS DO NOT ADDRESS CONTAINMENT FOR EXISTING CONSTRUCTION. THE OWNER'S ABATEMENT SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR THE DETECTION, REMOVAL, AND THE DISPOSAL OF ANY EXISTING ASBESTOS MATERIAL. ARCHITECTURAL AND ENGINEERING FEES FOR ADDITIONAL DESIGN EFFORT TO OBTAIN STATE APPROVALS, AS WELL AS THE COST OF ANY REPAIRS, FOR DAMAGE CAUSED OR REPLACEMENT OF EXISTING SYSTEMS TO REMAIN DUE TO WORK PERFORMED BY THE ASBESTOS ABATEMENT SUBCONTRACTOR, SHALL BE THE RESPONSIBILITY OF SAID SUBCONTRACTOR.

### CONSTRUCTION SCHEDULING

CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION OPERATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO SCHEDULING AND START OF THE WORK. CONTRACTOR SHALL PROVIDE PROTECTION TO ALL EXISTING SPACES AND SYSTEMS WHICH ARE IN USE, ADJOINING THE PROJECT, AND NOT PART OF THE PROJECT

### **INTERIOR FINISHES**

INTERIOR FINISHES AND ALL WALL COVERING MATERIAL SHALL CONFORM TO CCR TITLE 24, PART 2, CHAPTER 8.

PIPES, DUCTS AND CONDUIT - SUPPORT AND BRACING PIPES, DUCTS, AND CONDUITS SHALL BE SUPPORTED AND BRACED PER THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL

SYSTEMS AND PLUMBING PIPING SYSTEMS", OPM 0052-13 SEISMIC

### BRACING AND SUPPORT SYSTEMS. DRILLED-IN EXPANSION ANCHOR

WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.

### TITLE 24 COMPLIANCE

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS (2019 CBC). SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.

ADMINISTRATIVE REQUIREMENTS FROM PART 1., TITLE 24, C.C.R. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT, AND APPROVED BY DSA, AS PER SECTION 4-338 - A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY DSA SHALL PROVIDE CONTINUOUS INSPECTION OF WORK, PER SECTION 4-342

- A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT SHALL CONDUCT ALL REQUIRED TEST AND INSPECTIONS FOR THE

- SPECIAL INSPECTION PER SECTION 4-333 (C) - CONTRACTOR SHALL SUBMIT VERIFIED REPORT OR SECTION 4-336 & 4-343

- ADMINISTRATION OR CONSTRUCTION PER PART 1, TITLE 24, C.C.R. - DUTIES OF ARCHITECT, STRUCTURAL ENGINEER, OR PROFESSIONAL ENGINEER PER SECTION 4-333 (A) AND 4-341 - DUTIES OF CONTRACTOR PER SECTION 4-343 - VERIFIED REPORTS PER SECTION 4-343 AND 4-336 A COPY OF PARTS 1 TO 5 OF TITLE 24 SHALL BE KEPT AND AVAILABLE IN

THE FIELD DURING CONSTRUCTION DSA SHALL BE NOTIFIED AT START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE PER SECTION 4-331 - SUPERVISION BY DSA PER SECTION 4-334

- DSA IS NOT SUBJECT TO ARBITRATION

### GENERAL NOTES, cont.

- ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY DSA NO CHANGES OR REVISIONS SHALL BE MADE FOLLOWING WRITTEN APPROVAL WHICH AFFECTS ACCESS COMPLIANCE ITEM UNLESS SUCH CHANGES TO REVISIONS ARE
- SUBMITTED TO DSA FOR APPROVAL. SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE SUBMITTED AS A
- CONSTRUCTION CHANGE DOCUMENT OR ADDENDA, AND SHALL BE APPROVED BY DSA PRIOR TO FABRICATION AND INSTALLATION CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY THE FOLLOWING
- ARCHITECT OR ENGINEER OF RECORD
- STRUCTURAL ENGINEER (WHEN APPLICABLE) -- DELEGATED PROFESSIONAL ENGINEER
- MATERIALS AND THEIR INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES. PER CBC 11B-104.1 "ALL DIMENSIONS ARE SUBJECT TO CONVENTIONAL INDUSTRY TOLERANCES EXCEPT WHERE THE REQUIREMENT IS STATED AS A RANGE WITH SPECIFIC MINIMUM AND MAXIMUM END POINTS.

COMPLIANCE WITH LOCAL ORDINANCES

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

LAMINATE

LAVATORY

INSULATION

JOIST HANGER

KILN DRIED

INTERIOR

INVERT

JOINT

ABOVE FINISHED FLOOR

ACOUSTIC TILE MACHINE BOLT ADJUSTABLE MACHINE SCREW MANHOLE **ANCHOR BOLT** APPROX APPROXIMATEL' MARKER BOARD ASPHALTIC CONCRETE MECHANICAL BENCH MARK MINIMUM MISCELLANEOUS BOTH WAYS BUILDING NOMINAL BUILT-UP ROOFING NOT IN CONTRACT CEILING NOT TO SCALE CEMENT NO. or # NUMBER C.C or O.C. CENTER TO CENTER OCCUPANT(CY) CENTERLINE ON CENTER CER. TILE CERAMIC TILE OPENING CLEANOUT OPPOSITE C.O.T.G. CLEANOUT TO GRADE OPPOSITE HAND CLEAR O.F.O.S. OUTSIDE FACE OF STUD C.A.H.R. CLEAR ALL HEART O.H.W.S. OVAL HEAD WOOD SCREW REDWOOD OVERFLOW DRAIN and/or COLD WATER OUTSIDE DIAMETER COLUMN OWNER FURNISHED and COM. COMMON CONTRACTOR INSTALLED CONCRETE CONST. CONSTRUCTION PARTITION CONSTRUCTION HEART PLATE CONSTRUCTION JOINT PENNY (NAILS) **CONTINUOUS** PLASTER CONTR. CONTRACTOR PLYWD. PLYWOOD CTR. COUNTER P.V.C. POLY VINYL CHLORIDE COUNTER SUNK PRESSURE TREATED PROPERTY LINE DIAMETER R. or RAD. RADIUS DIMENSION R.W.L. RAIN WATER LEADER DISABLED ACCESS RWD./R.W. REDWOOD REINF. REINFORCING DOWNSPOUT REQUIRED DRAWING RETURN AIR GRILLE DRINKING FOUNTAIN RIM ELEVATION and/or DOUGLAS FIR **ROOF DRAIN** E.W. **EACH WAY** ROUGH OPENING ELECTRIC or ELECTRICAL R.H.M.S. ROUND HEAD METAL SCREW ELEV. ELEVATION R.H.W.S. ROUND HEAD WOOD SCREW ENCLOSE and/or ENCLOSURE SEE STRUCTURAL DRAWINGS S.T.S.M.S. SELF TAPPING SHEET **EQUIPMENT** EXISTING SHEATHING **EXPANSION** SHEET METAL **EXPANSION JOINT** SHEET METAL SCREW **EXPOSED** S.O.V. SHUT OFF VALVE **EXTERIOR** FACE OF CONCRETE SOLID CORE **SPECIFICATION** FACE OF STUD SQUARE F.O.F. FACE OF FINISH SQUARE FEET STAGGERED FINISHED FLOOR STANDARD FINISH SLAB STAINLESS STEEL FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET STORAGE STRUCTURAL F.H.M.S. FLAT HEAD METAL SCREW F.H.W.S. FLAT HEAD WOOD SCREW THRES. THRESHOLD **TONGUE & GROOVE** FLOOR DRAIN TOOLED JOINT FOOTING TOP OF BEAM FOUNDATION T.O.C. TOP OF CURB or CONCRETE GALVANIZED T.O.S. TOP OF STEEL or SHEATHING GALVANIZED IRON T.O.W. TOP OF WALK GAUGE TYPICAL GLASS UNLESS OTHERWISE NOTED U.O.N. GLU-LAM GLUE-LAMINATED UNLESS OTHERWISE SHOWN GRADE VENT THROUGH ROOF V.T.R. GYP. BD. GYPSUM BOARD VERT. VERTICAL HARDWARE VERTICAL GRAIN VERIFY IN FIELD HEIGHT VINYL COMPOSITION TILE **HOLLOW CORE** VINYL WALL COVERING V.W.C. HOLLOW METAL HORIZ. HORIZONTAL V.O.I.P. VOICE OVER INTERNET PROTOCOL HOSE BIBB WATER CLOSET INSIDE DIAMETER WATER HEATER

WATERPROOF

WITH

WITHOUT

WOOD

W/O

WATER RESISTANT

WELDED WIRE MESH

WINDOW DIMENSION

### **BUILDING CODES AND STANDARDS:**

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R. 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, C.C.R. (2018 INTERNATIONAL BUILDING CODE, VOLUMES 1 AND 2, WITH 2019 CALIFORNIA AMENDMENTS.) 2019 CALIFORNIA ELECTRIC CODE (CEC), PART 3, TITLE 24, C.C.R.

(2018 NATIONAL ELECTRIC CODE WITH 2019 CALIFORNIA AMENDMENTS). 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, C.C.R. (2018 UNIFORM MECHANICAL CODE WITH 2019 CALIFORNIA

2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, C.C.R. (2018 UNIFORM PLUMBING CODE WITH 2019 CALIFORNIA AMENDMENTS). CALIFORNIA ENERGY CODE (CENC), PART 6, TITLE 24, C.C.R. CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R. (2018 INTERNATIONAL FIRE CODE WITH 2019 CALIFORNIA AMENDMENTS)

CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24, 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24, C.C.R. 2016 ASME A17.1 (W/A17.1a/CSA B44a-08 ADDENDA) SAFETY CODE FOR

ELEVATORS AND ESCALATORS 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (28 CFR PART 35 FOR TITLE II ENTITIES)

CCR TITLE-19, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

NFPA 13 INSTALLATION OF SPRINKLER SYSTEMS (CA AMENDED) NFPA 14 INSTALLATION OF STANDPIPE & HOSE SYSTEMS 2016 EDITION (CA AMENDED) NFPA 17 DRY CHEMICAL EXTINGUISHING SYSTEMS NFPA 17A WET CHEMICAL EXTINGUISHING SYSTEM 2017 EDITION NFPA 20 STATIONARY FIRE PUMPS TO FIRE PROTECTION NFPA 22 WATER TANKS FOR PRIVATE FIRE PROTECTION 2013 EDITION NFPA 24 PRIVATE FIRE SERVICE MAINS 2016 EDITION (CA AMENDED INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS CALIFORNIA EDITION NFPA 72 NATIONAL FIRE ALARM CODE 2016 EDITION (CA AMENDED) NFPA 80 FIRE DOORS AND OTHER OPENING PROTECTIVES 2016 EDITION NFPA 92 STANDARD FOR SMOKE CONTROL SYSTEMS

NFPA 110 EMERGENCY AND STANDBY POWER SYSTEMS NFPA 170 STANDARD FOR FIRE SAFETY AND EMERGENCY 2018 EDITION NFPA 253 CRITICAL RADIANT FLUX OF FLOOR COVERING 2015 EDITION NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS ICC 300 STANDARDS FOR BLEACHERS, FOLDING AND 2017 EDITION TELESCOPIC SEATING, AND GRANDSTANDS

SFM 12-10-1 POWER OPERATED EXIT DOORS SFM 12-10-2 SINGLE POINT LATCHING OR LOCKING DEVICES SFM 12-10-3 EMERGENCY EXIT & PANIC HARDWARE MANUAL OPERATING SIGNAL BOXES 1999/2005 EDITION UL 268 SMOKE DETECTORS FOR FIRE PROTECTIVE 2009 EDITION SIGNALING SYSTEMS UL 268A SMOKE DETECTORS DUCT APPLICATIONS 1998/2003 EDITION

FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS 2005 (R2010)

FOR PROTECTION OF COMMERCIAL COOKING FOUIPMENT UL 305 PANIC HARDWARE 2012 EDITION AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, AND ACCESSORIES UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS CONTROL UNITS FOR FIRE PROTECTIVE 2003 EDITION SIGNALING SYSTEMS

(W/ REVISIONS THROUGH DEC. 2014) UL 1971 SIGNALING DEVICES FOR THE HEARING IMPAIRED 2002 EDITION COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION WILL

# SYMBOLS LEGEND

- SECTION IDENTIFICATION - SHEET WHERE SECTION IS DRAWN

INTERIOR ELEVATION - INDICATES ELEVATION SHOWN — SHEET WHERE ELEVATION IS DRAWN

**ROOM IDENTIFICATION** CLASSROOM— ROOM NAME — ROOM NUMBER

SPECIFIC NOTE DOOR DESIGNATION

WINDOW DESIGNATION

ADDENDUM REVISION

CLOUD AROUND REVISION

FINISH NUMBER SEE SPECS AND I.E. DWGS.

CEILING HEIGHT

CENTER OF

REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND EM/VOICE EVACUATION

EQUIPMENT LETTER

WALL TYPE

PROJECT SUMMARY

 DETAIL IDENTIFICATION SHEET WHERE DETAIL IS DRAWN

SEE EQUIPMENT SCHEDULE

THERE ARE NO DEFERRED SUBMITTALS FOR THIS PROJECT.

# **DESIGN TEAM**

SUGIMURA FINNEY ARCHITECTS 2155 SOUTH BASCOM AVENUE SUITE 200 CAMPBELL, CALIFORNIA 95008 (408) 879-0600 (408) 377-6066 FAX ATTN: MARK FINNEY MARK@SUGIMURA.COM

ELECTRICAL AND FIRE ALARM ENGINEER AURUM CONSULTING ENGINEERS 1798 TECHNOLOGY DRIVE, SUITE 242 SAN JOSE, CA 95110

# DRAWING INDEX

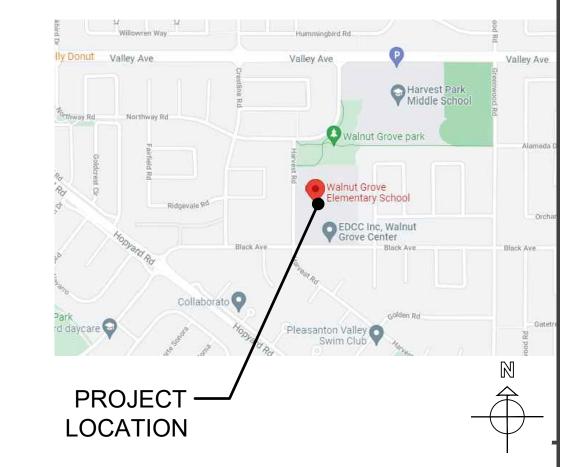
T3 SITE PLAN - FIRE LIFE SAFETY

FA0.1 FIRE ALARM SYMBOLS, ABBRE., EQUIPMENT LIST, OPERATIONAL MATRIX, DETAILS & NOTES FA1.1 FIRE ALARM RISER DIAGRAM FA1.2 BATTERY & VOLTAGE DROP CALCULATIONS

FA2.1 FIRE ALARM DEMOLITION PLAN FA3.1 FIRE ALARM SITE PLAN FA4.1 FIRE ALARM PLANS - BUILDINGS A & B FA4.2 FIRE ALARM PLANS - BUILDINGS C, D, E & KID'S CLUB FA4.3 FIRE ALARM PLANS - BUILDINGS F, G & PORTABLES FA5.1 FIRE ALARM DETAILS

SHEET TOTAL = 11

# **VICINITY MAP**



# STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS / ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND / OR OTHER CONSULTANTS APPLICATION NO.: 01-119914 ☑ THE DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET THIS DRAWING, PAGE OF SPECIFICATIONS / CALCULATIONS HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR: DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND 2) COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT. THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS | RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336. 4-341 AND 4-344" OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B)) THIS DRAWING OR PAGE IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND X HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND

LICENSE NUMBER

12/01/2021

9/30/2023

EXPIRATION DATE

REVISIONS

**CHECKED BY** 

SFA JOB NO: 12/06/2021

BUILDING CODE ANALYSIS										
BUILDING	CONSTRUCTION TYPE OCCUPANCY TYPE	AREA (SQ.FT.)	* ALLOWABLE (SQ.FT.)	# OF STORIES						
BUILDING A	V-N / E1	10,841	13,650	1						
BUILDING B	V-N / E1	12,321	13,650	1						
BUILDING C	V-N / E1	12,321	13,650	1						
BUILDING D & E	V-N / E1	5,100	9,100	1						
BUILDING F	V-N / E1-B	13,650	9,100	1						
BUILDING G	V-1 / A2.1	6,418	10,500	1						

\* AREA INCREASE USED FOR ORIGINAL CONSTRUCTION. NEW SCOPE OF WORK DOES NOT ENCROACH OPEN AREA.



REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND EM/VOICE EVACUATION SYSTEM ACROSS ENTIRE SITE.

### GENERAL NOTES

A. THIS SHEET IS FOR FIRE LIFE SAFETY CODE RELATED ITEMS. FOR SCOPE OF WORK SEE SHEETS A0.1 AND A0.2. B. REFER TO FIRE ALARM AND FIRE PROTECTION DRAWINGS FOR EXTENT OF OTHER RELATED WORK.

### SITE PLAN - FIRE LIFE SAFETY NOTES

1. EXISTING FIRE HYDRANT.

**GRAPHIC KEY** 

EXISTING PROPERTY LINE

(E) FIRE HYDRANT

EXISTING BUILDING

EXISTING RESTROOMS

— — — — ROOF OVERHANG

—×——×——×—— CHAIN LINK FENCE

→ (E) SIGN



(DSA STAMP AREA)



NO. C-24673  NO. C-24673  NO. C-24673  NO. C-24673  NO. C-24673  NO. C-24673	
	-

-WIDE FIRE ALARM REPLACEMENT	GROVE ELEMENTARY SCHOOL	WEST RD, PLEASANTON, CA 94566	TOIGTSIGN SOUCH STORES
-WIDE	GROV	<b>VEST</b>	

FIRE LI		CAMPUS	WALNUT	1999 HAF
ISIONS				
0.	ITE	ΕM		DA

ITEM	DATE

DRAWN BY:	
CHECKED BY:	1
SFA JOB NO:	DA
21083	12/06/20

BUILDING G	AC PAVING		DAYCARE 1
BUILDING B	BUILDING F	BUILDING C	DAYCARE
CONC.	BUILDING F	BUILDING D	
Bullome	Boile DING P	CONC.	AC PAVING
BUILDIN	NG B CONC.	DING C  BUILDING E	
Bull Ding A		(E) LANDSCAPE	
AC PAVING	CONC.	(E) LANDSCAPE	
Eckre		(E) LANDSCAPE	
E.I.A.M.S.C.A.P.	(E) LANDSCAPE		AC PAVING
	AC PAVING		

(E) LANDSCAPE

SITE PLAN - FIRE LIFE SAFETY

FIRE ALARM EQUI  SYMBOL DESCRIPTION AND MODEL NUMBER  ADDRESSABLE FIRE ALARM CONTROL PANEL WITH DVC EM AUDIO OPTION, FIBER MODULES AS NECESSARY AND INTEGRATED UDACT, NOTIFIER NFS2 SERIES; PROVIDE & INSTALL FIRE ALARM DOCUMENT CABINET NEXT TO FACP.  DIGITAL VOICE COMMAND CONTROL SYSTEM WITH DIGITAL AUDIO LOOP TECHNOLOGY, WITH UP 8 CHANNELS OF AUDIO AND UP TO 5 CHANNELS OF FIREFIGHTER TELEPHONE COMMUNICATIONS, LOCAL KEYPAD FOR LOCAL ANNUNCIATION AND CONTROLS (DVC-KD).  RPS  10.0A AUXILIARY POWER SUPPLY WITH 4 NAC OUTPUT CIRCUITS AND BUILT-IN SYNCHRONIZATION. NOTIFIER PSE-10 SERIES.  40 MATT, 70.7VRMS DIGITAL AUDIO AMPLIFIER WITH CHARGING POWER SUPPLY AND 2 CLASS B OR 2 CLASS A OUTPUTS. NOTIFIER DAA2 SERIES.  ADDRESSABLE PHOTO ELECTRIC FIRE ALARM SMOKE DETECTOR AND BASE, NOTIFIER FSP-951 SERIES.  ADDRESSABLE FIRE ALARM HEAT DETECTOR AND BASE, 135 DEG. FIXED TEMPERATURE AND RATE-OF RISE, NOTIFIER FST-951 SERIES. (DEVICES WITH "A" INDICATE ABOVE CEILING).  ADDRESSABLE REFLECTOR-TYPE LINEAR OPTICAL BEAM SMOKE DETECTOR, NOTIFIER FSO-SI-RI SERIES.  ADDRESSABLE CONTROL MODULE FIRE-LITE FMM-1 SERIES.  ADDRESSABLE CONTROL MODULE FIRE-LITE FCM-1 SERIES.  C ADDRESSABLE CONTROL MODULE FIRE-LITE FCM-1 SERIES.  C ADDRESSABLE CONTROL MODULE FIRE-LITE FCM-1 SERIES.  C CEILING MOUNTED MULTI-CANDELA, SYSTEM SENSOR, SWL SERIES.  WALL MOUNTED MULTI-CANDELA SETTINGS OF 15, 30, 75 AND 110 CANDELA. SYSTEM SENSOR, SWL SERIES.  WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE.  CANDELA SETTINGS OF 15, 30, 75 & 110	MFGR'S PART No. NFS2-3030  NOTIFIER DVC-EM  PSE-10  DAA2-5025  FSP-951  FST-951  FS-OSI-RI  FMM-1  FCM-1  SWL	CSFM LISTING 7165-0028:0224  7165-0028:0224  7315-0028:0513  7165-0028:0524  7272-0028:0503  7270-0028:0502  7260-0028:0509  7300-0028:0509  7300-0028:0219  7125-1653:0504
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M FMM-1 SERIES.  ADDRESSABLE CONTROL MODULE FIRE-LITE FCM-1 SERIES.  WALL MOUNTED MULTI-CANDELA, STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 110 CANDELA. SYSTEM SENSOR, SWL SERIES.  CEILING MOUNTED MULTI-CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA. SYSTEM SENSOR, SCWL SERIES.  WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE	FCM-1	7300-0028:0219
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STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 110 CANDELA. SYSTEM SENSOR, SWL SERIES.  CEILING MOUNTED MULTI-CANDELA STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA. SYSTEM SENSOR, SCWL SERIES.  WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE	SWL	7125-1653:0504
WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA. SYSTEM SENSOR, SCWL SERIES.  WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE	1	7 120 1000.0001
SPEAKER-STROBE WITH FIELD SELECTABLE	SCWL	7125-1653:0504
CANDELA SETTINGS OF 15, 30, 75 & 110 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSWL SERIES.	SPSWL	7320-1653:0505
CEILING MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 & 115 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSCWL SERIES.	SPSCWL	7320-1653:0505
WALL MOUNTED WEATHERPROOF FIRE ALARM/VOICE EVACUATION SPEAKER WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTSSYSTEM SENSOR, SPWK SERIES.	SPWK	7320-1653:0201
EOL END OF LINE DEVICE.		

INITIATION OR SIGNALING CIRCUITS

# FIRE ALARM GENERAL NOTES

- 1. WIRING MUST BE LISTED FOR USE AS REQUIRED BY TITLE 24/CEC, ARTICLE
- 2. WIRE USED IN WET LOCATIONS SHALL BE OF AN APPROVED TYPE IN ACCORDANCE WITH 3-310-8, T24/CEC (I.E. THHW OR EQUAL).
- 3. UNDER GROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRES APPROVED FOR WET LOCATION.
- 4. ALL CONDUCTORS SHALL BE ROUTED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS. MINIMUM CONDUIT SIZE SHALL BE 3/4."
- 5. THE CONDUIT AND WIRE SHOWN ON THESE PLANS ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATIONS SHALL BE DETERMINED IN THE

FIELD TO SUIT FIELD CONDITIONS. "AS-BUILT" PLANS SHALL BE MAINTAINED

AND BE PROVIDED AS REQUIRED BY THE PROJECT INSPECTOR OF RECORD.

- 6. PENETRATIONS OF FIRE RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH CALIFORNIA BUILDING CODE, CHAPTER 7, TITLE 24. PROVIDE DETAILS OF THROUGH PENETRATION FIRE-STOP SYSTEMS FOR ALL PIPE/CABLE/CONDUIT PASSING THROUGH FIRE RATED WALLS/FLOORS REQUIRING PROTECTED OPENINGS.
- 7. ALL DEVICES SHALL BE "CSFM" LISTED.
- 8. EXTERIOR DEVICES SHALL BE LISTED FOR EXTERIOR USE BY "CSFM."
- 9. AUDIBLE FIRE ALARM SOUND LEVEL SHALL BE AT LEAST 15DBA ABOVE THE AVERAGE SOUND LEVEL.
- 10. AUDIBLE SIGNALS INTENDED FOR OPERATION IN THE PUBLIC SHALL HAVE A SOUND LEVEL OF NOT LESS THAN 75DBA AT 10 FEET OR MORE THAN 110DBA AT THE MINIMUM HEARING DISTANCES FROM THE AUDIBLE APPLIANCE.
- 11. WHERE VISUAL DEVICES ARE REQUIRED, VISUAL DEVICE SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. NO PLACE IN ANY ROOM SHALL BE MORE THAN 50 FEET FROM A DEVICE.
- 12. APPROVED BY THE "DIVISION OF THE STATE ARCHITECT/OFFICE OF REGULATION SERVICES." CONTRACTOR SHALL PROVIDE COPIES OF APPROVED PLANS TO THE PROJECT INSPECTOR OF RECORD PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING TO ENGINEER PRIOR TO PURCHASE FOR REVIEW. THE FIRE PROTECTION SYSTEM SHALL NOT BE INSTALLED UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED TO AND RECEIVED BY THE ENGINEER OF RECORD.
- 13. FINAL ALARM TEST SHALL BE WITNESSED BY THE DSA INSPECTOR OF RECORD (IOR). BOTH THE DSA INSPECTOR OF RECORD (IOR) AND THE LOCAL FIRE AUTHORITY SHALL BE NOTIFIED OF DATE AND TIME OF FINAL FIRE ALARM TESTING BY THE FIRE ALARM CONTRACTOR, FIRE ALARM CONTRACTOR SHALL PROVIDE "RECORD OF COMPLETION" TO THE INSPECTOR OF RECORD (IOR)/DSA AFTER COMPLETION OF OPERATIONAL ACCEPTANCE TEST.
- 14. POWER SERVICE SHALL BE ON A DEDICATED, 120V BRANCH CIRCUIT, WITH A RED MARKING AND IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL."
- 15. AUTOMATIC FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY CFC CHAPTER 80. 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.
- 16. EXISTING FIELD DEVICES AND FACP SHALL REMAIN IN PLACE UNTIL NEW FIELD DEVICES ARE IN PLACE AND NEW WIRING HAS BEEN HOMERAN TO NEW LOCATION OF FACP. CONTRACTOR SHALL COORDINATE WITH SCHOOL DISTRICT TO PROVIDE AN APPROVED 24 HOUR FIRE WATCH UNTIL NEW FIRE

### GENERAL CONSTRUCTION NOTES

- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
- 2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY
- CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BIDDING AND ALLOW FOR ALL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN INFORMATION AND BE FAMILIAR WITH ALL OTHER TRADES WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
- 4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY AND PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
- CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE
- ACCURATE "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT. 6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO
- CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.

PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION.

- CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK.
- 9. CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
- 10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS.
- 11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12s WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR ROUGH ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
- 12. ALL BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS. SHARED NEUTRALS ON MULTIWIRE CIRCUITS IS NOT ALLOWED.
- 13. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID
- 14. CONTRACTOR SHALL PROVIDE IN EVERY NEW EMPTY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION. 15. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. CUT AND PATCH EXISTING WALLS WHERE

NECESSARY. WHERE IT IS NECESSARY TO CUT OR BORE EXISTING STRUCTURAL WALLS FOR NEW ELECTRICAL

- WORK OBTAIN PERMISSION FROM THE ARCHITECT PRIOR TO STARTING WORK. REUSE EXISTING CONDUIT 16. WHERE IT IS NOT POSSIBLE TO REUSE EXISTING CONDUIT OR RUN NEW CONCEALED CONDUIT USE
- APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN. 17. EXTENSION RINGS OR RESET BOXES TO BE FLUSH WITH NEW WALL THICKNESS.
- 18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING UNDERGROUND SYSTEMS (GAS, WATER, TELEPHONE, ELECTRICAL, SEWER, ETC.). THE CONTRACTOR SHALL REPAIR & PAY ALL EXPENSES FOR DAMAGE TO EXISTING UNDERGROUND SYSTEMS AS A RESULT OF NEW WORK. REPAIR TO DAMAGED UNDERGROUND SYSTEMS SHALL BE TO THE OWNERS SATISFACTION WITHOUT EXTRA EXPENSE TO THE

NON-METALLIC SURFACE RACEWAY AND BOXES. ROUTING OF ALL NON-METALLIC RACEWAYS SHALL BE

- 19. EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT DOCUMENTS.
- 20. WHERE NON-METALLIC SHEATHED CONDUCTORS ARE FOUND, THE CONTRACTOR SHALL REMOVE TO FULLEST EXTENT PER THE GENERAL DEMOLITION NOTES AND REPLACE WITH CONDUIT. METAL CLAD CABLE WILL BE PERMITTED ON A CASE-BY-CASE BASIS ONLY BY WRITTEN APPROVAL FROM THE ARCHITECT.
- 21. ALL INSTALLATION OF EXPOSED SURFACE MOUNTED RACEWAY IN PUBLIC AREAS SHALL BE REVIEWED BY ARCHITECT BEFORE ROUGH-IN. CONTRACTOR IS TO DETERMINE THE ACCESSIBILITY OF ATTIC, FURRED SPACE, HOLLOW MULLIONS, ETC. IN EACH AREA AND REVIEW WITH ARCHITECT. IF SYSTEM CAN BE ROUTED CONCEALED EITHER BY FISHING OR ACCESSIBILITY, CONTRACTOR IS TO DO SO. IF INACCESSIBILITY IS DETERMINED, CONTRACTOR SHALL INSTALL SURFACE MOUNTED RACEWAY IN THE MOST AESTHETICALLY PLEASING MEANS AS DETERMINED BY THE ARCHITECT. NO ALLOWANCE FOR ADDITIONAL COMPENSATION DUE TO ROUTING AS DIRECTED BY THE ARCHITECT WILL BE MADE.

### SYMBOLS & ABBREVIATIONS

### SYMBOLS MANUAL PULL STATION BELL (GONG) STROBE ONLY FACP FIRE ALARM CONTROL PANEL STROBE ONLY (CEILING MOUNTED) RPS REMOTE POWER SUPPLY AMP DIGITAL AUDIO AMPLIFIER SPEAKER ONLY EOL END OF LINE MINI HORN

JUNCTION BOX - CEILING/WALL MOUNTED, SIZE PER CODE, TAPE AND TAG WIRES SPEAKER/STROBE PULLBOX CONDUIT - HOME RUN TO PANEL, SPEAKER/STROBE TERMINAL CABINET, ETC. AS INDICATED (CEILING MOUNTED) RUNS MARKED WITH CROSSHATCHES INDICATE NUMBER OF #12 AWG WIRES

WHEN MORE THAN TWO. SIZE CONDUIT CHIME/STROBE ACCORDING TO SPECIFICATIONS AND APPLICABLE CODE. (1) HEAT DETECTOR - CROSS HATCHES WITH NUMBER ADJACENT INDICATES WIRE SIZE OTHER HEAT DETECTOR
(ABOVE ACCESSIBLE CEILING) THAN #12 AWG. ---- CONDUIT - EXISTING

(2) SMOKE DETECTOR CONDUIT - CONCEALED IN WALLS OR CEILING. DUCT SMOKE DETECTOR ---- CONDUIT - IN OR BELOW FLOOR: 3/4"C MIN. TAMPER SWITCH CONDUIT CONTINUATION.

SHEET NOTE REFERENCE SYMBOL: POST INDICATING VALVE SEE ASSOCIATED NOTE ON SAME

DETAIL OR SECTION DESIGNATION.

### ABBREVIATIONS ARCH. ARCHITECT

FLOW SWITCH

GAUGE

BREAKER

CONDUIT

CIRCUIT

CEILING

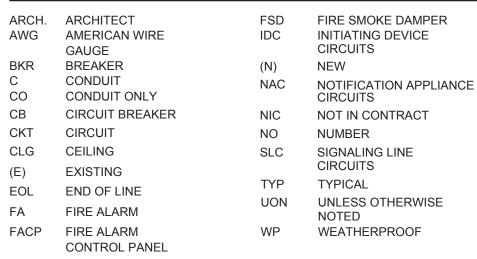
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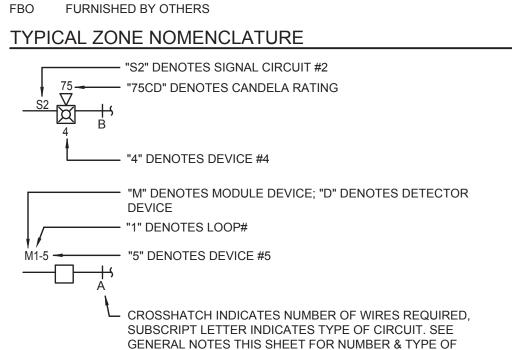
BKR

CB

CKT

CLG





### FIRE ALARM SYSTEM OPERATIONAL MATRIX TROUBLE SUPERVISORY MISC. **REMARKS** MOKE DETECTORS • • • • • LOW SWITCH TAMPER SWITC SYSTEM RESET • • • SIGNAL SILENCE C POWER FAILURE FIRE ALARM TROUBLE (OPEN, SHORTS, OR GROUNDS) ON

# SHEET INDEX

- FA0.1 FIRE ALARM SYMBOLS, ABBREVIATIONS, EQUIPMENT LIST, OPERATIONAL MATRIX & NOTES.
- FA1.1 FIRE ALARM RISER DIAGRAM.
- FA1.2 BATTERY & VOLTAGE DROP CALCULATIONS.
- FA2.1 FIRE ALARM DEMOLITION PLAN.
- FA3.1 FIRE ALARM SITE PLAN.
- FA4.1 FIRE ALARM PLANS BUILDINGS A & B. FA4.2 FIRE ALARM PLANS - BUILDINGS C, D, E & KID'S CLUB.
- FA4.3 FIRE ALARM PLANS BUILDINGS F, G & PORTABLES.
- FA5.1 FIRE ALARM DETAILS.

# PROJECT DESCRIPTION

REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND

EM/VOICE EVACUATION SYSTEM AT EXISTING SITE.

WIRES AND CIRCUIT TYPE.

ALL EXISTING BUILDINGS WITH EXISTING COMPATIBLE MANUFACTURER INITIATION DEVICES (SMOKES, HEATS, DUCT SMOKE DETECTORS, MONITOR MODULES, CONTROLS MODULES,

ETC.) SHALL REMAIN CONNECTED. SYSTEM DESCRIPTION: SLC = CLASS B IDC = CLASS B

NAC = CLASS B FIRE ALARM SYSTEM DESIGN BY NAJIB ANWARY

# **EQUIPMENT ANCHORAGE**

# M/E/P COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTION 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 & 30:

- 1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
- 2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED(e.g. HARD WIRE) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL

ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 120 / 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 BE DETAILED IN THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FELXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

- A. COMPONENTS WEIGHTING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT
- B. COMPONENTS WEIGHTING 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 OF 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 ABOVE REQUIREMENTS.

### PIPING, DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

13.6.7, 13.6.8 AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

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 SECTION 13.6.5, 13.6.6,

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 PRE-APPROVED INSTALLATION GUIDE (e.g. OSHPD 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 MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #)

# APPLICABLE CODES & STANDARDS

- 2019 CALIFORNIA ADMINISTRATIVE CODE C.C.R., TITLE 24, PART 1.
- 2019 CALIFORNIA BUILDING CODE (CBC) C.C.R., TITLE 24, VOL. 1 & 2 BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC) WITH CALIFORNIA AMENDMENTS.

2019 CALIFORNIA RESIDENTIAL CODE C.C.R., TITLE 24, PART 2.5 BASED ON THE 2018

- INTERNATIONAL RESIDENTIAL CODE WITH CALIFORNIA AMENDMENTS. 2019 CALIFORNIA ELECTRICAL CODE (CEC) C.C.R., TITLE 24, PART 3 BASED ON THE
- 2017 NATIONAL ELECTRICAL CODE (NEC) WITH CALIFORNIA AMENDMENTS. 2019 CALIFORNIA MECHANICAL CODE (CMC) C.C.R., TITLE 24, PART 4 BASED ON THE
- 2018 UNIFORM MECHANICAL CODE (UMC) WITH CALIFORNIA AMENDMENTS.
- 6. 2019 CALIFORNIA PLUMBING CODE (CPC) C.C.R., TITLE 24, PART 5 BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA ENERGY CODE C.C.R., TITLE 24, PART 6.
- 3. 2019 CALIFORNIA FIRE CODE (CFC) C.C.R., TITLE 24, PART 9 BASED ON THE 2018 INTERNATIONAL FIRE CODE (IFC) WITH CALIFORNIA AMENDMENTS.
- 9. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE C.C.R., TITLE 24, PART 11.
- 10. 2019 CALIFORNIA REFERENCED STANDARDS CODE C.C.R., TITLE 24, PART 12.
- 11. TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS. 12. NATIONAL FIRE ALARM CODE (NFPA 72) 2016.

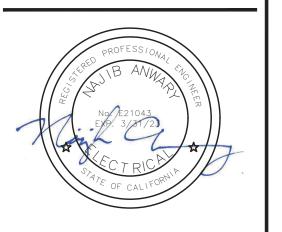
### STANDARDS:

- AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
- 2. ELECTRONICS INDUSTRIES ASSOCIATION (EIA)
- 3. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- 4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) 5. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
- 6. UNDERWRITER LABORATORIES (UL)
- 7. CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS (CAL/OSHA)
- 8. NATIONAL FIRE PROTECTION ASSOCIATION; INSTALLATION OF CARBON MONOXIDE (NFPA 720)

(DSA STAMP AREA)









EQUIPMENT & NOTES

TMB MAT S. A ARM TION

REVISIONS

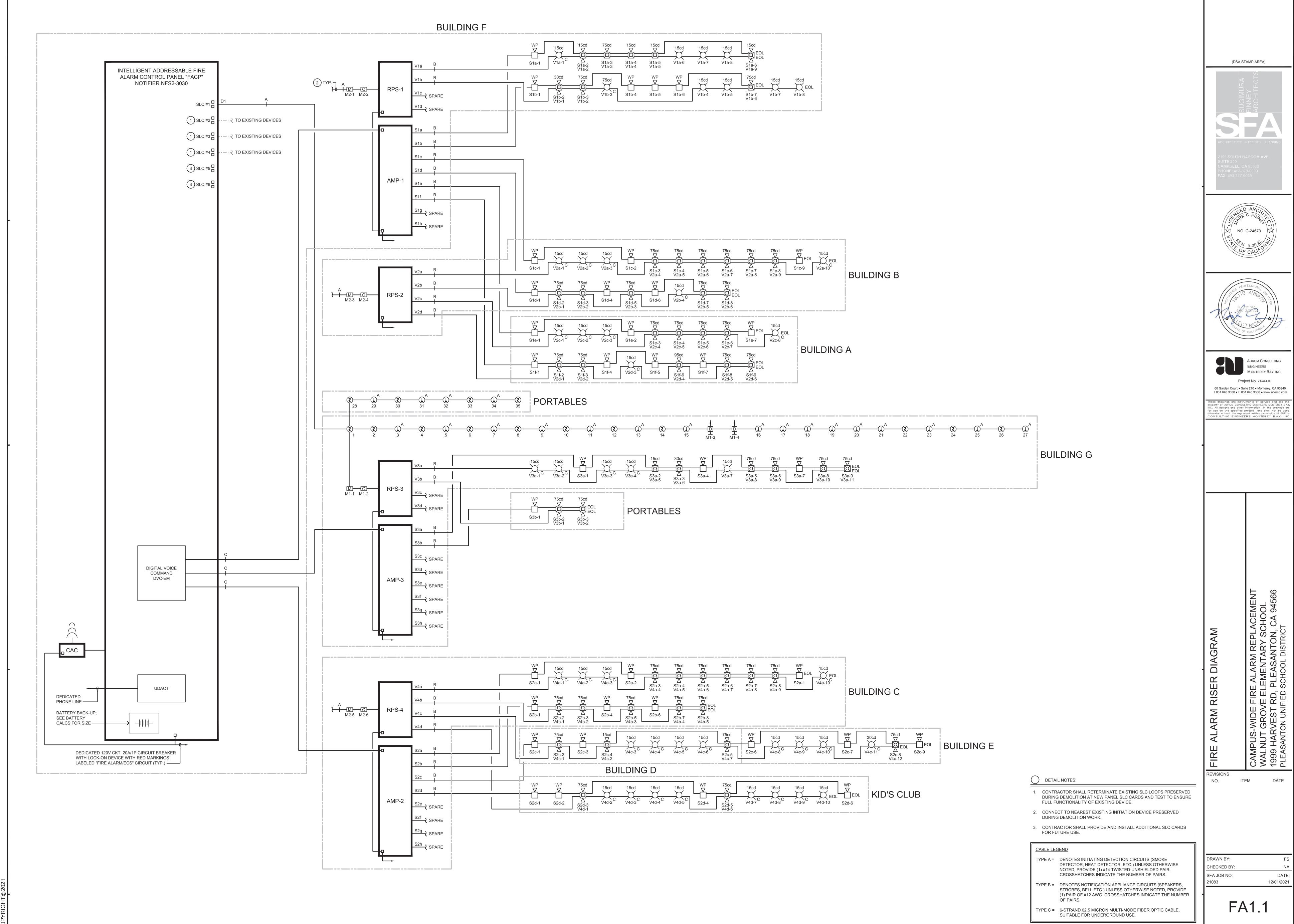
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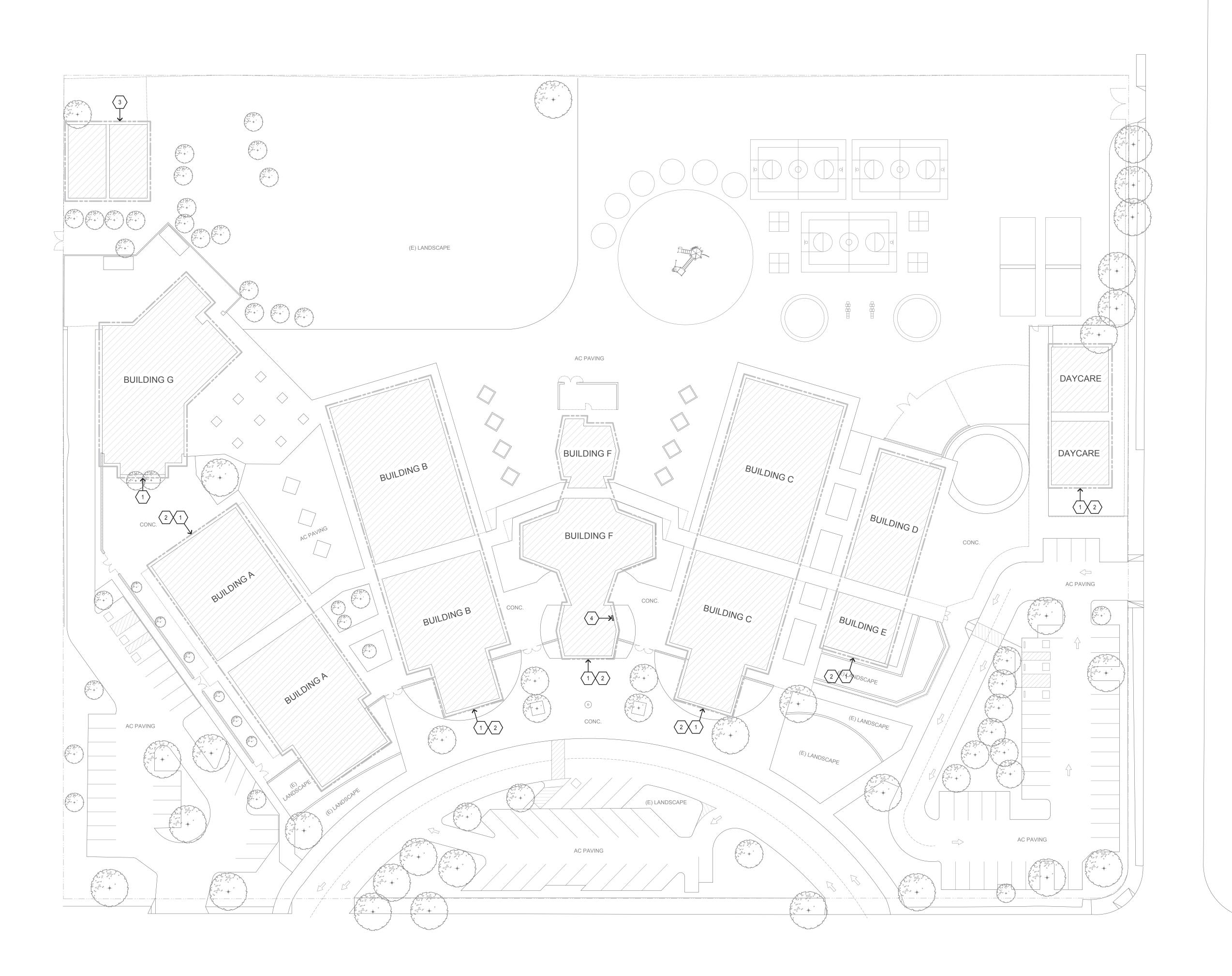
VOLTAGE DROP CALCULATIONS (VISUAL CIRCUITS)	BATTERY CALCULATIONS	
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4d         VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V3a         VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V1a           DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 </th <th>  STANDBY   STA</th> <th></th>	STANDBY   STA	
DISTANCE (FT) 275 30 20 20 145 30 20 20 20 145 30 20 20 20 DISTANCE (FT) 30 30 30 30 30 30 30 30 30 30 30 30 30	1 DAA2-5025 NOTIFIER DIGITAL AUDIO AMPLIFIER 0.2830 0.2830 0.6850 0.6850 1 CPU2-3030 PRIMARY DISPLAY 0.1200 0.1200 0.1200 0.1200 0.1200	
VOLT. DROP @ DEV. 0.5 0.044 0.026 0.024 0.021 0.132 0.016 0.008 0.005 0.003 0.005 0.003 0.005 0.	1         S1c         SPEAKER CIRCUIT No.1c         0.0000         0.3600         0.3600         6         SLC         SLC DEVICE ACTIVATION CURRENT         0.2000         1.2000         0.2000         1.2000           1         S1d         SPEAKER CIRCUIT No.1d         0.0000         0.3400         0.3400         1.3400         1         DVC-EM         DIGITAL VOICE COMMAND         0.3000         <	(DSA STAMP AREA)
TOTAL CIRCUIT AMPS = 0.55 WIRE RESIS. CIRC. FORMULA    SIZE   /M FT.   MILS.   DEVICE # 11th   12th   13th   14th   15th   16th   17th   18th   19th   20th   TOTAL CIRCUIT AMPS = 0.445   WIRE   RESIS. CIRC.   FORMULA    GAUGE WIRE   12   12   12   12   12   12   12   1	1   STE   SPEARER CIRCUIT No.16   0.0000   0.0000   0.3200   0.3	$\sim$
12   2.01   6530   C.M.   AMPS OF DEVICE   0.107	PANEL STANDED CORNENT   0.2500	URA
VOLTAGE DROP = 3.8%         3.8%	DESCRIPTION   STANDBY   ALARM   15   FSP-951   ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR   0.0002   0.0030   0.0045   0.0675	GIM CHI
SIZE /M FT. MILS.   VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V1b	TOTAL ALARM CURRENT (B)   2.6850   4	N H A A A A A A A A A A A A A A A A A A
CKT VOLTAGE =     20.4     14     3.19     4110     DISTANCE (FT)     125     45     40     125     25     40     45     30       AMPS OF DEVICE     0.063     0.111     0.111     0.043     0.043     0.043     0.043	BATTERY SUPPLIED (2) 18AH   SUPPLIED (2) 18AH   CONTROL PANEL   2.0700   2.1020	
% VOLTAGE DROP =       3.1%       1       TOTAL AMPS@DEV.       0.564       0.501       0.39       0.279       0.236       0.193       0.043       0       0         VOLT. DROP @ DEV.       0.233       0.075       0.052       0.115       0.02       0.026       0.013       0.004       0       0	AMPLIFIER WATTAGE CALCULATION FOR AMP-1   101at Standby Current   2.0828	ARCHITECTURE INTERIORS PLA
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V3b         DEVICE #       1st       2nd       3rd       4th       5th       6th       7th       8th       9th       10th         GAUGE WIRE       12 <t< td=""><td>1         DAA2-5025         50 WATT NOTIFIER DIGITAL AUDIO AMPLIFIER         50.0000           1         S1a         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         4.5000           1         S1b         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         9.5000           BATTERY SUPPLIED         (2) 12V 100AH</td><td></td></t<>	1         DAA2-5025         50 WATT NOTIFIER DIGITAL AUDIO AMPLIFIER         50.0000           1         S1a         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         4.5000           1         S1b         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         9.5000           BATTERY SUPPLIED         (2) 12V 100AH	
DISTANCE (FT)         660         50         12         2.01         6530         C.M.           AMPS OF DEVICE         0.111         0.111         CKT VOLTAGE =         20.4         14         3.19         4110	1 S1c WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT 9.0000 1 S1d WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT 8.5000 1 S1e WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT 8.0000 1 S1f WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT 10.5000 QTY MODEL No. DEVICE DESCRIPTION STANDBY ALARM	2155 SOUTH BASCOM AVE. SUITE 200 CAMPBELL. CA 95008
VOLT. DROP @ DEV. 0.485 0.018 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1         S1g         SPARE         0.0000         EACH         TOTAL         EACH         TOTAL           1         S1h         SPARE         0.0000         1         PSE-10         NOTIFIER REMOTE POWER SUPPLY         0.1560         0.1850         0.1850           TOTAL WATTAGE AVAILABLE         0.0000         1         VIa         VISUAL CIRCUIT No.1a         0.0000         0.0000         0.4450         0.4450	PHONE: 468-879-0600 FAX: 408-377-6066
TOTAL CIRCUIT AMPS =         0.222         WIRE         RESIS.         CIRC.         FORMULA           SIZE         /M FT.         MILS.         VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V2a           TOTAL VOLT DROP =         0.503         10         1.29         10380         I * FEET * 21.6         DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th	1   V1b   VISUAL CIRCUIT No.1b   0.000   0.000   0.5640   0.5640	
12 2.01 6530   C.M.   GAUGE WIRE   12 12 12 12 12 12 12 12 12 12 12 12 12	OTY   MODEL No.   DEVICE DESCRIPTION   STANDBY   ALARM   PANEL STANDBY CURRENT   0.1560	2.45
% VOLTAGE DROP = 2.5% TOTAL AMPS@DEV. 0.830 0.789 0.748 0.707 0.596 0.485 0.374 0.263 0.152 0.041 VOLT. DROP @ DEV. 0.082 0.052 0.074 0.129 0.079 0.064 0.056 0.035 0.02 0.007	1   S2b   SPEAKER CIRCUIT No.2b   0.0000   0.0000   0.3400   0.3400     1   S2c   SPEAKER CIRCUIT No.2c   0.0000   0.0000   0.4800   0.4800     1   S2d   SPEAKER CIRCUIT No.2c   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.3600   0.3600     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT No.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT NO.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT NO.2d   0.0000   0.0000   0.0000   0.0000     1   S2d   SPEAKER CIRCUIT NO.2d   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0	LY FOR C. FINNER
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4a           DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th    TOTAL CIRCUIT AMPS = 0.83  WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS.	1   S2d   SPEARE CIRCUIT No.20   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000       1   S2e   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S2f   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S2g   SPARE   0.0000   0.0000   0.0000   0.0000       1   S2h   SPARE   0.0000   0.0000   0.0000   0.0000       1   S2h   SPARE   0.0000   0.0000   0.0000   0.0000       1   S2h   SPARE   0.0000   0.0000   0.0000   0.0000       2   SAFETY MAPGIN (20%)   0.0000   0.00	NO. C-24673
GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	1         S2h         SPARE         0.0000         0.0000         0.0000         0.0000         0.0000         0.0000         SAFETY MARGIN (20%)         4.8510           PANEL STANDBY CURRENT         0.2830         BATTERY SUPPLIED (2) 18AH         18AH	V 9-30-23 Q
TOTAL AMPS@DEV. 0.830 0.789 0.748 0.707 0.596 0.485 0.374 0.263 0.152 0.041	TOTAL SYSTEM CURRENT  DESCRIPTION STANDBY TOTAL STANDBY CURRENT (A)  0.2830  ALARM QTY MODEL No. DEVICE DESCRIPTION STANDBY ALARM QTY MODEL No. DEVICE DESCRIPTION STANDBY ALARM	OF CALIFO
TOTAL CIRCUIT AMPS = 0.83 WIRE RESIS. CIRC. FORMULA    SIZE /M FT. MILS.   VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V2b	X 24 HOUR STANDBY         6.7920         EACH         TOTAL         EACH         TOTAL           TOTAL ALARM CURRENT (B)         2.2250         1         PSE-10         NOTIFIER REMOTE POWER SUPPLY         0.1560         0.1560         0.1850         0.1850           15 MINUTES OF ALARM (X 25)         0.5563         1         V/2a         VISUAL CIRCUIT No 2a         0.0000         0.0000         0.8300         0.8300	
TOTAL VOLT DROP = 0.647	TOTAL BATTERY REQUIREMENT (A+B)   7.3483   1	pROFESSIO.
16   5.08   2580     AMPS OF DEVICE   0.111   0.111   0.041   0.111	AMPLIFIER WATTAGE CALCULATION FOR AMP-2  OTY MODEL No. DESCRIPTION WATTS	SERVIB ANNA CALL
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4b  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th	EACH  1 DAA2-5025 50 WATT NOTIFIER DIGITAL AUDIO AMPLIFIER 50.0000  1 S20 WATT OF SEPAKERS CONNECTED TO THIS CIRCUIT 0.0000  1 TOTAL STANDBY CURRENT (A) 0.1560	Ng/E21043 EXP. 3/31/23
GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	1   S2b   WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT   8.5000   X 24 HOUR STANDBY   3.7440	SECTRICE.
AMPS OF DEVICE   0.111	1         S2e         SPARE         0.0000           1         S2f         SPARE         0.0000           1         S2g         SPARE         0.0000           BATTERY SUPPLIED (2) 18AH         18AH	OF CALIFORNIA
TOTAL CIRCUIT AMPS = 0.555 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS. VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V2c	1 S2h SPARE 0.0000 TOTAL WATTAGE AVAILABLE 11.5000  BATTERY CALCULATION RPS-3  QTY MODEL No. DEVICE DESCRIPTION STANDBY ALARM EACH TOTAL EACH TOTAL	
TOTAL VOLT DROP = 0.615	STANDBY   STAN	AURUM CONSU ENGINEERS
MPS OF DEVICE   0.041   0.041   0.111   0.111   0.111   0.041	1         DAA2-5025         NOTIFIER DIGITAL AUDIO AMPLIFIER         0.2830         0.6850         0.6850         0.6850           1         S3a         SPEAKER CIRCUIT No.3a         0.0000         0.0000         0.3600         0.3600           1         S3b         SPEAKER CIRCUIT No.3b         0.0000         0.0000         0.1200         0.1200           PANEL STANDBY CURRENT         0.1560	Monterey Ba
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4c  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th	1   S3d   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S3e   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S3f   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S3f   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000       1   S3f   SPARE   0.0000   0.0000   0.0000   0.0000   0.0000   0.0000       1   S3f   SPARE   0.0000	Project No. 21-444.00  60 Garden Court • Suite 210 • Monterey, T.831.646.3330 • F.831.646.3336 • www.a
GALIGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	1         S3g         SPARE         0.0000         0.0000         0.0000         0.0000           1         S3h         SPARE         0.0000         0.0000         0.0000         TOTAL STANDBY CURRENT (A)         0.1560           PANEL STANDBY CURRENT         0.2830         X24 HOUR STANDBY         3.7440         1.1480	These drawings are instruments of service property of AURUM CONSULTING ENGINEERS MC
DISTANCE (FT) 160 70 130 12 12 12 12 12 12 12 12 12 12 12 12 13 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	PANEL ALARM CURRENT	INC. All designs and other information in the for use on the specified project and shall otherwise without the expressed written permissi CONSULTING ENGINEERS MONTEREY
DEVICE # 11th 12th 13th 14th 15th 16th 17th 18th 19th 20th  GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	DESCRIPTION	
DISTANCE (FT)         55         40         Image: square processing transformation of the processing transformatio	15 MINUTES OF ALARM (X .25)	1
VOLT. DROP @ DEV. 0.032 0.015 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	BATTERY SUPPLIED (2) 18AH   1	
TOTAL CIRCUIT AMPS = 0.724 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS. TOTAL CIRCUIT AMPS = 0.619 WIRE RESIS. CIRC. FORMULA	QTY   MODEL No.   DEVICE DESCRIPTION   WATS   EACH	
TOTAL VOLT DROP = 0.87	1         S3a         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         9.0000           1         S3b         WATTAGE OF SPEAKERS CONNECTED TO THIS CIRCUIT         3.0000           1         S3c         SPARE         DESCRIPTION         STANDBY         ALARM           TOTAL STANDBY CURRENT (A)         0.1560         0.1560         ALARM	
16   5.08   2580	1 S3d SPARE 0.0000 1 S3e SPARE 0.0000 1 S3f SPARE 0.0000 1 S3r SPARE 0.0000 1 S3r SPARE 0.0000 1 S3r SPARE 0.0000 1 S3r SPARE 0.0000 1 SARE 0.0000 1 SARE 0.0000 1 SARE 0.0000	
	1   S39   SFARE   0.0000     1   S3h   SPARE   0.0000     TOTAL WATTAGE AVAILABLE   38.0000     TOTAL WATTAGE AVAILABLE   38.0000     TOTAL WATTAGE AVAILABLE   18AH   18AH     TOTAL WATTAGE AVAILABLE   18AH   18AH     TOTAL WATTAGE AVAILABLE   18AH   18AH   18AH   18AH     TOTAL WATTAGE AVAILABLE   18AH   18AH   18AH     TOTAL WATTAGE AVAILABLE   18AH   18AH   18AH     TOTAL WATTAGE AVAILABLE   18AH     TOTAL WATTAGE AVAILABLE   18AH   18AH     TOTAL WATTAGE AVAILABLE   1	
VOLTAGE DROP CALCULATION	NS (SDENKED CIDCUITS)	
SPEAKER CIRCUIT No.S3a  SPEAKER CIRCUIT No.S2c  SPEAKER CIRCUIT No.S2a	SPEAKER CIRCUIT No.S1e SPEAKER CIRCUIT No.S1c SPEAKER CIRCUIT No.S1a	
Minimum Device Voltage 20 Total Circuit Current in amps 0.360 Wire Ohm's Total Circuit Current in amps 0.360 Wire Ohm's	Nominal Speaker Voltage ( 25 or 70 )   25	<u>ග</u>
Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Distance from source from source to 1st device 50 12 1.98 Distance from source from source to 1st device 50 12 1.98 Distance from source	om source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Wire Gauge for balance of circuit 13 1.98 Wire Gauge for balance of circuit 14 1.98 Wire Gauge for balance of circuit 15 1.98 Wire Gauge for balance of cir	
Device Device previous Device At Drop from Percent Device D	Device previous Device At Drop from Percent Device Device previous Device At Drop from Percent Device Device At Drop from Percent	
Device 2         0.500         45         0.020         24.90         0.100         0.40%         Device 2         0.500         30         0.020         24.71         0.295         1.18%         Device 2         2.000         60         0.080         24.90         0.095         0.38%         Device 2         Device 3           Device 3         0.500         35         0.020         24.86         0.136         0.54%         0.500         55         0.080         24.62         0.377         1.51%         0.500         40         0.020         24.87         0.127         0.51%         0.500         3         0.020         24.59         0.047         1.63%         0.500         40         0.020         24.84         0.155         0.62%         0.020         24.84         0.155         0.62%         0.020         24.84         0.155         0.62%         0.020         24.84         0.155         0.62%         0.020         24.84         0.155         0.62%         0.020         24.84         0.155         0.020         24.84         0.155         0.020         24.84         0.155         0.020         24.84         0.155         0.020         24.84         0.155         0.020         0.020         24.84	2.000 60 0.080 24.70 0.298 1.19%   Device 2 2.000 60 0.080 24.60 0.402 1.61%   Device 2 0.500 50 0.020 24.95 0.052 0.21%   0.500 45 0.020 24.67 0.326 1.31%   Device 3 0.500 45 0.020 24.65 0.437 1.75%   Device 3 0.500 20 0.020 24.94 0.058 0.23%   0.500 40 0.020 24.65 0.348 1.30%   Device 4 0.500 40 0.020 24.53 0.466 1.86%   Device 4 0.500 45 0.020 24.94 0.058 0.23%   0.500 40 0.020 24.65 0.348 1.30%   Device 3 0.500 45 0.020 24.53 0.466 1.86%   Device 4 0.500 24.94 0.058 0.23%   0.500 40 0.020 24.65 0.348 1.30%   Device 3 0.500 45 0.020 24.53 0.466 1.86%   Device 4 0.500 24.94 0.058 0.23%   0.500 40 0.020 24.65 0.348 1.30%   Device 3 0.500 45 0.020 24.53 0.466 1.86%   Device 4 0.500 24.94 0.500 24.94 0.500 24.94 0.500 24.94   0.500 40 0.020 24.65 0.348 1.30%   Device 3 0.500 45 0.020 24.94 0.058 0.23%   Device 4 0.500 24.94 0.058 0.23%   Device	
Device 6 0.500 50 0.020 24.77 0.235 0.94%   Device 6 2.000 40 0.080 24.46 0.537 2.15%   Device 6 0.500 40 0.020 24.80 0.203 0.81%   Device 6 Device 7 2.000 70 0.080 24.73 0.268 1.07%   Device 7 2.000 65 0.080 24.42 0.583 2.33%   Device 7 0.500 40 0.020 24.78 0.222 0.89%   Device 7 Device 7 0.500 40 0.020 24.78 0.222 0.89%   Device 7 Device 7 0.500 40 0.020 24.78 0.222 0.89%   Device 7 0.500 40 0.020 24.78 0.222 0.8	0.500 40 0.020 24.61 0.386 1.54%   Device 6 0.500 45 0.020 24.48 0.516 2.06%   Device 6 0.500 45 0.020 24.47 0.535 2.14%   END 0.000 24.92 0.077 0.31%	
Device 8 0.500 15 0.020 24.73 0.270 1.08%  Device 9 0.500 50 0.020 24.73 0.274 1.10%  END  END  Device 8 0.500 60 0.020 24.39 0.607 2.43%  Device 9 0.500 60 0.020 24.38 0.620 2.48%  END  Device 8 0.500 40 0.020 24.76 0.238 0.95%  END  Device 9 0.500 40 0.020 24.76 0.238 0.95%  END  END  END  END  END  END  END  EN	0.000   24.60   0.400   1.60%   Device 8   0.500   40   0.020   24.45   0.551   2.20%   END   0.000   24.92   0.077   0.31%	CAL
END     0.000 24.73     0.274     1.10%     END     0.000 24.38     0.620 2.48%     END     0.000 24.38     0.252 1.01%     END       END     0.000 24.73     0.274     1.10%     END     0.000 24.38     0.620 2.48%     END     0.000 24.38     0.000 24.75 0.252 1.01%     END       END     0.000 24.75 0.252 1.01%     END       END     0.000 24.75 0.252 1.01%     END       END     0.000 24.75 0.252 1.01%     END	END 0.000 24.44 0.564 2.25% END 0.000 24.92 0.077 0.31% END 0.000 24.60 0.400 1.60% END 0.000 24.44 0.564 2.25% END 0.000 24.92 0.077 0.31% END 0.000 24.60 0.400 1.60% END 0.000 24.44 0.564 2.25% END 0.000 24.92 0.077 0.31% END 0.000 24.92 0.077 0.31%	L
END 0.000 24.73 0.274 1.10% END 0.000 24.38 0.620 2.48% END 0.000 24.75 0.252 1.01% END END 0.000 24.73 0.274 1.10% END END 0.000 24.78 0.252 1.01% END END	Name	R   R   R   R   R   R   R   R   R   R
CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIM	nt to Point Method End of Line Method Load Centering Method Point to Point Method End of Line Method Load Centering Method Point to Point Method End of Line Method End of Line Method End of Line Method End of Line Method CIRCUIT IS WITHIN LIMITS	
Totals Voltage Totals	465 0.40 0.320 465 0.589 0.320 465 0.589 0.320 465 0.295 0.360 585 0.56 0.360 585 0.834 0.360 585 0.417 0.180 235 0.08 0.180 235 0.168 0.180 235 0.084	<b>1</b> 5   4   4   7   7   7   7   7   7   7   7
End of Line Voltage 24.73 End of Line Voltage 24.43 End of Line Voltage 24.38 End of Line Voltage 24.38 End of Line Voltage 24.38 End of Line Voltage 24.30 End of Line Voltage 24.50 End of Line Voltage 24.75 End of Line Voltage 24.48 End of Line Voltage 24.74 End of Line Voltage 24.74 End of Line Voltage 24.75 End of Line Voltag	Voltage 24.60 End of Line Voltage 24.41 End of Line Voltage 24.71  Percent Drop 1.60% Percent Drop 2.36% Percent Drop 1.18%  Percent Drop 1.60% Percent Drop 2.36% Percent Drop 1.18%	LTA LTA RE A ELEN
Minimum Device Voltage 20 Minimum Device Vol	SPEAKER CIRCUIT No.S1f  peaker Voltage (25 or 70)	
Total Circuit Power 3.000 Gauge Per 1000 Total Circuit Power 9.000 Gauge Per 1000 Total Circuit Power 9.000 Gauge Per 1000 Distance from source to 1st device 50 12 1.98 Distance from source to 1st device 50	ift Current in amps 0.420 Wire Ohm's Total Circuit Current in amps 0.340 Wire Ohm's Total Circuit Current in amps 0.340 Wire Ohm's Total Circuit Current in amps 0.380 Wire Ohm's Total Circuit Power Nom source to 1st device 50 12 1.98 Distance from source to 1st device 50 12 1.98 Wire Gauge for balance of circuit 12 1.98	/ & V VIDE
wife Gauge for balance of circuit    12   1.98     Wife Gauge for balance of circuit   12   1.98     Wife Gauge for balance of circuit   12   1.98   Wife Gauge for balance of	re for balance of circuit    12   1.98	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
Device 1     2.000     200     0.080     24.90     0.095     0.38%     Device 1     2.000     24.69     0.314     1.25%     Device 1     2.000     160     0.080     24.78     0.215     0.86%     Device 1       Device 2     0.500     35     0.020     24.90     0.101     0.40%     0.080     24.64     0.364     1.45%       Device 2     2.000     45     0.080     24.64     0.364     1.45%     Device 2     0.500     40     0.020     24.74     0.257     1.03%     Device 2	2.000     305     0.080     24.49     0.507     2.03%     Device 1     2.000     175     0.080     24.76     0.236     0.94%     Device 1     2.000     115     0.080     24.83     0.173     0.69%       0.500     40     0.020     24.44     0.561     2.24%     Device 2     0.500     40     0.020     24.72     0.277     1.11%     Device 2     0.500     20     0.020     24.80     0.197     0.79%	TE SUG
END 0.000 24.90 0.105 0.42%   Device 4 2.000 140 0.080 24.51 0.491 1.96%   Device 4 2.000 35 0.080 24.67 0.325 1.30%   Device 4 Device 5 0.500 35 0.080 24.67 0.325 1.30%   Device 5 Device 5 0.500 35 0.080 24.67 0.325 1.30%   Device 5 Device 6 2.000 70 0.080 24.47 0.527 2.11%   Device 6 2.000 70 0.080 24.60 0.397 1.59%   Device 6	2.000 80 0.080 24.28 0.723 2.89% Device 5 0.500 65 0.020 24.62 0.381 1.53% Device 5 2.000 55 0.080 24.65 0.353 1.41%	
END 0.000 24.90 0.105 0.42% END 0.000 24.47 0.527 2.11% Device 7 0.500 35 0.020 24.60 0.403 1.61% Device 7 END 0.000 24.90 0.105 0.42% END 0.000 24.47 0.527 2.11% Device 8 0.500 40 0.020 24.59 0.406 1.62% Device 8 END 0.000 24.90 0.105 0.42% END 0.000 24.90 0.105 0.42% Device 9	2.000 60 0.080 24.22 0.777 3.11%   Device 7 0.500 70 0.020 24.59 0.411 1.65%   Device 7 0.500 65 0.020 24.62 0.376 1.50%   0.500 35 0.020 24.22 0.782 3.13%   Device 8 0.500 40 0.020 24.59 0.415 1.66%   END 0.000 24.62 0.376 1.50%   0.500 40 0.020 24.21 0.785 3.14%   END 0.000 24.59 0.415 1.66%   END 0.000 24.62 0.376 1.50%   END 0.000	BEARISIONS A SUBSTITUTION OF S
END 0.000 24.90 0.105 0.42% END 0.000 24.47 0.527 2.11% END 0.000 24.59 0.406 1.62% END END 0.000 24.90 0.105 0.42% END 0.000 24.47 0.527 2.11% END 0.000 24.47 0.527 2.11% END 0.000 24.59 0.406 1.62% END END END 0.000 24.59 0.406 1.62% END	0.000   24.21   0.785   3.14%   END   0.000   24.59   0.415   1.66%   END   0.000   24.62   0.376   1.50%	REVISIONS NO. ITEM
END 0.000 24.90 0.105 0.42%   END 0.000 24.47 0.527 2.11%   END 0.000 24.59 0.406 1.62%   END 0.000 24.90 0.105 0.42%   END 0.000 24.47 0.527 2.11%   END 0.000 24.47 0.527 2.11%   END 0.000 24.59 0.406 1.62%   END 0.	0.000     24.21     0.785     3.14%     END     0.000     24.59     0.415     1.66%     END     0.000     24.62     0.376     1.50%       0.000     24.21     0.785     3.14%     END     0.000     24.59     0.415     1.66%     END     0.000     24.62     0.376     1.50%       END     0.000     24.51     0.66%     END     0.000     24.62     0.376     1.50%       END     0.000     24.62     0.376     1.50%	
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VOLTAGE DROP CALCULATIONS (VISUAL CIRCUITS)







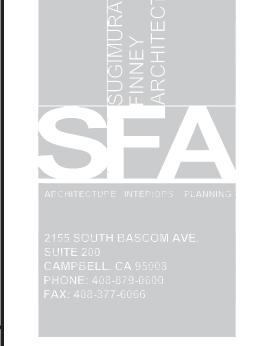


- CONTRACTOR SHALL DEMOLISH FIRE ALARM NOTIFICATION DEVICES AND ASSOCIATED WIRING PER GENERAL DEMOLITION NOTES ON THIS SHEET. PROVIDE AND INSTALL DEVICE COVER PLATES OVER OPENINGS FROM REMOVED DEVICES; PAINT/FINISH TO MATCH EXISTING WALLS.
- CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING FIRE ALARM INITIATION DEVICES AND ASSOCIATED WIRING DURING DEMOLITION WORK FOR RECONNECTION TO NEW FIRE ALARM
- B. CONTRACTOR SHALL DEMOLISH FIRE ALARM CONTROL PANEL COMPLETE AND ALL FIRE ALARM DEVICES AND WIRING PER GENERAL DEMOLITION NOTES ON THIS SHEET.
- CONTRACTOR SHALL DEMOLISH EXISTING FIRE ALARM CONTROL PANEL. CONTRACTOR SHALL PRESERVE EXISTING SLC LOOPS SERVED BY EXISTING FACP TO BE REMOVED/REPLACED WITH NEW FACP; SEE 1/FA4.3 FOR NEW FACP AND RETERMINATION OF EXISTING SLC LOOPS.

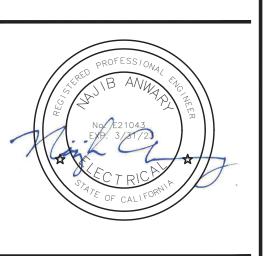
# GENERAL DEMOLITION NOTES

- A. CONTRACTOR SHALL FIELD VERIFY EXTENT OF ELECTRICAL DEMOLITION AND QUANTITIES OF ELECTRICAL TO BE REMOVED AS DICTATED BY THE REQUIREMENTS OF THE PROJECT.
- B. REMOVAL SHALL INCLUDE WIRING, RACEWAY, BOXES, SWITCHES, LIGHT FIXTURES, ETC. AS
- INDICATED ON THE PLANS AND AS REQUIRED BY THESE DEMOLITION NOTES. : RACEWAYS ASSOCIATED WITH ELECTRICAL BEING DEMOLISHED WHICH ARE CONCEALED IN
- EXISTING REMAINING WALLS MAY BE ABANDONED IN PLACE. REMOVE WIRING FROM CONDUIT. . RACEWAYS ASSOCIATED WITH ELECTRICAL BEING DEMOLISHED WHICH ARE EXPOSED SHALL
- BE REMOVED. WHERE REMOVAL OF EQUIPMENT OR WIRING IS INDICATED, IT SHALL INCLUDE ALL ASSOCIATED
- WIRING BACK TO LAST ACTIVE REMAINING OUTLET, DEVICE, FIXTURE OR PANEL.
- F. ELECTRICAL CONTRACTOR SHALL INSURE THAT ALL REMAINING ACTIVE CIRCUITS, DEVICES, OUTLETS, LIGHT FIXTURES, ETC. HAVE NOT BEEN DISCONNECTED OR MADE INOPERATIVE DURING DEMOLITION. ELECTRICAL CONTRACTOR SHALL RESTORE ALL INTERRUPTED OR DISCONNECTED CIRCUITS TO OPERATION.
- G. ELECTRICAL CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL REMOVED ELECTRICAL EQUIPMENT AND MATERIAL.
- H. NO REMOVED EQUIPMENT OR MATERIAL SHALL BE REUSED AS PART OF NEW WORK, U.O.N.
- EXISTING REMAINING CONCEALED RACEWAYS MAY BE REUSED FOR NEW WORK PROVIDED THEY MEET ALL REQUIREMENTS OF THE SPECIFICATION FOR NEW WORK.
- EXISTING FLUSH OUTLETS MAY BE REUSED FOR NEW WORK PROVIDED THEY MEET ALL REQUIREMENTS OF THE SPECIFICATION FOR NEW WORK, MEET THE REQUIREMENTS OF THE CURRENT C.E.C. FOR VOLUME AND COINCIDE WITH LOCATION SHOWN FOR THE NEW WORK.
- K. FLUSH OUTLET BOXES IN EXISTING WALLS TO REMAIN MAY BE ABANDONED IN PLACE. REMOVE DEVICES AND WIRING, PLUG OPENING AND PROVIDE AND INSTALL A BLANK DEVICE PLATE.
- EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT
- M. WHERE TELEPHONE, COMPUTER DATA, FIBER OPTICS, FIRE ALARM OR OTHER COMMUNICATIONS OUTLETS OR WIRING IS TO BE DEMOLISHED IT SHALL BE REMOVED BACK TO THE NEXT TERMINAL POINT. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER OR HIS REPRESENTATIVE TO HAVE EQUIPMENT AND WIRING DESIGNATED FOR REMOVAL OR PRESERVATION PRIOR TO REMOVAL OF OUTLET BOXES, CONDUIT OR WIRING BY ELECTRICAL CONTRACTOR.
- COORDINATE WITH OWNER PRIOR TO START OF DEMOLITION TO MINIMIZE POWER INTERRUPTIONS, WORK MAY HAVE TO OCCUR DURING NON-REGULAR BUSINESS HOURS. COORDINATE IN WRITING WITH OWNER ONE WEEK PRIOR TO PLANNED POWER INTERRUPTIONS.

(DSA STAMP AREA)

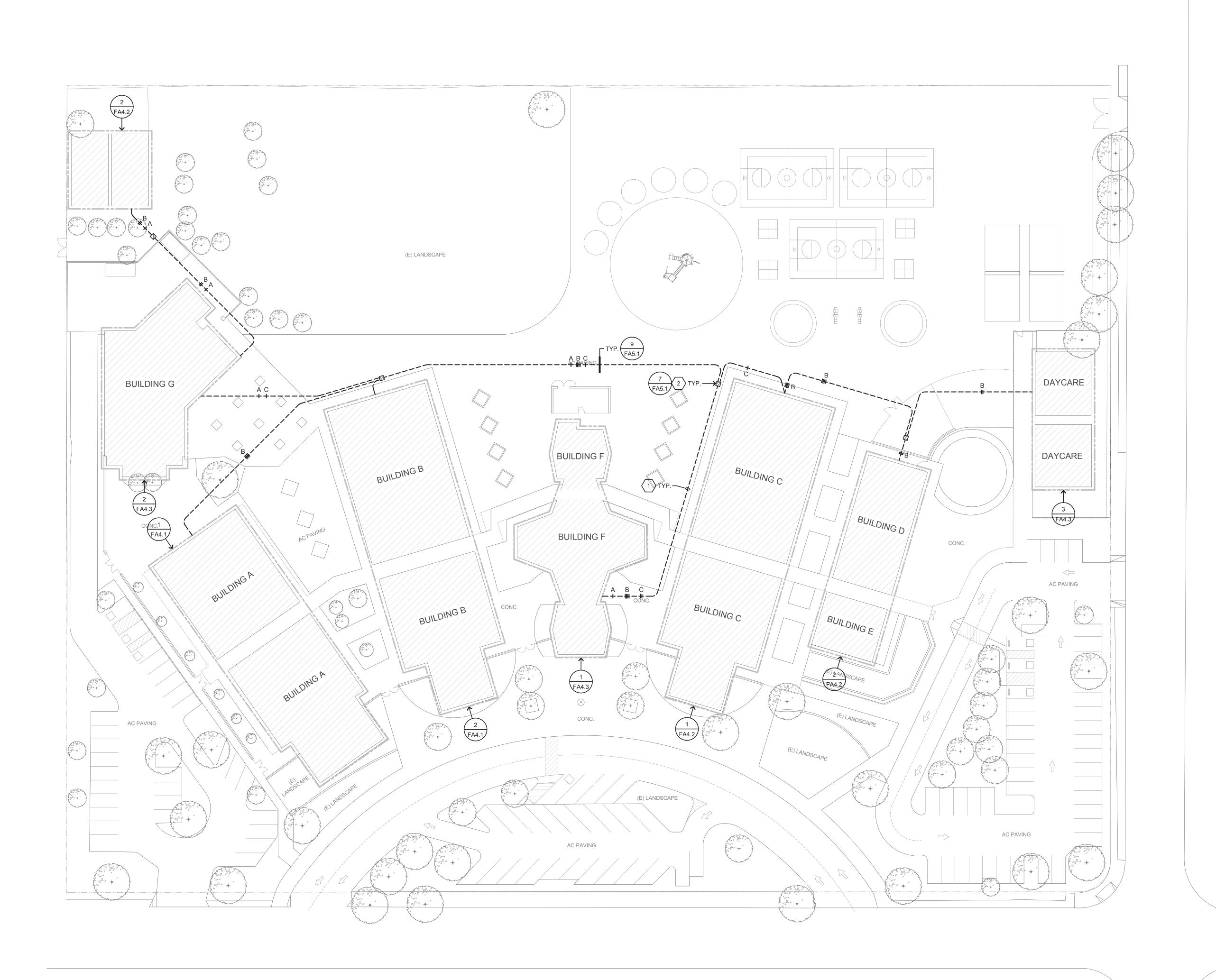








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1. CONTRACTOR SHALL PROVIDE AND INSTALL 2"C. FOR FIRE ALARM CABLES.

GENERAL NOTES:

REQUIREMENTS.

A. CONTRACTOR SHALL LOCATE ALL (E) UNDERGROUND UTILITIES PRIOR
TO TRENCHING AND TAKE CAUTION TO AVOID DAMAGE DURING

B. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND

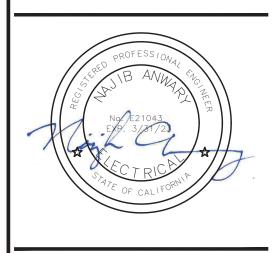
PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY.
PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH.
COORDINATE WITH FACILITIES MANAGER & ARCHITECT FOR EXACT

TRENCHING. HAND TRENCH IF NECESSARY. CONTRACTOR SHALL MAKE ALL REPAIRS TO DAMAGED UTILITIES AT NO CHARGE TO OWNER.

2. PROVIDE AND INSTALL CHRISTY #N16 PULLBOX WITH LID LABELED "FIRE ALARM".

(DSA STAMP AREA)





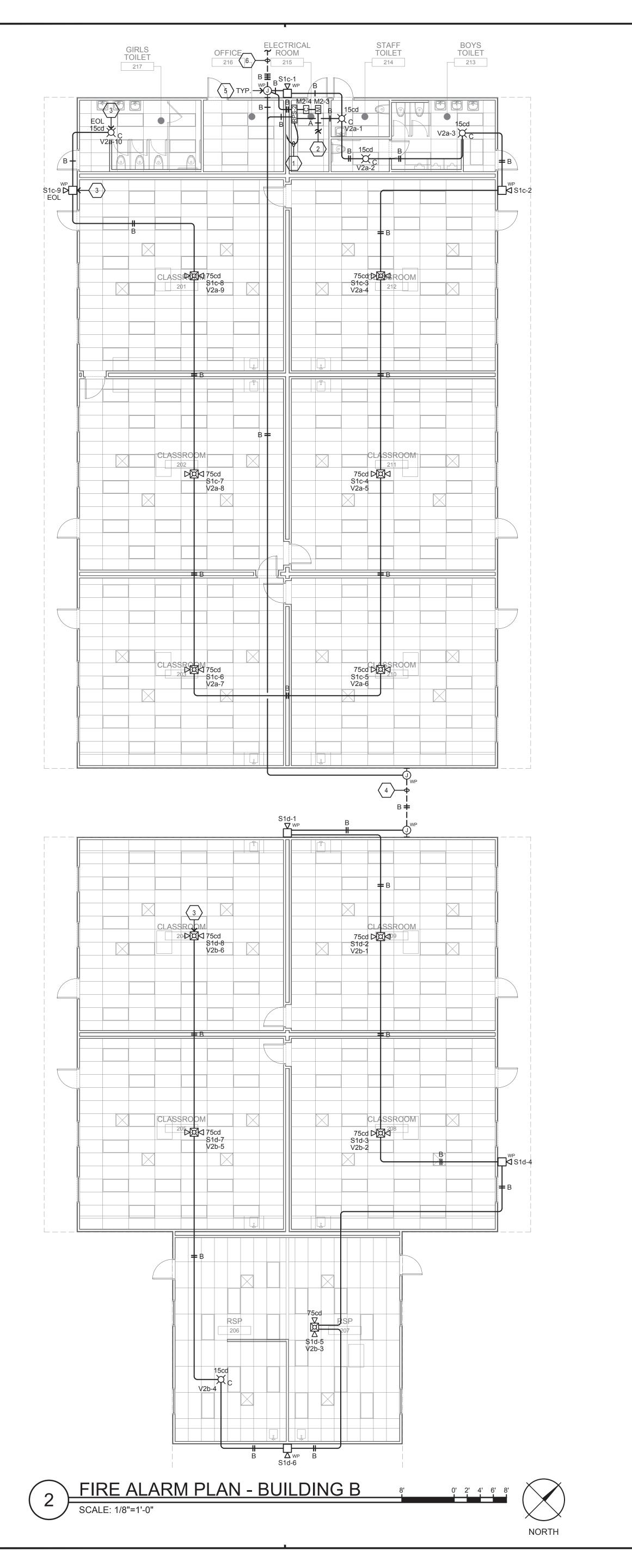
60 Garden Court 

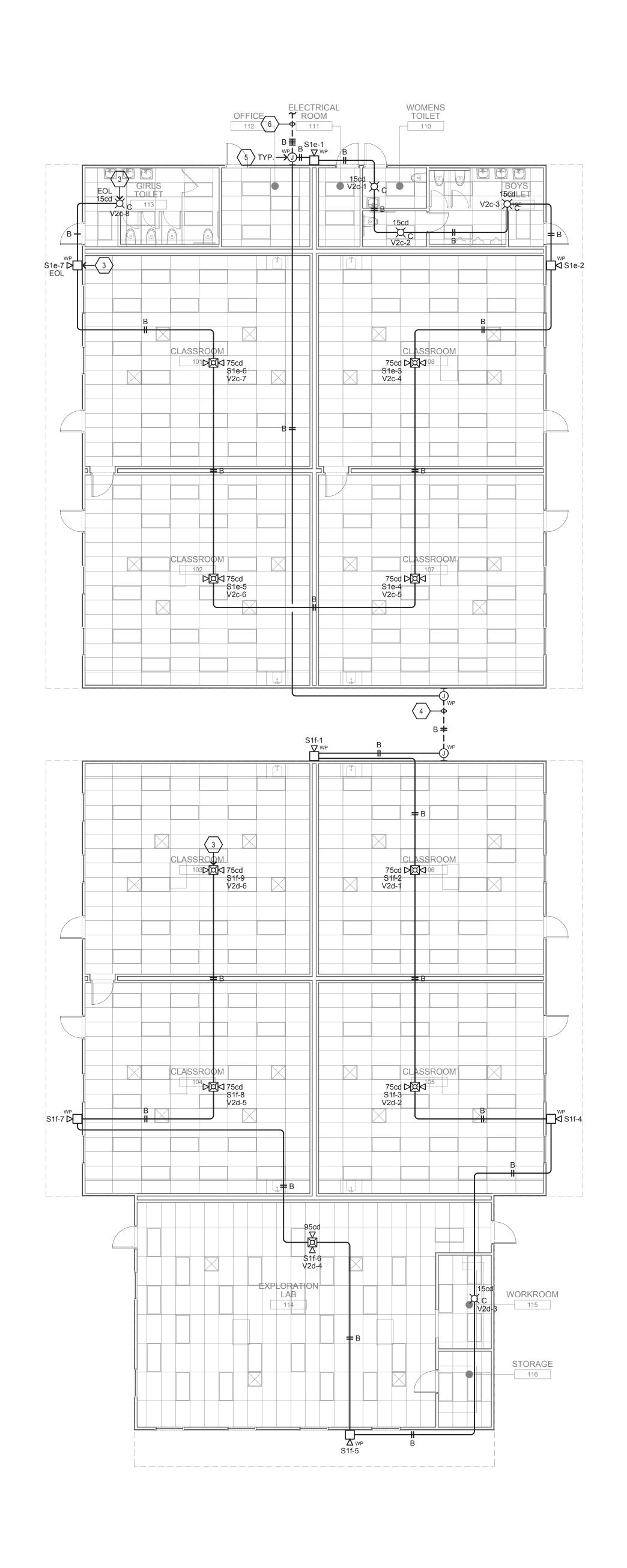
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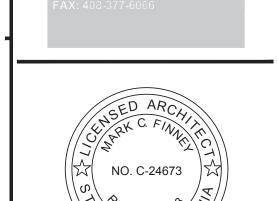
- CIRCUIT VIA 1/2"C., 2 #12 & 1 #12 GND TO PANEL "DPB" LOCATED IN SAME ROOM; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.
- 3. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 4. CONTRACTOR SHALL PROVIDE AND INSTALL ¾"C. FOR FIRE ALARM CABLES.
- 5. PROVIDE AND INSTALL 12" SQ. X 4" DEEP NEMA 3R PULLCAN.
- 6. SEE SHEET E2.1 FOR CONTINUATION.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH FACILITIES MANAGER & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

**BUILDING KEY** 

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.



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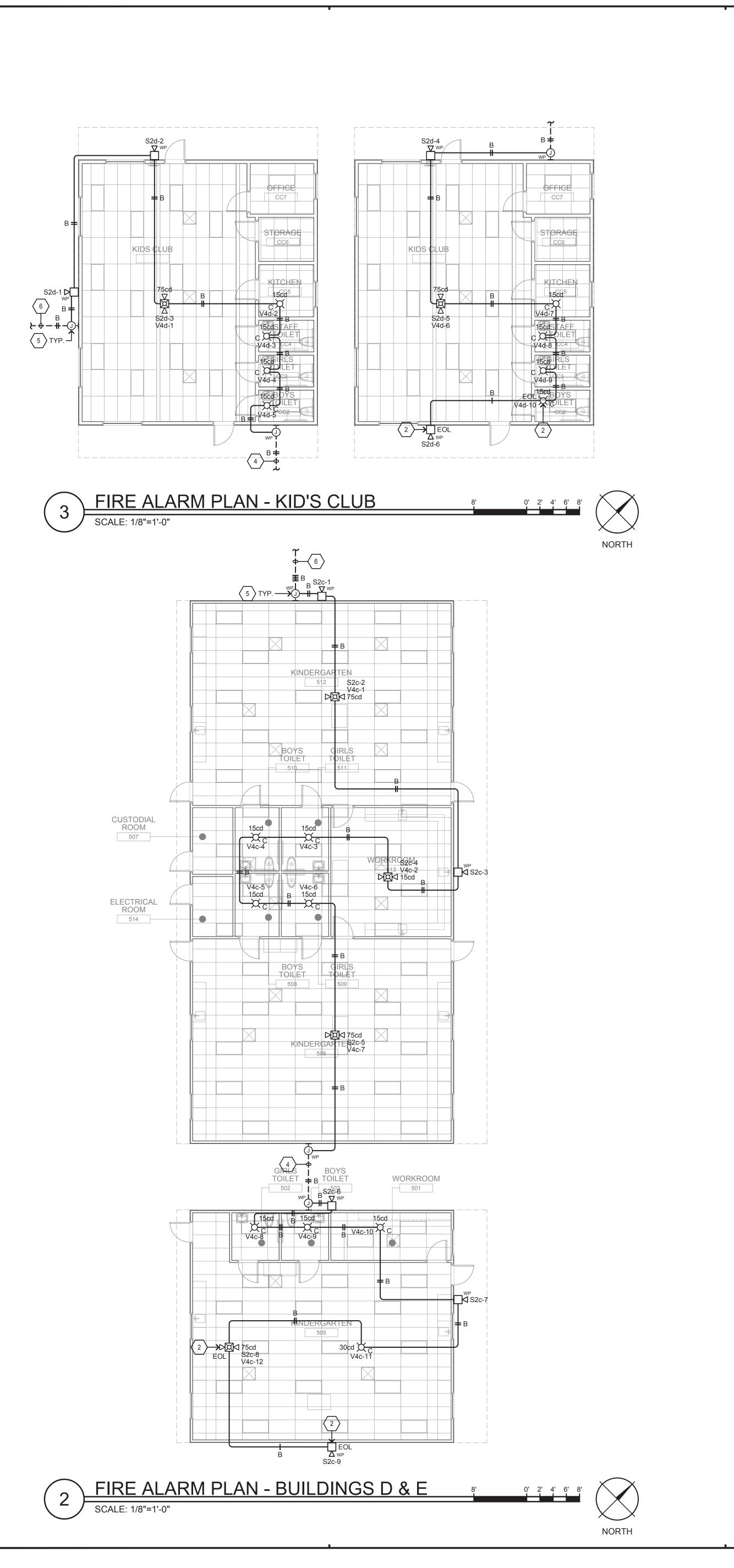
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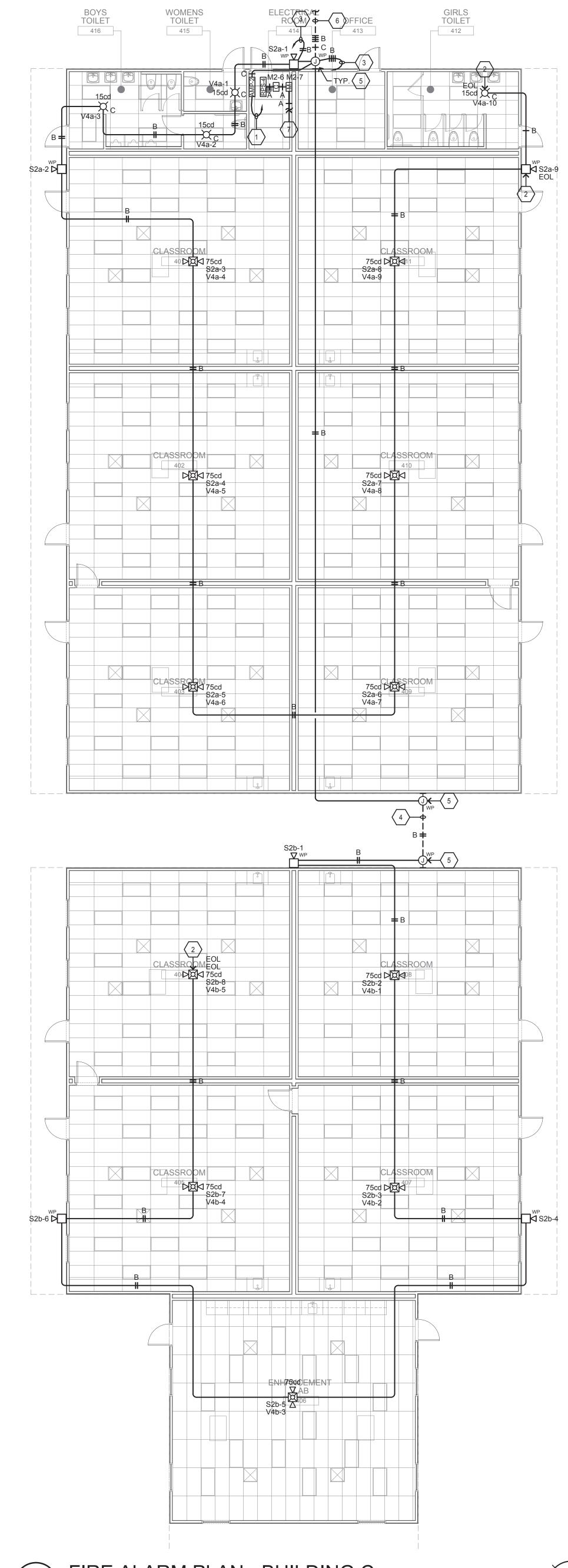
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CHECKED BY: SFA JOB NO: 12/01/2021

FA4.1

FIRE ALARM PLAN - BUILDING A 8' 0' 2' 4' 6' 8' SCALE: 1/8"=1'-0"





- CIRCUIT VIA 1/2"C., 2 #12 & 1 #12 GND TO PANEL "DPC" LOCATED IN SAME ROOM; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 3. HOMERUN TO REMOTE POWER SUPPLY "RPS-4" AND DIGITAL AUDIO AMPLIFIER "AMP-2"
- LOCATED IN ELECTRICAL ROOM 414.
- 4. CONTRACTOR SHALL PROVIDE AND INSTALL ¾"C. FOR FIRE ALARM CABLES.
- 5. PROVIDE AND INSTALL 12" SQ. X 4" DEEP NEMA 3R PULLCAN.

6. SEE SHEET E2.1 FOR CONTINUATION.

7. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH FACILITIES MANAGER & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

**BUILDING KEY** 

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE, SUITABLE FOR UNDERGROUND USE.



(DSA STAMP AREA)





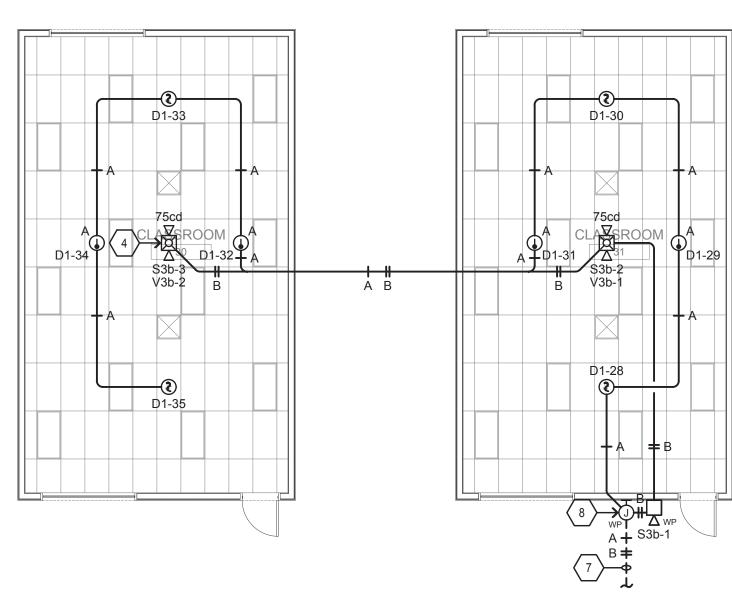
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REVISIONS

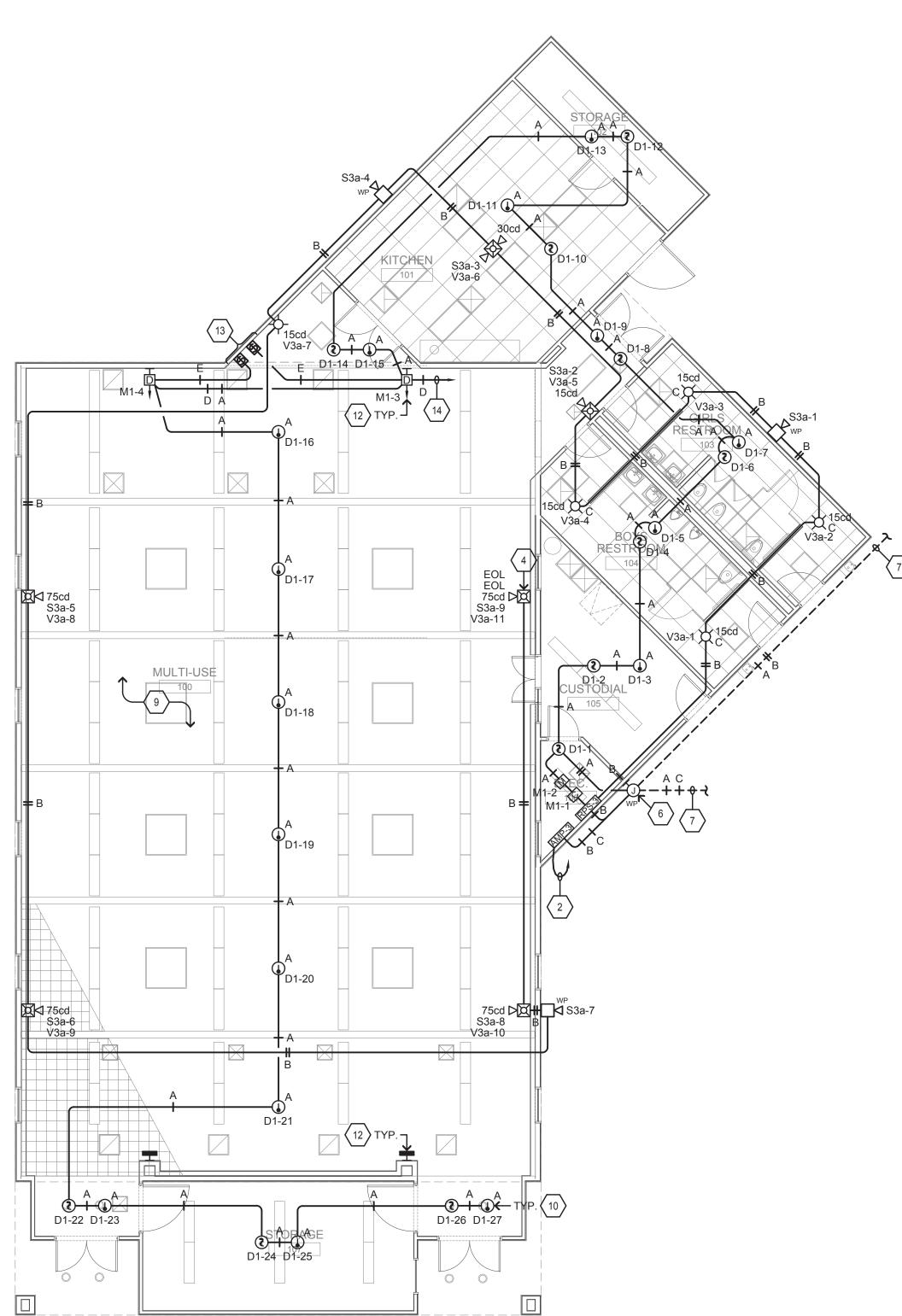
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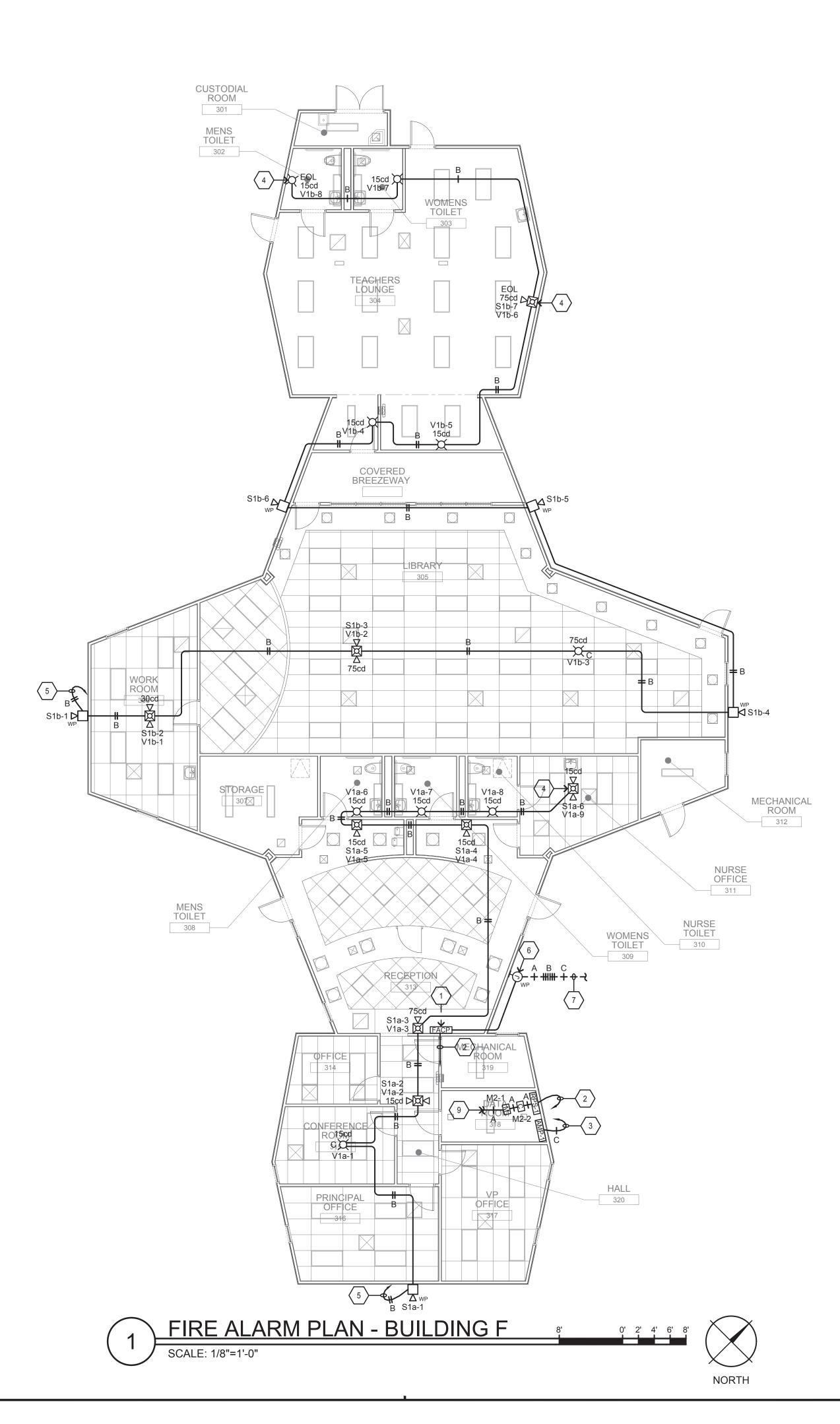
FIRE ALARM PLAN - PORTABLES

8' 0' 2' 4' 6' 8'

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



# FIRE ALARM PLAN - BUILDING G SCALE: 1/8"=1'-0" NORT



# ○ SHEET NOTES

- CONTRACTOR SHALL RETERMINATE EXISTING SLC LOOPS PRESERVED DURING DEMOLITION AT NEW PANEL SLC CARDS AND TEST TO ENSURE FULL FUNCTIONALITY OF EXISTING DEVICE.
- CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "F3" LOCATED IN DATA ROOM 318; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 3. HOMERUN TO FIRE ALARM CONTROL PANEL "FACP" LOCATED IN RECEPTION 313.
- 4. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 5. HOMERUN TO REMOTE POWER SUPPLY "RPS-1" AND DIGITAL AUDIO AMPLIFIER "AMP-1" LOCATED IN DATA ROOM 318.
- 6. PROVIDE AND INSTALL 18" SQ. X 6" DEEP NEMA 3R PULLCAN.
- 7. SEE SHEET E2.1 FOR CONTINUATION.
- 8. PROVIDE AND INSTALL 12" SQ. X 4" DEEP NEMA 3R PULLCAN.
- 9. PROVIDE AND INSTALL CSFM LISTED WIREGUARD FOR ALL DEVICES IN MULTI-USE ROOM.
- 10. WHERE NECESSARY PROVIDE & INSTALL ACCESS PANEL FOR HEAT DETECTOR ABOVE CEILING; 24" SQ. OPENING MINIMUM.
- 11. BEAM SMOKE DETECTOR TRANSMITTER. INSTALL WITH DIRECT LINE OF SIGHT OF REFLECTOR PLATE; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 12. REFLECTOR PLATE. INSTALL WITH DIRECT LINE OF SIGHT OF TRANSMITTER; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 13. PROJECTED BEAM DETECTOR REMOTE TEST STATION WITH KEYLOCK; CONNECT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT AT +44" A.F.F. TO TOP OF BOS; VERIFY
- EXACT LOCATION WITH ARCHITECT.

  14. HOMERUN TO REMOTE POWER SUPPLY "RPS-3" LOCATED IN ELECTRICAL ROOM 106.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH FACILITIES MANAGER & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM.

  ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

**BUILDING KEY** 

- CABLE LEGEND

  TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER

CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

- OF PAIRS.

  TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE,
- SUITABLE FOR UNDERGROUND USE.

  TYPE D = DENOTES 24VDC CONSTANT POWER CIRCUITS FOR DUCT
- SMOKE DETECTOR OR BEAM SMOKE DETECTOR; UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE E = DENOTES NOTIFICATION APPLIANCE CIRCUITS FOR BEAM SMOKE DETECTOR TEST SWITCH. UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

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Project No. 21-444.00

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FIRE ALARM REPLACEMENT

E ALARM PLANS - BL

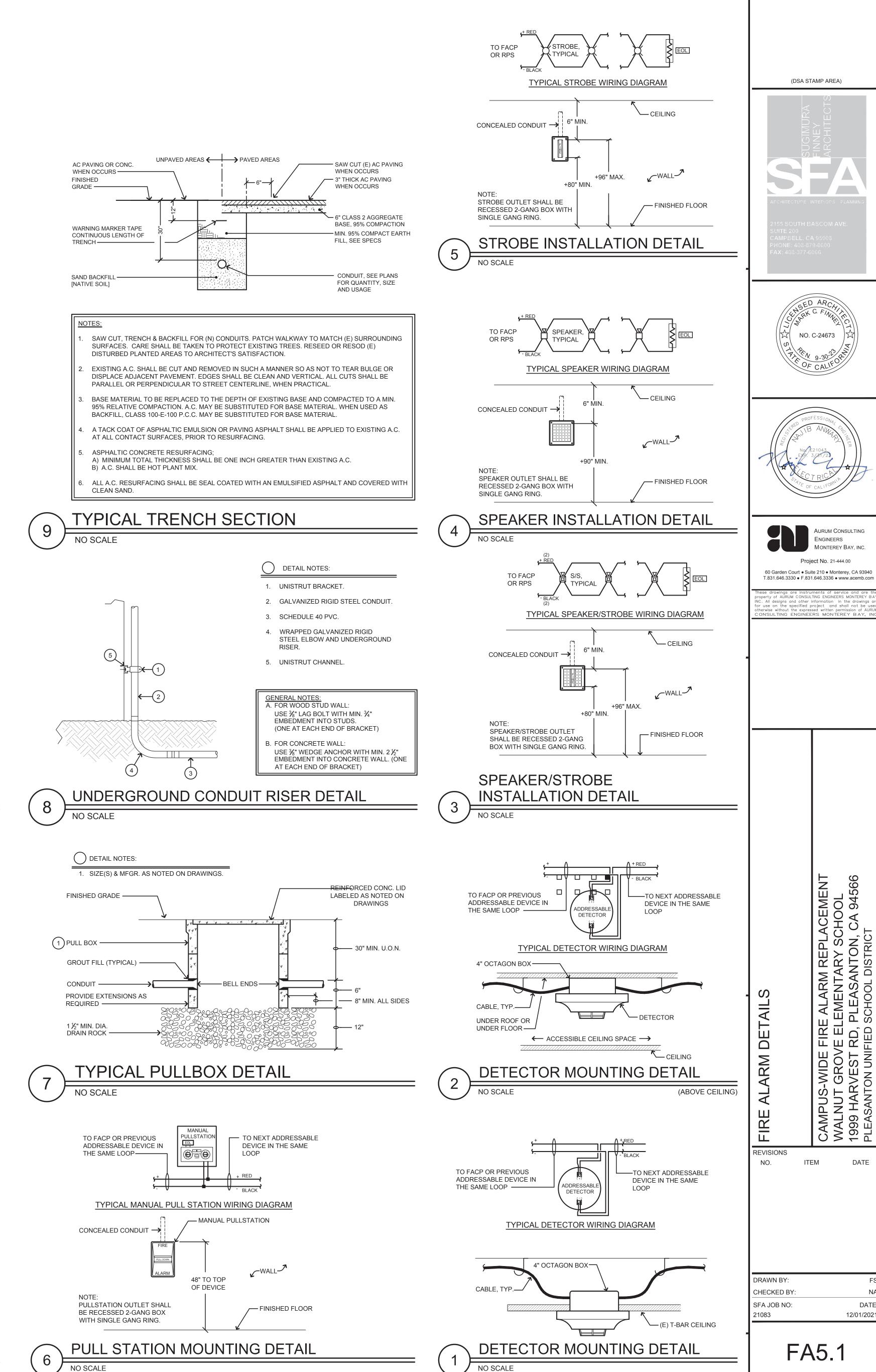
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CAMPUS-WIDE FIRE AL
WALNUT GROVE ELEM
1999 HARVEST RD, PLE

EVISIONS NO. ITEM

DRAWN BY: FS
CHECKED BY: NA

SFA JOB NO: DATE:
21083 12/01/2021



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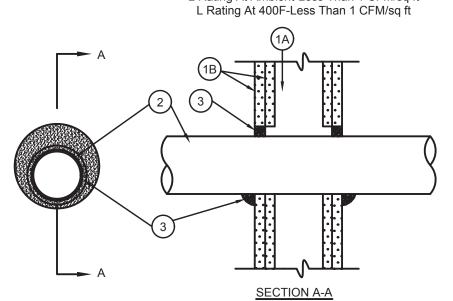
MONTEREY BAY, INC.

12/01/2021

FA5.1

FOR RATED WALL LOCATIONS U.L. System No. W-L-1049 F Rating-1 and 2 Hr (See Item 1B) T Rating-0 HR L Rating At Ambient-Less Than 1 CFM/sq ft L Rating At 400F-Less Than 1 CFM/sq ft

SEE FLOOR PLAN DRAWINGS



1. Wall Assembly-The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the

following construction features: A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.

B. Wallboard, Gypsum\*-5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 25-3/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant-One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1-3/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe-Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe-Nom 24 in. diam (or smaller) cast or ductile iron pipe.

C. Conduit-Nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) steel conduit or nom I in. diam (or smaller) flexible steel conduit.

D. Copper Tubing-Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe-Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

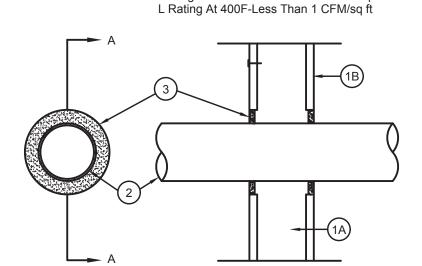
3. Fill, Void or Cavity Material\*-Sealant-Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At the point contact location between through penetrant and gypsum wallboard, a min 3/8 in. diam bead of fill material shall be applied at the gypsum wallboard/through penetrant interface on both surfaces

Specified Technologies Inc.-SpecSeal 100, 101, 102 or 105 Sealant 'Bearing the UL Classification Marking

# 2-HR FIRE-RATED WALL PENETRATION

# SEE FLOOR PLAN DRAWINGS FOR RATED WALL LOCATIONS U.L. System No. W-L-1062 F Rating-1 HR T Rating-0 HR

L Rating At Ambient-Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly-The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in OC. Steel studs to be min 3|Q5|W/|A8|S in. wide and spaced max 24 in. OC.

2. Through Penetrants-One metallic conduit to be installed within the firestop system. The

B. Wallboard Gypsum\*-One Layer of nom |Q5|W/|A8|S in. thick gypsum wallboard as specified in the individual Wall and Partition Design. Max diam of opening is 4|Q3|W/|A4|S

space between the conduit and periphery of opening shall be a min |Q1|W/|A4|S in. to a max |Q3|W/|A8|S in. Conduit to be rigidly supported on both sides of wall assembly. A nominal 4 in. diameter (or smaller) electrical metallic tubing or steel conduit may be used. 3. Fill, Void or Cavity Material\*-Caulk-Min 1|Q1|W/|A2|S in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

General Electric Co.-Pensit 100 Caulk. Specified Technologies Inc.-Pensil 100 Sealant and Pensit 300 Sealant.

\*Bearing the UL Classification Marking

1-HR FIRE-RATED WALL PENETRATION

NO SCALE



# HARVEST PARK MIDDLE SCHOOL CAMPUS WIDE FIRE ALARM REPLACEMENT

4900 VALLEY AVENUE, PLEASANTON, CA 94566

# PLEASANTON UNIFIED SCHOOL DISTRICT

DSA FILE NUMBER 01-32 DSA APPLICATION NUMBER 01-119912 OPSC TRACKING NUMBER 75101-105

# FAX: 408-377-6066

(DSA STAMP AREA)



CONTRACTOR SHALL VISIT THE PROJECT AREA IN ORDER TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND THE REQUIREMENTS OF THE PROJECT. THE CONTRACTOR MAY CONTACT THE ARCHITECT DURING THE BIDDING PHASE REGARDING CLARIFICATIONS AND PROJECT REQUIREMENTS.

IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

**GENERAL NOTES** 

CONTRACTOR SHALL REIMBURSE THE OWNER FOR REPAIR AND REPLACEMENT, INCLUDING ARCHITECT'S FEES, FOR ANY DAMAGE CAUSED TO STRUCTURES, LANDSCAPE, SITE WORK, OR EXISTING SYSTEMS TO REMAIN, AS THE RESULT OF CONSTRUCTION OPERATIONS.

ALL EXISTING CONDITIONS ARE SHOWN BASED ON THE BEST INFORMATION AVAILABLE AT THE TIME, BUT WITHOUT GUARANTEE OF ACCURACY. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND BUILDING DATA AT THE JOB SITE. ANY DISCREPANCIES REQUIRING MODIFICATION TO THE CONSTRUCTION DOCUMENTS SHALL BE REPORTED TO THE ARCHITECT IMMEDIATELY. NO MODIFICATIONS SHALL BE MADE BY THE CONTRACTOR WITHOUT PRIOR APPROVAL FROM THE ARCHITECT.

COORDINATE WITH OWNER'S REPRESENTATIVE FOR APPROVED LOCATION OF JOB SITE ACCESS, PARKING, AND LOCATION OF CONTRACTOR'S EQUIPMENT AND MATERIAL STORAGE AREA. SEE SITE PLAN FOR ADDITIONAL NOTES.

### UTILITY SHUT-DOWNS AND CONNECTIONS

ALL REQUIRED UTILITY SHUT DOWNS SHALL HAVE PRIOR APPROVAL FROM THE OWNER'S REPRESENTATIVE. REQUEST SHALL BE SUBMITTED WITH ADEQUATE ADVANCE NOTICE PER PROJECT REQUIREMENTS.

THE OWNER/OPERATOR AND CONTRACTOR SHALL BE AWARE THAT BUILDINGS CONSTRUCTED PRIOR TO 1978 (OR THERE ABOUT) POSSIBILITY CONTAIN ASBESTOS IN SOME EXISTING CONSTRUCTION MATERIALS. AND WILL LIKELY BE ENCOUNTERED DURING ALTERATIONS OR REMODELING.

UNDER CALIFORNIA TITLE 8, THE OWNER AND CONTRACTOR BOTH HAVE RESPONSIBILITIES TO DETERMINE THE EXISTENCE OF ASBESTOS CONTAINING MATERIALS IN AREAS TO BE ALTERED OR REMODELED PRIOR TO COMMENCEMENT OF WORK AND TO TAKE APPROPRIATE MEASURES TO PROTECT PERSONNEL. CAL-OSHA HAS JURISDICTION OVER ASBESTOS RELATED WORK. ASBESTOS RELATED WORK SHALL BE DONE IN ACCORDANCE WITH CALIFORNIA GENERAL INDUSTRIAL SAFETY ORDERS, TITLE 8, SECTION 341.6 THROUGH 341.14. ASBESTOS IN THE WORK ENVIRONMENT IS REGULATED BY TITLE 8, SECTION 5208.

THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT AND DISTRICT REGULATION 11-2-401.3 REQUIRES EVERY RENOVATION INVOLVING THE REMOVAL OF 100 SQ.FT., LN.FT, OR GREATER OF REGULATED ASBESTOS CONTAINING MATERIAL AND FOR EVERY DEMOLITION (EVEN WHEN NO ASBESTOS IS PRESENT), A NOTIFICATION MUST BE SENT TO THE BAAQMD AT LEAST 10 WORKING DAYS PRIOR TO COMMENCEMENT OF DEMOLITION / RENOVATION.

### ALL BUILDING MATERIALS MUST BE ASBESTOS FREE

THESE DOCUMENTS DO NOT ADDRESS CONTAINMENT FOR EXISTING CONSTRUCTION. THE OWNER'S ABATEMENT SUBCONTRACTOR IS SOLELY RESPONSIBLE FOR THE DETECTION, REMOVAL, AND THE DISPOSAL OF ANY EXISTING ASBESTOS MATERIAL. ARCHITECTURAL AND ENGINEERING FEES FOR ADDITIONAL DESIGN EFFORT TO OBTAIN STATE APPROVALS, AS WELL AS THE COST OF ANY REPAIRS, FOR DAMAGE CAUSED OR REPLACEMENT OF EXISTING SYSTEMS TO REMAIN DUE TO WORK PERFORMED BY THE ASBESTOS ABATEMENT SUBCONTRACTOR, SHALL BE THE RESPONSIBILITY OF SAID SUBCONTRACTOR.

### CONSTRUCTION SCHEDULING

CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION OPERATIONS WITH OWNER'S REPRESENTATIVE PRIOR TO SCHEDULING AND START OF THE WORK. CONTRACTOR SHALL PROVIDE PROTECTION TO ALL EXISTING SPACES AND SYSTEMS WHICH ARE IN USE, ADJOINING THE PROJECT, AND NOT PART OF THE PROJECT

### **INTERIOR FINISHES** INTERIOR FINISHES AND ALL WALL COVERING MATERIAL SHALL

CONFORM TO CCR TITLE 24, PART 2, CHAPTER 8.

### PIPES, DUCTS AND CONDUIT - SUPPORT AND BRACING PIPES, DUCTS, AND CONDUITS SHALL BE SUPPORTED AND BRACED PER THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", OPM 0052-13 SEISMIC

### DRILLED-IN EXPANSION ANCHORS

BRACING AND SUPPORT SYSTEMS.

WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.

### TITLE 24 COMPLIANCE

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CALIFORNIA CODE OF REGULATIONS (2019 CBC). SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY THE DSA BEFORE PROCEEDING WITH THE WORK.

ADMINISTRATIVE REQUIREMENTS FROM PART 1., TITLE 24, C.C.R. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT, AND APPROVED BY DSA, AS PER SECTION 4-338 - A DSA CERTIFIED PROJECT INSPECTOR EMPLOYED BY THE DISTRICT AND APPROVED BY DSA SHALL PROVIDE CONTINUOUS INSPECTION OF WORK, PER SECTION 4-342 - A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE

DISTRICT SHALL CONDUCT ALL REQUIRED TEST AND INSPECTIONS FOR THE

- SPECIAL INSPECTION PER SECTION 4-333 (C) - CONTRACTOR SHALL SUBMIT VERIFIED REPORT OR SECTION 4-336 & 4-343

- ADMINISTRATION OR CONSTRUCTION PER PART 1, TITLE 24, C.C.R. - DUTIES OF ARCHITECT, STRUCTURAL ENGINEER, OR PROFESSIONAL ENGINEER PER SECTION 4-333 (A) AND 4-341 - DUTIES OF CONTRACTOR PER SECTION 4-343 - VERIFIED REPORTS PER SECTION 4-343 AND 4-336

A COPY OF PARTS 1 TO 5 OF TITLE 24 SHALL BE KEPT AND AVAILABLE IN THE FIELD DURING CONSTRUCTION DSA SHALL BE NOTIFIED AT START OF CONSTRUCTION AND PRIOR TO PLACEMENT OF CONCRETE PER SECTION 4-331 - SUPERVISION BY DSA PER SECTION 4-334 - DSA IS NOT SUBJECT TO ARBITRATION

### GENERAL NOTES, cont.

- ADDENDA MUST BE SIGNED BY ARCHITECT AND APPROVED BY DSA NO CHANGES OR REVISIONS SHALL BE MADE FOLLOWING WRITTEN APPROVAL WHICH
- AFFECTS ACCESS COMPLIANCE ITEM UNLESS SUCH CHANGES TO REVISIONS ARE SUBMITTED TO DSA FOR APPROVAL.
- SUBSTITUTIONS AFFECTING DSA REGULATED ITEMS SHALL BE SUBMITTED AS A CONSTRUCTION CHANGE DOCUMENT OR ADDENDA, AND SHALL BE APPROVED BY
- DSA PRIOR TO FABRICATION AND INSTALLATION CONSTRUCTION CHANGE DOCUMENTS MUST BE SIGNED BY THE FOLLOWING:
- ARCHITECT OR ENGINEER OF RECORD STRUCTURAL ENGINEER (WHEN APPLICABLE)
- -- DELEGATED PROFESSIONAL ENGINEER
- MATERIALS AND THEIR INSTALLATIONS SHALL COMPLY WITH APPLICABLE CODES. PER CBC 11B-104.1 "ALL DIMENSIONS ARE SUBJECT TO CONVENTIONAL INDUSTRY TOLERANCES EXCEPT WHERE THE REQUIREMENT IS STATED AS A RANGE WITH SPECIFIC MINIMUM AND MAXIMUM END POINTS.

### COMPLIANCE WITH LOCAL ORDINANCES

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

ACOUSTIC TILE

INSULATION

JOIST HANGER

KILN DRIED

INTERIOR

INVERT

JOINT

ABOVE FINISHED FLOOR

MACHINE BOLT ADJUSTABLE MACHINE SCREW MANHOLE **ANCHOR BOLT** APPROX APPROXIMATELY MARKER BOARD ASPHALTIC CONCRETE MECHANICAL BENCH MARK MINIMUM MISCELLANEOUS BOTH WAYS BUILDING NOMINAL BUILT-UP ROOFING NOT IN CONTRACT CEILING NOT TO SCALE CEMENT NO. or # NUMBER C.C or O.C. CENTER TO CENTER OCCUPANT(CY) CENTERLINE ON CENTER CER. TILE CERAMIC TILE OPENING CLEANOUT OPPOSITE C.O.T.G. CLEANOUT TO GRADE OPPOSITE HAND CLEAR O.F.O.S. OUTSIDE FACE OF STUD C.A.H.R. CLEAR ALL HEART O.H.W.S. OVAL HEAD WOOD SCREW REDWOOD OVERFLOW DRAIN and/or COLD WATER OUTSIDE DIAMETER COLUMN OWNER FURNISHED and COM. COMMON CONTRACTOR INSTALLED CONCRETE CONST. CONSTRUCTION PARTITION CONSTRUCTION HEART PLATE CONSTRUCTION JOINT PENNY (NAILS) **CONTINUOUS** PLASTER CONTR. CONTRACTOR PLYWD. PLYWOOD CTR. COUNTER P.V.C. POLY VINYL CHLORIDE COUNTER SUNK PRESSURE TREATED PROPERTY LINE DIAMETER R. or RAD. RADIUS DIMENSION R.W.L. RAIN WATER LEADER DISABLED ACCESS RWD./R.W. REDWOOD REINF. REINFORCING DOWNSPOUT REQUIRED DRAWING RETURN AIR GRILLE DRINKING FOUNTAIN RIM ELEVATION CCR TITLE-19, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS. and/or DOUGLAS FIR ROOF DRAIN E.W. **EACH WAY** ROUGH OPENING ELECTRIC or ELECTRICAL R.H.M.S. ROUND HEAD METAL SCREW ELEV. ELEVATION R.H.W.S. ROUND HEAD WOOD SCREW ENCLOSE and/or ENCLOSURE SEE STRUCTURAL DRAWINGS S.T.S.M.S. SELF TAPPING SHEET **EQUIPMENT** EXISTING SHEATHING **EXPANSION** SHEET METAL **EXPANSION JOINT** SHEET METAL SCREW **EXPOSED** S.O.V. SHUT OFF VALVE **EXTERIOR** FACE OF CONCRETE SOLID CORE FACE OF MASONRY **SPECIFICATION** FACE OF STUD SQUARE F.O.F. FACE OF FINISH SQUARE FEET STAGGERED FINISHED FLOOR STANDARD FINISH SLAB STAINLESS STEEL FIRE EXTINGUISHER FIRE EXTINGUISHER CABINET STORAGE STRUCTURAL F.H.M.S. FLAT HEAD METAL SCREW F.H.W.S. FLAT HEAD WOOD SCREW THRES. THRESHOLD **TONGUE & GROOVE** FLOOR DRAIN TOOLED JOINT FOOTING TOP OF BEAM FOUNDATION T.O.C. TOP OF CURB or CONCRETE GALVANIZED T.O.S. TOP OF STEEL or SHEATHING GALVANIZED IRON T.O.W. TOP OF WALK GAUGE TYPICAL GLASS UNLESS OTHERWISE NOTED U.O.N. GLU-LAM GLUE-LAMINATED UNLESS OTHERWISE SHOWN GRADE VENT THROUGH ROOF V.T.R. GYP. BD. GYPSUM BOARD VERT. VERTICAL HARDWARE VERTICAL GRAIN VERIFY IN FIELD HEIGHT VINYL COMPOSITION TILE **HOLLOW CORE** VINYL WALL COVERING V.W.C. HOLLOW METAL HORIZ. HORIZONTAL V.O.I.P. VOICE OVER INTERNET PROTOCOL HOSE BIBB WATER CLOSET INSIDE DIAMETER WATER HEATER

WATERPROOF

WITH

WITHOUT

WOOD

W/O

WATER RESISTANT

WELDED WIRE MESH

WINDOW DIMENSION

LAMINATE

LAVATORY

# **BUILDING CODES AND STANDARDS:**

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R. 2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, C.C.R. (2018 INTERNATIONAL BUILDING CODE, VOLUMES 1 AND 2, WITH 2019 CALIFORNIA AMENDMENTS.) 2019 CALIFORNIA ELECTRIC CODE (CEC), PART 3, TITLE 24, C.C.R.

(2018 NATIONAL ELECTRIC CODE WITH 2019 CALIFORNIA AMENDMENTS). 2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, C.C.R. (2018 UNIFORM MECHANICAL CODE WITH 2019 CALIFORNIA AMENDMENTS).

2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, C.C.R. (2018 UNIFORM PLUMBING CODE WITH 2019 CALIFORNIA AMENDMENTS). CALIFORNIA ENERGY CODE (CENC), PART 6, TITLE 24, C.C.R. CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R. (2018 INTERNATIONAL FIRE CODE WITH 2019 CALIFORNIA AMENDMENTS)

CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24, 2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24, C.C.R. 2016 ASME A17.1 (W/A17.1a/CSA B44a-08 ADDENDA) SAFETY CODE FOR

ELEVATORS AND ESCALATORS 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN (28 CFR PART 35 FOR TITLE II ENTITIES)

NFPA 13 INSTALLATION OF SPRINKLER SYSTEMS (CA AMENDED) NFPA 14 INSTALLATION OF STANDPIPE & HOSE SYSTEMS 2016 EDITION (CA AMENDED) NFPA 17 DRY CHEMICAL EXTINGUISHING SYSTEMS NFPA 17A WET CHEMICAL EXTINGUISHING SYSTEM 2017 EDITION NFPA 20 STATIONARY FIRE PUMPS TO FIRE PROTECTION NFPA 22 WATER TANKS FOR PRIVATE FIRE PROTECTION 2013 EDITION NFPA 24 PRIVATE FIRE SERVICE MAINS 2016 EDITION (CA AMENDED) INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS CALIFORNIA EDITION 2016 EDITION

NFPA 72 NATIONAL FIRE ALARM CODE (CA AMENDED) NFPA 80 FIRE DOORS AND OTHER OPENING PROTECTIVES 2016 EDITION NFPA 92 STANDARD FOR SMOKE CONTROL SYSTEMS NFPA 110 EMERGENCY AND STANDBY POWER SYSTEMS NFPA 170 STANDARD FOR FIRE SAFETY AND EMERGENCY 2018 EDITION NFPA 253 CRITICAL RADIANT FLUX OF FLOOR COVERING 2015 EDITION NFPA 2001 CLEAN AGENT FIRE EXTINGUISHING SYSTEMS ICC 300 STANDARDS FOR BLEACHERS, FOLDING AND 2017 EDITION

TELESCOPIC SEATING, AND GRANDSTANDS SFM 12-10-1 POWER OPERATED EXIT DOORS SFM 12-10-2 SINGLE POINT LATCHING OR LOCKING DEVICES SFM 12-10-3 EMERGENCY EXIT & PANIC HARDWARE

MANUAL OPERATING SIGNAL BOXES 1999/2005 EDITION UL 268 SMOKE DETECTORS FOR FIRE PROTECTIVE 2009 EDITION SIGNALING SYSTEMS UL 268A SMOKE DETECTORS DUCT APPLICATIONS 1998/2003 EDITION FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS 2005 (R2010) FOR PROTECTION OF COMMERCIAL COOKING FOUIPMENT UL 305 PANIC HARDWARE 2012 EDITION AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, AND ACCESSORIES UL 521 HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS

CONTROL UNITS FOR FIRE PROTECTIVE 2003 EDITION SIGNALING SYSTEMS (W/ REVISIONS THROUGH DEC. 2014) UL 1971 SIGNALING DEVICES FOR THE HEARING IMPAIRED 2002 EDITION COMPLIANCE WITH CFC CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND CBC CHAPTER 33, SAFETY DURING CONSTRUCTION WILL

# SYMBOLS LEGEND

- SECTION IDENTIFICATION - SHEET WHERE SECTION IS DRAWN DETAIL IDENTIFICATION SHEET WHERE DETAIL IS DRAWN INTERIOR ELEVATION - INDICATES ELEVATION SHOWN — SHEET WHERE ELEVATION IS DRAWN

**ROOM IDENTIFICATION** CLASSROOM— ROOM NAME

— ROOM NUMBER SPECIFIC NOTE DOOR DESIGNATION

WINDOW DESIGNATION

ADDENDUM REVISION

CLOUD AROUND REVISION

FINISH NUMBER SEE SPECS AND I.E. DWGS. EQUIPMENT LETTER SEE EQUIPMENT SCHEDULE

CEILING HEIGHT WALL TYPE

CENTER OF

### PROJECT SUMMARY

REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND EM/VOICE EVACUATION

# THERE ARE NO DEFERRED SUBMITTALS FOR THIS PROJECT.

### DRAWING INDEX

# **DESIGN TEAM**

SUGIMURA FINNEY ARCHITECTS 2155 SOUTH BASCOM AVENUE SUITE 200 CAMPBELL, CALIFORNIA 95008 (408) 879-0600 (408) 377-6066 FAX ATTN: MARK FINNEY MARK@SUGIMURA.COM

ELECTRICAL AND FIRE ALARM ENGINEER AURUM CONSULTING ENGINEERS 1798 TECHNOLOGY DRIVE, SUITE 242 SAN JOSE, CA 95110 (408) 564-7925

T3 SITE PLAN - FIRE LIFE SAFETY

FA0.1 FIRE ALARM SYMBOLS, ABBRE., EQUIPMENT LIST, OPERATIONAL MATRIX, DETAILS & NOTES FA1.1 FIRE ALARM RISER DIAGRAM FA1.2 FIRE ALARM RISER DIAGRAM

FA1.3 BATTERY & VOLTAGE DROP CALCULATIONS FA1.4 VOLTAGE DROP CALCULATIONS (SPEAKER CIRCUITS) FA2.1 FIRE ALARM DEMOLITION PLAN

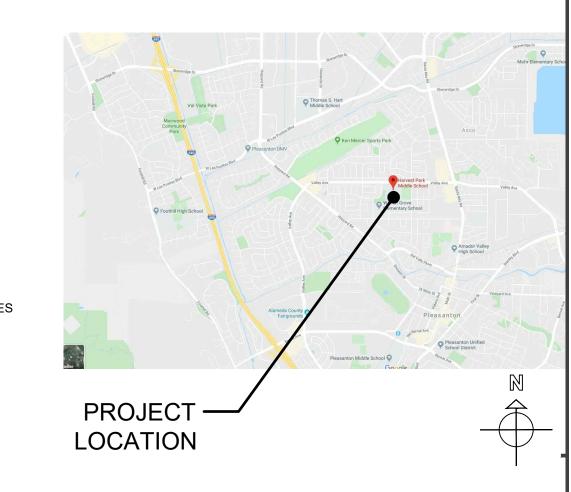
FA3.1 FIRE ALARM SITE PLAN FA4.1 FIRE ALARM PLAN - BUILDINGS A

FA4.2 FIRE ALARM PLAN - BUILDINGS B FA4.3 FIRE ALARM PLAN - BUILDING C & PRE-SCHOOL PORTABLES FA4.4 FIRE ALARM PLAN - BUILDINGS D FA4.5 FIRE ALARM PLAN - BUILDINGS E & F

FA4.6 FIRE ALARM PLAN - GYM (AREA A) FA4.7 FIRE ALARM PLAN - GYM (AREA B) FA5.1 FIRE ALARM DETAILS

SHEET TOTAL = 17

# **VICINITY MAP**



# STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS / ENGINEERS WHO UTILIZE PLANS. INCLUDING BUT NOT

LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND / OR OTHER CONSULTANTS APPLICATION NO.: 01-119912 ☑ THE DRAWINGS OR SHEETS LISTED ON THE COVER OR INDEX SHEET THIS DRAWING, PAGE OF SPECIFICATIONS / CALCULATIONS HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND / OR AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. IT HAS BEEN EXAMINED BY ME FOR: DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS AND THE PROJECT SPECIFICATIONS PREPARED BY ME, AND 2) COORDINATION WITH MY PLANS AND SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT. THE STATEMENT OF GENERAL CONFORMANCE "SHALL NOT BE CONSTRUED AS | RELIEVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTIONS 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-336. 4-341 AND 4-344" OF TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B)) THIS DRAWING OR PAGE IS / ARE IN GENERAL CONFORMANCE WITH THE PROJECT DESIGN, AND X HAS / HAVE BEEN COORDINATED WITH THE PROJECT PLANS AND

LICENSE NUMBER

12/01/2021

9/30/2023

EXPIRATION DATE

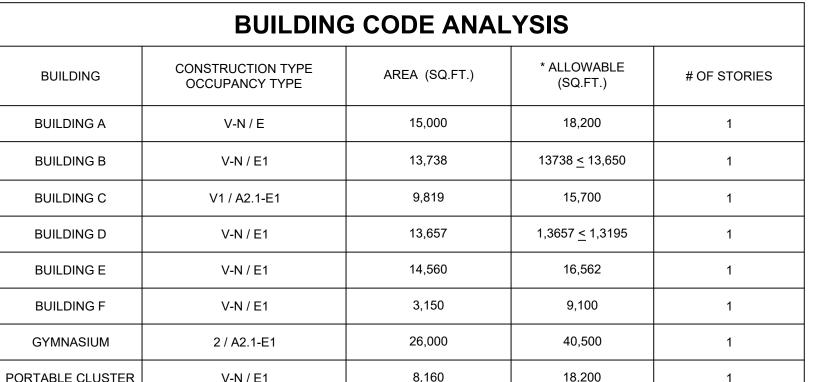
**CHECKED BY** SFA JOB NO:

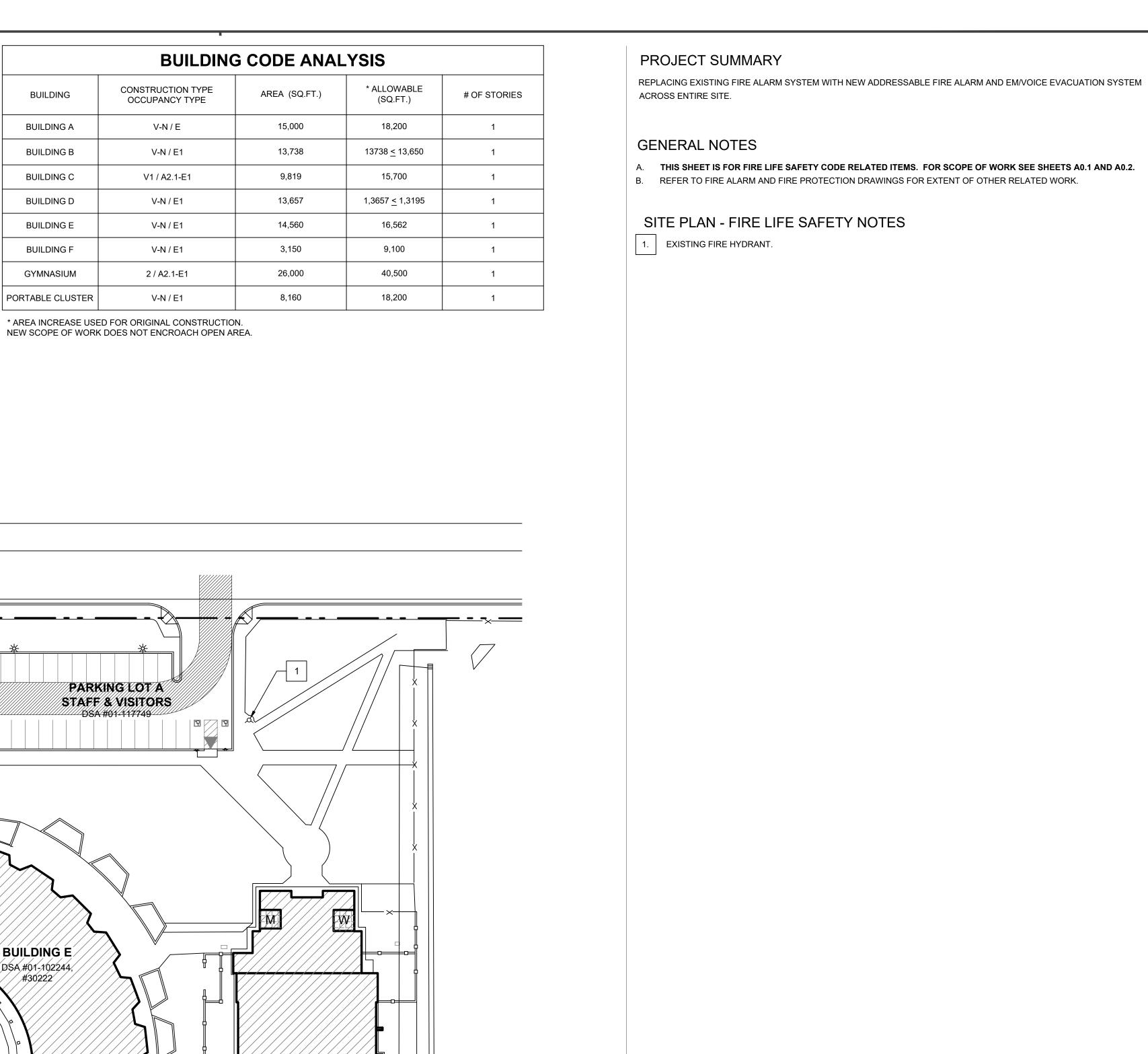
REVISIONS

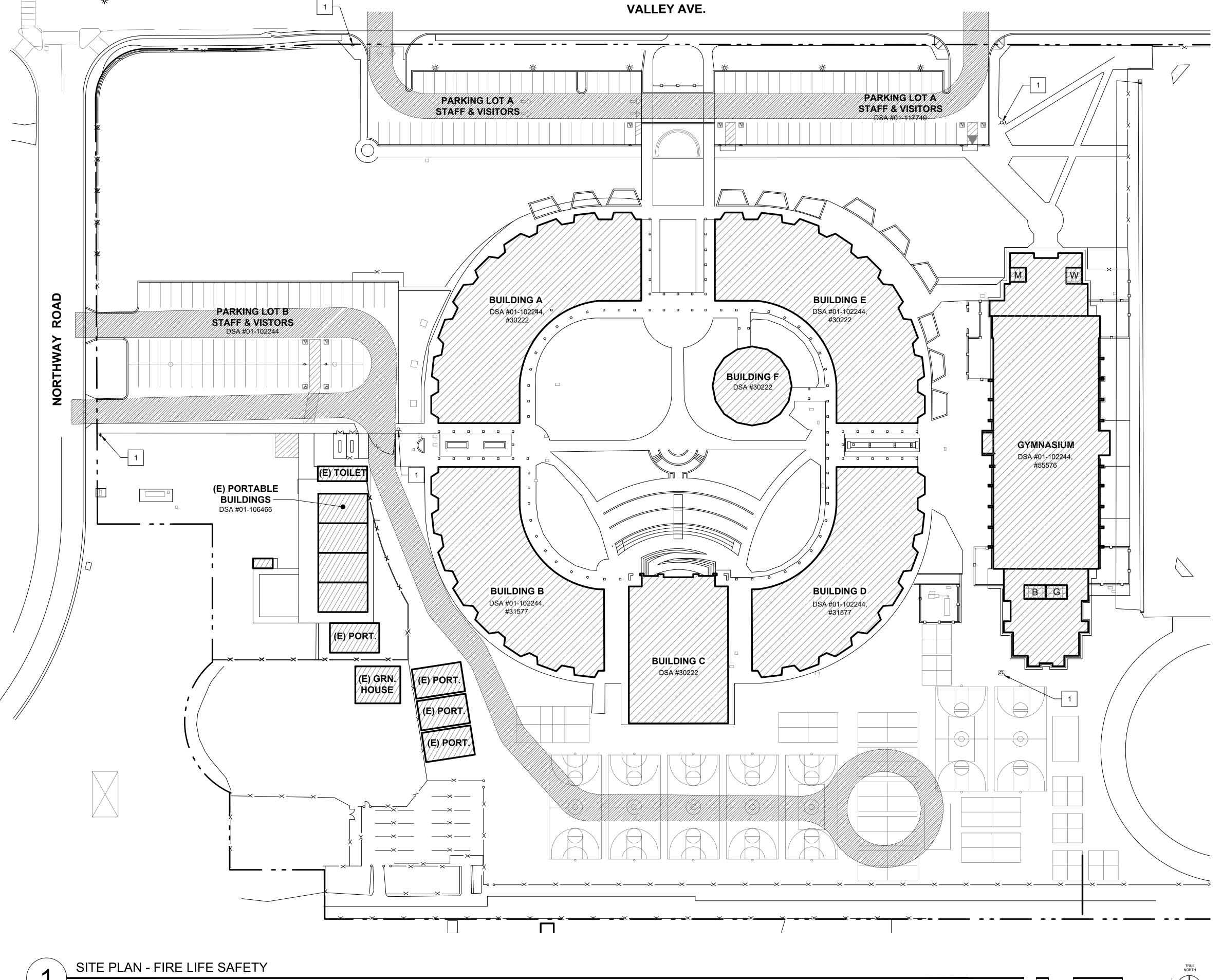
12/06/2021

BUILDING CODE ANALYSIS					
BUILDING	CONSTRUCTION TYPE OCCUPANCY TYPE	AREA (SQ.FT.)	* ALLOWABLE (SQ.FT.)	# OF STORIES	
BUILDING A	V-N / E	15,000	18,200	1	
BUILDING B	V-N / E1	13,738	13738 <u>&lt;</u> 13,650	1	
BUILDING C	V1 / A2.1-E1	9,819	15,700	1	
BUILDING D	V-N / E1	13,657	1,3657 <u>&lt;</u> 1,3195	1	
BUILDING E	V-N / E1	14,560	16,562	1	
BUILDING F	V-N / E1	3,150	9,100	1	
GYMNASIUM	2 / A2.1-E1	26,000	40,500	1	
PORTABLE CLUSTER	V-N / E1	8,160	18,200	1	

\* AREA INCREASE USED FOR ORIGINAL CONSTRUCTION.







**GRAPHIC KEY** EXISTING PROPERTY LINE ————— ROOF OVERHANG —×—×—×— CHAIN LINK FENCE

FIRE DEPARTMENT ACCESS. FIRE DEPARTMENT ACCESS IS 20'-0" WIDE AND RATED FOR 96,000 LBS. (E) FIRE HYDRANT → (E) SIGN

EXISTING BUILDING EXISTING RESTROOMS DRAWN BY: CHECKED BY: SFA JOB NO: 12/06/2021

(DSA STAMP AREA)

55 SOUTH BASCOM AVE.

CAMPBELL, CA 95008 PHONE: 408-879-0600 FAX: 408-377-6066

	IRE ALARM EQUIF		101
SYMBOL	DESCRIPTION AND MODEL NUMBER	MFGR'S PART No.	CSFM LISTING
FACP	ADDRESSABLE FIRE ALARM CONTROL PANEL WITH DVC EM AUDIO OPTION AND INTEGRATED UDACT, NOTIFIER NFS2 SERIES; PROVIDE & INSTALL FIRE ALARM DOCUMENT CABINET NEXT TO FACP.	NFS2-3030	7165-0028:0224
RM-1	REMOTE MICROPHONE WITH BLACK STAND-ALONE CABINET, NOTIFIER RM-1 SERIES.	RM-1SA	7165-0028:0224
ANN	FIRE ALARM REMOTE ANNUNCIATOR WITH 640 CHARACTER LIQUID CRYSTAL DISPLAY; WHITE FINISH NOTIFIER LCD SERIES.	LCD-160	7165-0028:0224
DVC	DIGITAL VOICE COMMAND CONTROL SYSTEM WITH DIGITAL AUDIO LOOP TECHNOLOGY, WITH UP 8 CHANNELS OF AUDIO AND UP TO 5 CHANNELS OF FIREFIGHTER TELEPHONE COMMUNICATIONS, LOCAL KEYPAD FOR LOCAL ANNUNCIATION AND CONTROLS (DVC-KD).	NOTIFIER DVC-EM	7165-0028:0224
RPS	10.0A AUXILIARY POWER SUPPLY WITH 4 NAC OUTPUT CIRCUITS AND BUILT-IN SYNCHRONIZATION. NOTIFIER PSE-10 SERIES.	PSE-10	7315-0028:0513
AMP	50 WATT, 70.7VRMS DIGITAL AUDIO AMPLIFIER WITH CHARGING POWER SUPPLY AND 2 CLASS B OR 2 CLASS A OUTPUTS. NOTIFIER DAA2 SERIES.	DAA2-5025	7165-0028:0224
<b>②</b>	ADDRESSABLE PHOTO ELECTRIC FIRE ALARM SMOKE DETECTOR AND BASE, NOTIFIER FSP-951 SERIES.	FSP-951	7272-0028:0503
<b>(</b>	ADDRESSABLE FIRE ALARM HEAT DETECTOR AND BASE, 135 DEG. FIXED TEMPERATURE AND RATE-OF RISE, NOTIFIER FST-951 SERIES. (DEVICES WITH "A" INDICATE ABOVE CEILING).	FST-951	7270-0028:0502
HDH	ADDRESSABLE REFLECTOR-TYPE LINEAR OPTICAL BEAM SMOKE DETECTOR, NOTIFIER FS-OSI-RI SERIES.	FS-OSI-RI	7260-0028:0509
□Р	ADDRESSABLE FIRE ALARM MANUAL PULLSTATION, DUAL-ACTION WITH KEY RESET, MOLDED POLYCARBONATE HOUSING, FIRE-LITE NG SERIES.	NG-12LX	7150-0028:0199
M	ADDRESSABLE MONITOR MODULE FIRE-LITE FMM-1 SERIES.	FMM-1	7300-0028:0219
С	ADDRESSABLE CONTROL MODULE FIRE-LITE FCM-1 SERIES.	FCM-1	7300-0028:0219
¤	WALL MOUNTED MULTI-CANDELA, STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 110 CANDELA. SYSTEM SENSOR, SWL SERIES.	SWL	7125-1653:0504
¤c	CEILING MOUNTED MULTI-CANDELA STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 AND 115 CANDELA. SYSTEM SENSOR, SCWL SERIES.	SCWL	7125-1653:0504
¥	WALL MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 & 110 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSWL SERIES.	SPSWL	7320-1653:0505
<del>V</del>	CEILING MOUNTED MULTI-CANDELA, SPEAKER-STROBE WITH FIELD SELECTABLE CANDELA SETTINGS OF 15, 30, 75 & 115 CANDELA WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPSCWL SERIES.	SPSCWL	7320-1653:0505
<b>∇</b> wp	WALL MOUNTED WEATHERPROOF FIRE ALARM/VOICE EVACUATION SPEAKER WITH VOLTAGE SETTING OF 70.7 VRMS AND POWER SETTINGS OF 1/4, 1/2, 1 & 2 WATTS. SYSTEM SENSOR, SPWK SERIES.	SPWK	7320-1653:0201
EOL	END OF LINE DEVICE.		

### FIRE ALARM GENERAL NOTES

- 1. WIRING MUST BE LISTED FOR USE AS REQUIRED BY TITLE 24/CEC, ARTICLE
- 2. WIRE USED IN WET LOCATIONS SHALL BE OF AN APPROVED TYPE IN ACCORDANCE WITH 3-310-8, T24/CEC (I.E. THHW OR EQUAL).
- 3. UNDER GROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRES APPROVED FOR WET LOCATION.
- 4. ALL CONDUCTORS SHALL BE ROUTED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS. MINIMUM CONDUIT SIZE SHALL BE 3/4."
- 5. THE CONDUIT AND WIRE SHOWN ON THESE PLANS ARE SHOWN DIAGRAMMATICALLY. EXACT LOCATIONS SHALL BE DETERMINED IN THE

FIELD TO SUIT FIELD CONDITIONS. "AS-BUILT" PLANS SHALL BE MAINTAINED

AND BE PROVIDED AS REQUIRED BY THE PROJECT INSPECTOR OF RECORD.

- PENETRATIONS OF FIRE RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH CALIFORNIA BUILDING CODE, CHAPTER 7, TITLE 24. PROVIDE DETAILS OF THROUGH PENETRATION FIRE-STOP SYSTEMS FOR ALL PIPE/CABLE/CONDUIT PASSING THROUGH FIRE RATED WALLS/FLOORS REQUIRING PROTECTED OPENINGS.
- 7. ALL DEVICES SHALL BE "CSFM" LISTED.
- 8. EXTERIOR DEVICES SHALL BE LISTED FOR EXTERIOR USE BY "CSFM."
- 9. AUDIBLE FIRE ALARM SOUND LEVEL SHALL BE AT LEAST 15DBA ABOVE THE AVERAGE SOUND LEVEL.
- 10. AUDIBLE SIGNALS INTENDED FOR OPERATION IN THE PUBLIC SHALL HAVE A SOUND LEVEL OF NOT LESS THAN 75DBA AT 10 FEET OR MORE THAN 110DBA AT THE MINIMUM HEARING DISTANCES FROM THE AUDIBLE APPLIANCE.
- 11. WHERE VISUAL DEVICES ARE REQUIRED, VISUAL DEVICE SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. NO PLACE IN ANY ROOM SHALL BE MORE THAN 50 FEET FROM A DEVICE.
- 12. APPROVED BY THE "DIVISION OF THE STATE ARCHITECT/OFFICE OF REGULATION SERVICES." CONTRACTOR SHALL PROVIDE COPIES OF APPROVED PLANS TO THE PROJECT INSPECTOR OF RECORD PRIOR TO BEGINNING WORK. THE CONTRACTOR SHALL SUBMIT SHOP DRAWING TO ENGINEER PRIOR TO PURCHASE FOR REVIEW. THE FIRE PROTECTION SYSTEM SHALL NOT BE INSTALLED UNTIL SHOP DRAWINGS HAVE BEEN SUBMITTED TO AND RECEIVED BY THE ENGINEER OF RECORD.
- 13. FINAL ALARM TEST SHALL BE WITNESSED BY THE DSA INSPECTOR OF RECORD (IOR). BOTH THE DSA INSPECTOR OF RECORD (IOR) AND THE LOCAL FIRE AUTHORITY SHALL BE NOTIFIED OF DATE AND TIME OF FINAL FIRE ALARM TESTING BY THE FIRE ALARM CONTRACTOR, FIRE ALARM CONTRACTOR SHALL PROVIDE "RECORD OF COMPLETION" TO THE INSPECTOR OF RECORD (IOR)/DSA AFTER COMPLETION OF OPERATIONAL ACCEPTANCE TEST.
- 14. POWER SERVICE SHALL BE ON A DEDICATED, 120V BRANCH CIRCUIT, WITH A RED MARKING AND IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL."
- 15. AUTOMATIC FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY CFC CHAPTER 80. 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.
- 16. EXISTING FIELD DEVICES AND FACP SHALL REMAIN IN PLACE UNTIL NEW FIELD DEVICES ARE IN PLACE AND NEW WIRING HAS BEEN HOMERAN TO NEW LOCATION OF FACP. CONTRACTOR SHALL COORDINATE WITH SCHOOL DISTRICT TO PROVIDE AN APPROVED 24 HOUR FIRE WATCH UNTIL NEW FIRE

### GENERAL CONSTRUCTION NOTES

- CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES AND REGULATIONS. MATERIALS AND EQUIPMENT SHALL BE U.L. LISTED AND LABELED FOR THE APPLICATION.
- 2. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, LICENSES AND INSPECTION FEES REQUIRED BY
- CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO BIDDING AND ALLOW FOR ALL FIELD CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ELECTRICAL WORK NOTED AND CALLED OUT ON ALL CONTRACT DOCUMENTS. THE CONTRACTOR SHALL OBTAIN INFORMATION AND BE FAMILIAR WITH ALL OTHER TRADES WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION BETWEEN OTHER TRADES ON PROJECT.
- 4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF PERSONS AND PROPERTY AND SHALL PROVIDE INSURANCE COVERAGE AS NECESSARY FOR LIABILITY AND PERSONAL, PROPERTY DAMAGE, TO FULLY PROTECT THE OWNER, ARCHITECT AND ENGINEER FROM ANY AND ALL CLAIMS RESULTING FROM THIS WORK.
- CONTRACTOR SHALL MAINTAIN RECORD DRAWINGS AT THE PROJECT SITE INDICATING ALL MODIFICATIONS TO ELECTRICAL SYSTEMS. THE CONTRACTOR SHALL AT THE CONCLUSION OF THE PROJECT PROVIDE
- ACCURATE "AS-BUILT" DRAWINGS ACCEPTABLE TO THE ARCHITECT.
- PROVIDE AND INSTALL ALL INCIDENTAL MATERIALS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL PROVIDE TO THE ARCHITECT A CONSTRUCTION SCHEDULE OF ELECTRICAL WORK. THE CONSTRUCTION SCHEDULE SHALL IDENTIFY ALL SIGNIFICANT MILESTONES WITH COMPLETION DATES.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED "CUTTING, PATCHING, EXCAVATION, BACKFILL AND REPAIRS" NECESSARY TO RESTORE DAMAGED SURFACES TO EQUAL OR BETTER THAN ORIGINAL CONDITIONS EXISTING AT START OF WORK.

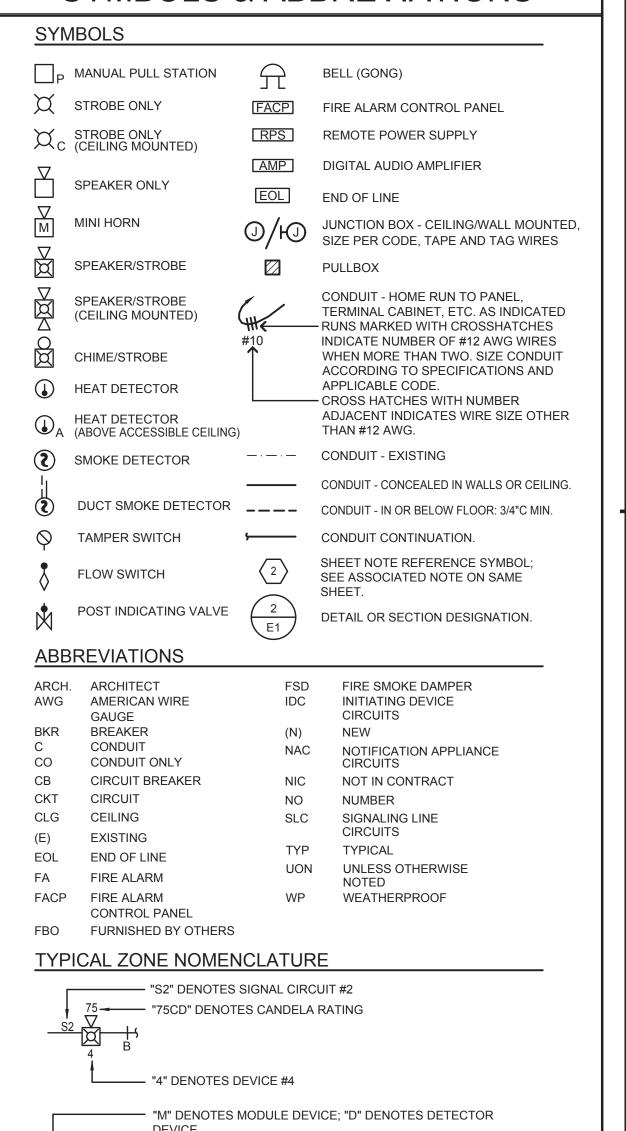
6. ALL MATERIALS PROVIDED TO THE PROJECT SHALL BE NEW. THE CONTRACTOR SHALL BE RESPONSIBLE TO

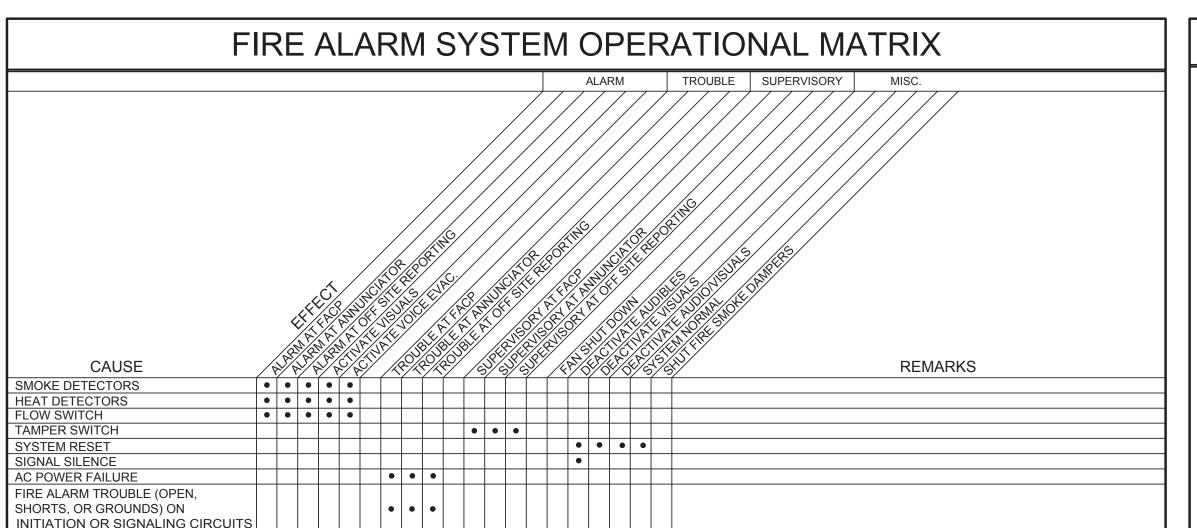
- CONTRACTOR SHALL BE RESPONSIBLE FOR PAINTING ALL EXPOSED CONDUITS AND ELECTRICAL EQUIPMENT. REFER TO ARCHITECTS PAINTING SECTION FOR REQUIREMENTS.
- 10. ALL ELECTRICAL EQUIPMENT INSTALLED OUTDOORS SHALL BE WEATHERPROOF. EXTERIOR CONDUITS RUN INTO BUILDINGS SHALL BE INSTALLED WITH FLASHING, CAULKED AND SEALED. CONDUITS FOR EXTERIOR ELECTRICAL DEVICES SHALL BE RUN INSIDE BUILDING UNLESS OTHERWISE NOTED ON DRAWINGS.
- 11. ALL CONDUITS UNLESS OTHERWISE NOTED ON DRAWINGS SHALL HAVE AS A MINIMUM: TWO (2) #12s WITH ONE (1) #12 GROUND. "TICK" MARKS SHOWN ON CIRCUITRY ARE FOR ROUGH ESTIMATING ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WIRES AND WIRE SIZES REQUIRED BY LATEST CODE.
- 12. ALL BRANCH CIRCUITS SHALL HAVE INDIVIDUAL NEUTRALS. SHARED NEUTRALS ON MULTIWIRE CIRCUITS IS NOT ALLOWED.
- 13. COORDINATE ALL CONDUIT RUNS, ELECTRICAL EQUIPMENT AND PANELS WITH ALL OTHER WORK TO AVOID
- 14. CONTRACTOR SHALL PROVIDE IN EVERY NEW EMPTY CONDUIT A DRAW STRING FOR USE IN FUTURE CONSTRUCTION. 15. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. CUT AND PATCH EXISTING WALLS WHERE

NECESSARY. WHERE IT IS NECESSARY TO CUT OR BORE EXISTING STRUCTURAL WALLS FOR NEW ELECTRICAL

- WORK OBTAIN PERMISSION FROM THE ARCHITECT PRIOR TO STARTING WORK. REUSE EXISTING CONDUIT 16. WHERE IT IS NOT POSSIBLE TO REUSE EXISTING CONDUIT OR RUN NEW CONCEALED CONDUIT USE
- NON-METALLIC SURFACE RACEWAY AND BOXES. ROUTING OF ALL NON-METALLIC RACEWAYS SHALL BE APPROVED BY THE ARCHITECT OR OWNER'S REPRESENTATIVE PRIOR TO ROUGH-IN.
- 17. EXTENSION RINGS OR RESET BOXES TO BE FLUSH WITH NEW WALL THICKNESS.
- 18. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING UNDERGROUND SYSTEMS (GAS, WATER, TELEPHONE, ELECTRICAL, SEWER, ETC.). THE CONTRACTOR SHALL REPAIR & PAY ALL EXPENSES FOR DAMAGE TO EXISTING UNDERGROUND SYSTEMS AS A RESULT OF NEW WORK, REPAIR TO DAMAGED UNDERGROUND SYSTEMS SHALL BE TO THE OWNERS SATISFACTION WITHOUT EXTRA EXPENSE TO THE
- 19. EXISTING WIRING SHOWN HAS BEEN TAKEN FROM OLD PLANS AND IS ASSUMED TO BE CORRECT. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY ACTUAL CONDITIONS AND MAKE ADJUSTMENTS TO SUIT ACTUAL CONDITIONS AND TO MEET THE INTENT OF THE CONTRACT DOCUMENTS.
- 20. WHERE NON-METALLIC SHEATHED CONDUCTORS ARE FOUND, THE CONTRACTOR SHALL REMOVE TO FULLEST EXTENT PER THE GENERAL DEMOLITION NOTES AND REPLACE WITH CONDUIT. METAL CLAD CABLE WILL BE PERMITTED ON A CASE-BY-CASE BASIS ONLY BY WRITTEN APPROVAL FROM THE ARCHITECT.
- 21. ALL INSTALLATION OF EXPOSED SURFACE MOUNTED RACEWAY IN PUBLIC AREAS SHALL BE REVIEWED BY ARCHITECT BEFORE ROUGH-IN. CONTRACTOR IS TO DETERMINE THE ACCESSIBILITY OF ATTIC, FURRED SPACE, HOLLOW MULLIONS, ETC. IN EACH AREA AND REVIEW WITH ARCHITECT. IF SYSTEM CAN BE ROUTED CONCEALED EITHER BY FISHING OR ACCESSIBILITY, CONTRACTOR IS TO DO SO. IF INACCESSIBILITY IS DETERMINED, CONTRACTOR SHALL INSTALL SURFACE MOUNTED RACEWAY IN THE MOST AESTHETICALLY PLEASING MEANS AS DETERMINED BY THE ARCHITECT. NO ALLOWANCE FOR ADDITIONAL COMPENSATION DUE TO ROUTING AS DIRECTED BY THE ARCHITECT WILL BE MADE.

### SYMBOLS & ABBREVIATIONS





# SHEET INDEX

- FA0.1 FIRE ALARM SYMBOLS, ABBREVIATIONS, EQUIPMENT LIST, OPERATIONAL MATRIX & NOTES.
- FA1.1 FIRE ALARM RISER DIAGRAM.
- FA1.2 FIRE ALARM RISER DIAGRAM.
- FA1.3 BATTERY & VOLTAGE DROP CALCULATIONS.
- FA1.4 VOLTAGE DROP CALCULATIONS (SPEAKER CIRCUITS).
- FA2.1 FIRE ALARM DEMOLITION PLAN.
- FA3.1 FIRE ALARM SITE PLAN.
- FA4.1 FIRE ALARM PLAN BUILDING A.
- FA4.2 FIRE ALARM PLAN BUILDING B.
- FA4.3 FIRE ALARM PLAN BUILDING C & PRE-SCHOOL PORTABLES.
- FA4.4 FIRE ALARM PLAN BUILDING D.
- FA4.5 FIRE ALARM PLAN BUILDINGS E & F.
- FA4.6 FIRE ALARM PLAN GYM (AREA A).
- FA4.7 FIRE ALARM PLAN GYM (AREA B)

FA5.1 FIRE ALARM DETAILS.

### M/E/P COMPONENT ANCHORAGE NOTES:

ALL MECHANICAL, PLUMBING AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC, SECTION 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTER 13, 26 & 30:

**EQUIPMENT ANCHORAGE** 

- 1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
- 2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED(e.g., HARD WIRE) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 120 / 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 BE DETAILED IN THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT. FELXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS.

- A. COMPONENTS WEIGHTING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS
- B. COMPONENTS WEIGHTING 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.

ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT OF 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 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 SECTION 13.6.5, 13.6.6, 13.6.7, 13.6.8 AND 2019 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 PRE-APPROVED INSTALLATION GUIDE (e.g. OSHPD 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 MP ☐ MD ☐ PP ☐ E ☐ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #)

# PROJECT DESCRIPTION

CROSSHATCH INDICATES NUMBER OF WIRES REQUIRED.

SUBSCRIPT LETTER INDICATES TYPE OF CIRCUIT. SEE

GENERAL NOTES THIS SHEET FOR NUMBER & TYPE OF

REPLACING EXISTING FIRE ALARM SYSTEM WITH NEW ADDRESSABLE FIRE ALARM AND EM/VOICE EVACUATION SYSTEM AT EXISTING SITE.

WIRES AND CIRCUIT TYPE.

"1" DENOTES LOOP#

M1-5 ─ "5" DENOTES DEVICE #5

ALL EXISTING BUILDINGS WITH EXISTING COMPATIBLE MANUFACTURER INITIATION DEVICES (SMOKES, HEATS, DUCT SMOKE DETECTORS, MONITOR MODULES, CONTROLS MODULES,

SYSTEM DESCRIPTION: SLC = CLASS B

IDC = CLASS B

ETC.) SHALL REMAIN CONNECTED.

NAC = CLASS B FIRE ALARM SYSTEM DESIGN BY NAJIB ANWARY

# APPLICABLE CODES & STANDARDS

- . 2019 CALIFORNIA ADMINISTRATIVE CODE C.C.R., TITLE 24, PART 1.
- 2019 CALIFORNIA BUILDING CODE (CBC) C.C.R., TITLE 24, VOL. 1 & 2 BASED ON THE 2018 INTERNATIONAL BUILDING CODE (IBC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA RESIDENTIAL CODE C.C.R., TITLE 24, PART 2.5 BASED ON THE 2018 INTERNATIONAL RESIDENTIAL CODE WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA ELECTRICAL CODE (CEC) C.C.R., TITLE 24, PART 3 BASED ON THE 2017 NATIONAL ELECTRICAL CODE (NEC) WITH CALIFORNIA AMENDMENTS.
- . 2019 CALIFORNIA MECHANICAL CODE (CMC) C.C.R., TITLE 24, PART 4 BASED ON THE
- 2018 UNIFORM MECHANICAL CODE (UMC) WITH CALIFORNIA AMENDMENTS.
- 2019 CALIFORNIA PLUMBING CODE (CPC) C.C.R., TITLE 24, PART 5 BASED ON THE 2018 UNIFORM PLUMBING CODE (UPC) WITH CALIFORNIA AMENDMENTS.
- 7. 2019 CALIFORNIA ENERGY CODE C.C.R., TITLE 24, PART 6. 8. 2019 CALIFORNIA FIRE CODE (CFC) C.C.R., TITLE 24, PART 9 BASED ON THE 2018
- INTERNATIONAL FIRE CODE (IFC) WITH CALIFORNIA AMENDMENTS.
- 9. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE C.C.R., TITLE 24, PART 11. 10. 2019 CALIFORNIA REFERENCED STANDARDS CODE C.C.R., TITLE 24, PART 12.
- 11. TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

# 12. NATIONAL FIRE ALARM CODE (NFPA 72) 2016.

### STANDARDS:

- 1. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) 2. ELECTRONICS INDUSTRIES ASSOCIATION (EIA)
- 3. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
- 4. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) 5. NATIONAL ELECTRICAL TESTING ASSOCIATION (NETA)
- 6. UNDERWRITER LABORATORIES (UL)
- 7. CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH ACT STANDARDS (CAL/OSHA)
- 8. NATIONAL FIRE PROTECTION ASSOCIATION; INSTALLATION OF CARBON MONOXIDE (NFPA 720)



(DSA STAMP AREA)







EQUIPMENT S & NOTES

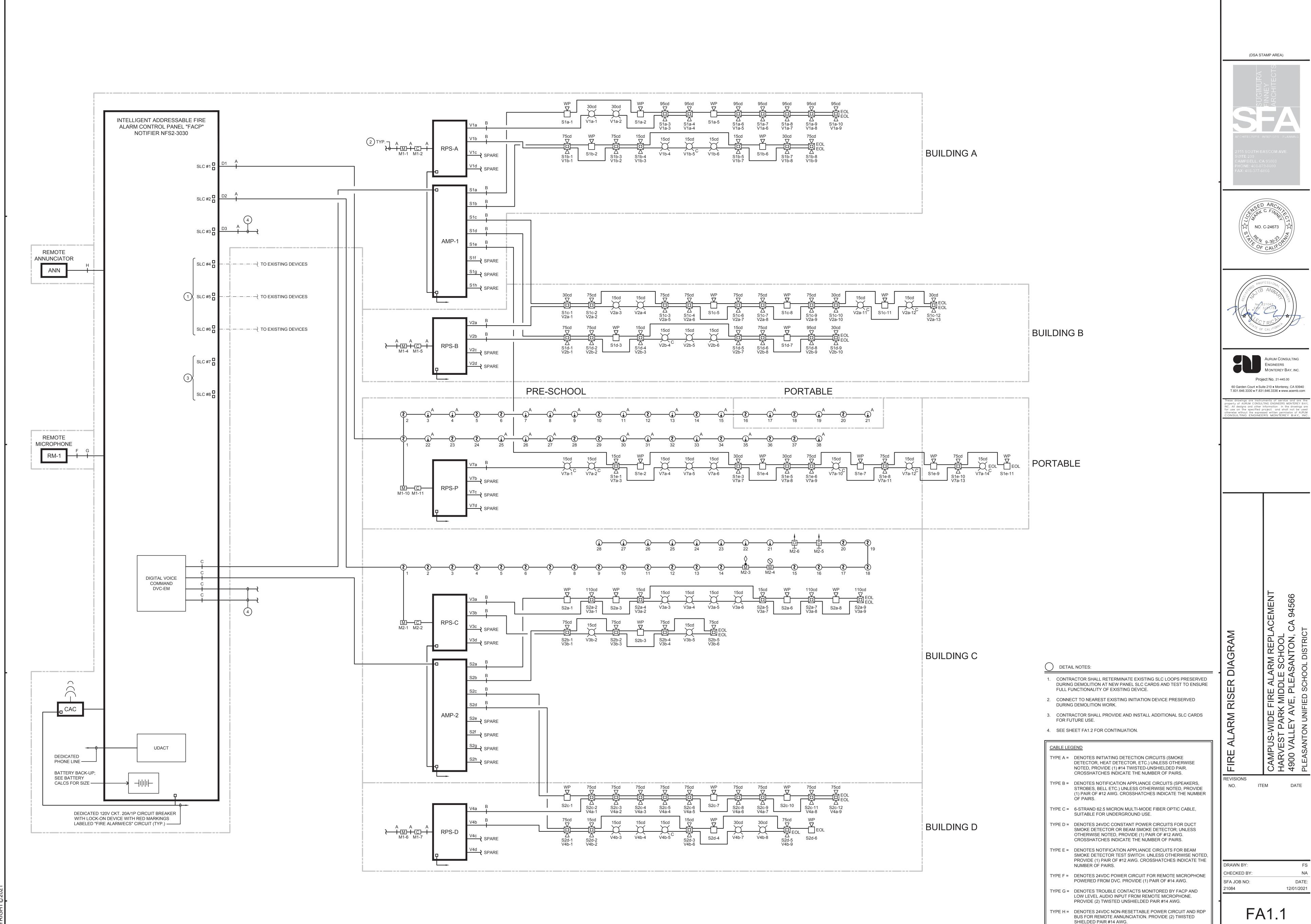
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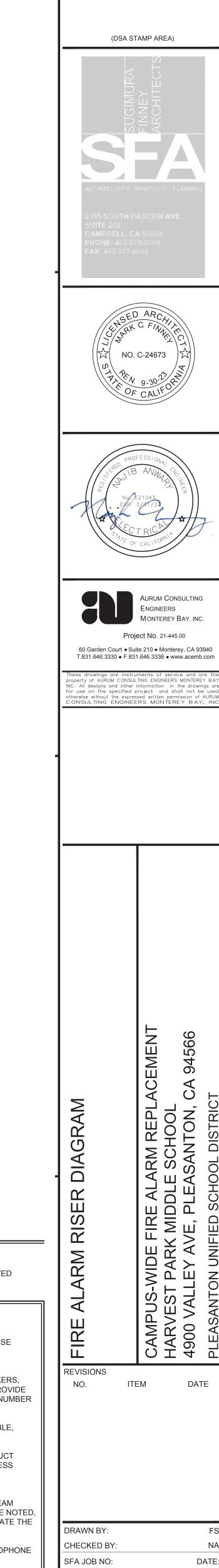
REVISIONS

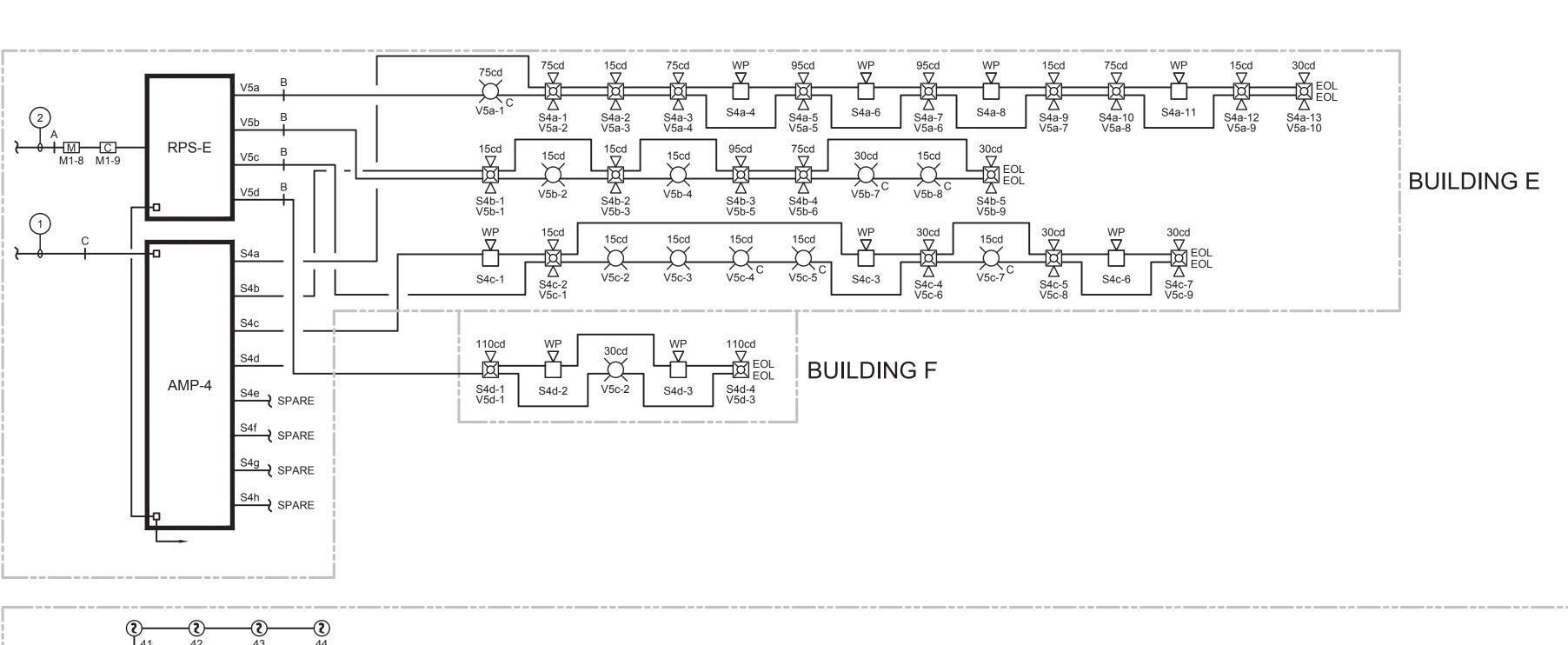
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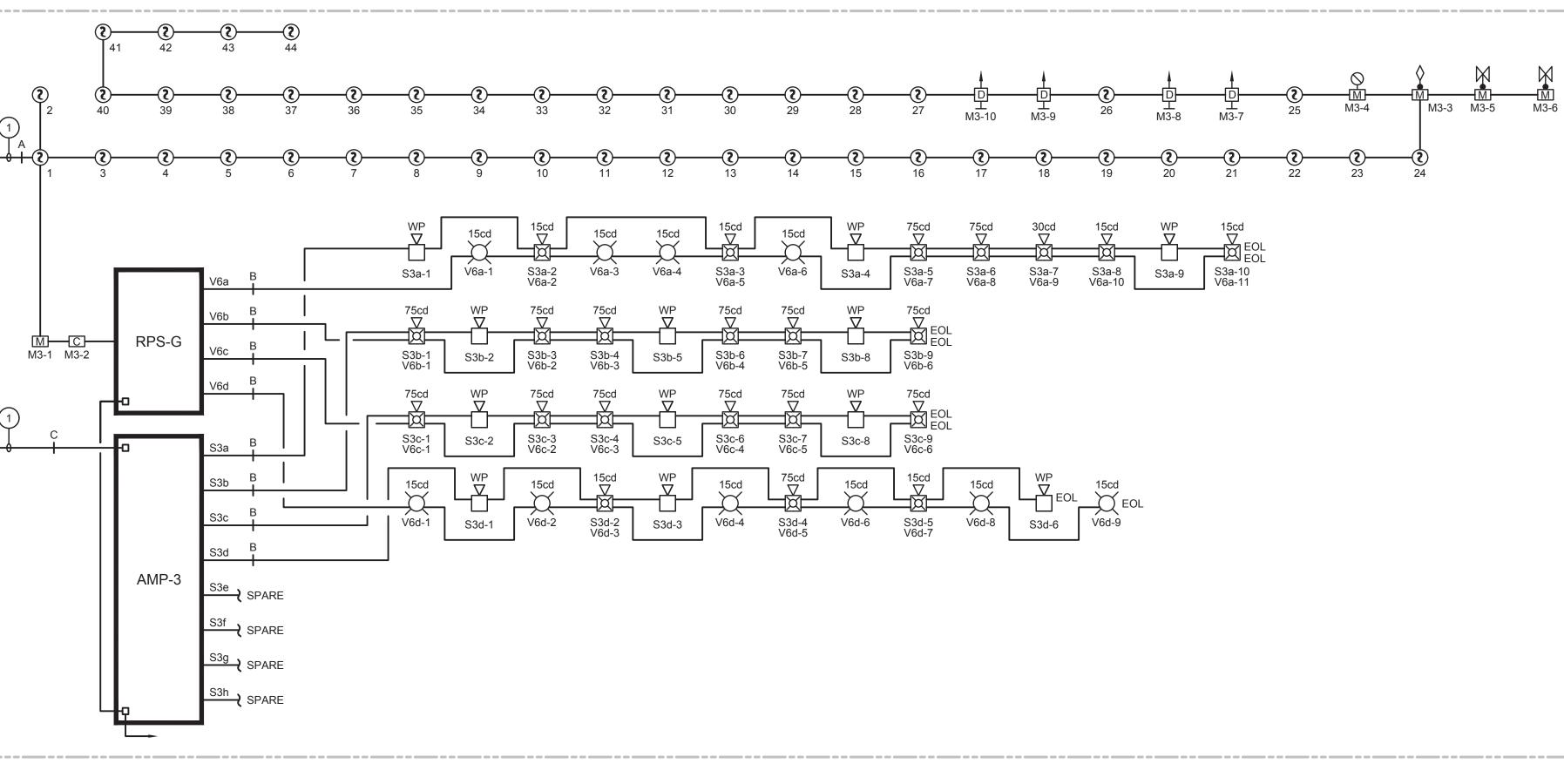
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SFA JOB NO: 21084 12/01/2021









### BUILDING G

$\bigcirc$	DETAIL NOTES:

1. SEE SHEET FA1.1 FOR CONTINUATION.

 CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.

CABLE LEGE

TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE, SUITABLE FOR UNDERGROUND USE.

TYPE D = DENOTES 24VDC CONSTANT POWER CIRCUITS FOR DUCT SMOKE DETECTOR OR BEAM SMOKE DETECTOR; UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

TYPE E = DENOTES NOTIFICATION APPLIANCE CIRCUITS FOR BEAM SMOKE DETECTOR TEST SWITCH. UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

TYPE F = DENOTES 24VDC POWER CIRCUIT FOR REMOTE MICROPHONE POWERED FROM DVC. PROVIDE (1) PAIR OF #14 AWG.

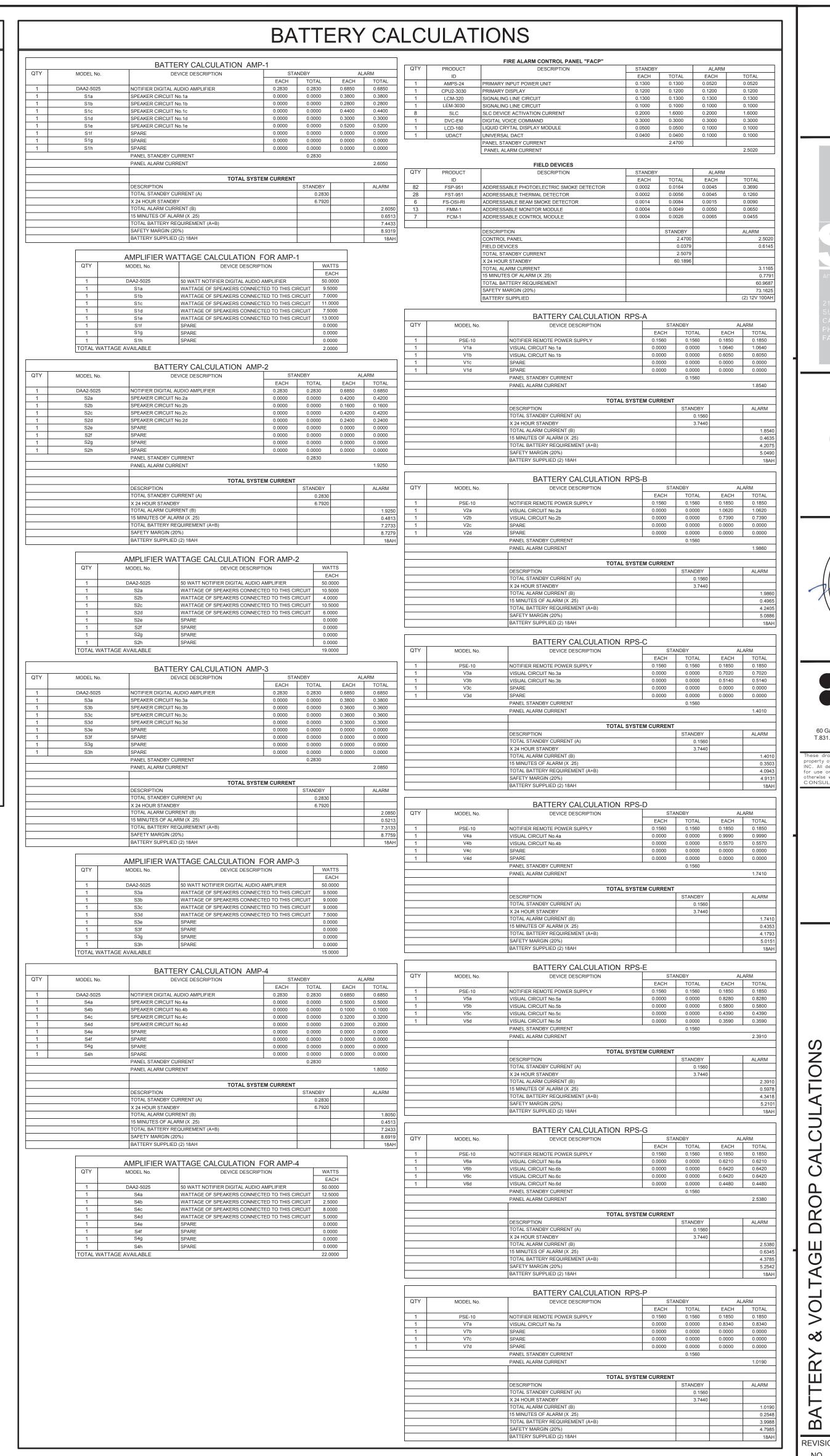
TYPE G = DENOTES TROUBLE CONTACTS MONITORED BY FACP AND LOW LEVEL AUDIO INPUT FROM REMOTE MICROPHONE. PROVIDE (2) TWISTED UNSHIELDED PAIR #14 AWG.

TYPE H = DENOTES 24VDC NON-RESETTABLE POWER CIRCUIT AND RDP BUS FOR REMOTE ANNUNCIATION. PROVIDE (2) TWISTED SHIELDED PAIR #14 AWG.

ABLE POWER CIRCUIT AND RDP ION. PROVIDE (2) TWISTED

12/01/2021

	•	•	•
	VOLTAGE DROP CALCULA	ATIONS (VISUAL CIRCUITS)	
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V6b	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V5b	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V3a	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V1a
DEVICE #   1st   2nd   3rd   4th   5th   6th   7th   8th   9th   10th   GAUGE WIRE   12   12   12   12   12   12   12   1	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""></td<></td></td<></td></td<>	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""></td<></td></td<>	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""></td<>
TOTAL CIRCUIT AMPS = 0.642 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS.  TOTAL VOLT DROP = 0.322 10 1.29 10380 I* FEET * 21.6  12 2.01 6530 C.M.  CKT VOLTAGE = 20.4 14 3.19 4110  16 5.08 2580  % VOLTAGE DROP = 1.6%	TOTAL CIRCUIT AMPS = 0.58 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS.  TOTAL VOLT DROP = 0.332 10 1.29 10380 I*FEET*21.6  12 2.01 6530 C.M.  CKT VOLTAGE = 20.4 14 3.19 4110  16 5.08 2580  % VOLTAGE DROP = 1.6%	TOTAL CIRCUIT AMPS = 0.702 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS.  TOTAL VOLT DROP = 0.668 10 1.29 10380 I*FEET*21.6  12 2.01 6530 C.M.  CKT VOLTAGE = 20.4 14 3.19 4110  16 5.08 2580  % VOLTAGE DROP = 3.3%	TOTAL CIRCUIT AMPS = 1.064 WIRE RESIS. CIRC. FORMULA  SIZE /M FT. MILS.  TOTAL VOLT DROP = 1.018 10 1.29 10380 I*FEET*21.6  12 2.01 6530 C.M.  CKT VOLTAGE = 20.4 14 3.19 4110  16 5.08 2580  % VOLTAGE DROP = 5.0%
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V6c  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V5c  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V3b  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V1b  DEVICE # 1st 2nd 3rd 4th 5th 6th 7th 8th 9th 10th GAUGE WIRE 12 12 12 12 12 12 12 12 12 12 12 12 12
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V6d	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V5d           DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4a	DEVICE #   1st   2nd   3rd   4th   5th   6th   7th   8th   9th   10th   GAUGE WIRE   12   12   12   12   12   12   12   1
VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V7a	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V6a	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V4b	TOTAL CIRCUIT AMPS = 1.062 WIRE RESIS. CIRC. FORMULA SIZE /M FT. MILS.
DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""><td>TOTAL VOLT DROP = 1.112</td></td<></td></td<></td></td<>	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12         <td< td=""><td>TOTAL VOLT DROP = 1.112</td></td<></td></td<>	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>TOTAL VOLT DROP = 1.112</td></td<>	TOTAL VOLT DROP = 1.112
DEVICE #         11th         12th         13th         14th         15th         16th         17th         18th         19th         20th           GAUGE WIRE         12	DEVICE #         11th         12th         13th         14th         15th         16th         17th         18th         19th         20th           GAUGE WIRE         12	TOTAL CIRCUIT AMPS = 0.557	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V2b           DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12
TOTAL CIRCUIT AMPS = 0.834 WIRE RESIS. CIRC. FORMULA SIZE /M FT. MILS.	TOTAL CIRCUIT AMPS = 0.621 WIRE RESIS. CIRC. FORMULA SIZE /M FT. MILS.	VOLTAGE DROP (VD) CALCULATION - VISUAL CIRCUIT No. V5a	TOTAL CIRCUIT AMPS = 0.739 WIRE RESIS. CIRC. FORMULA SIZE /M FT. MILS.
TOTAL VOLT DROP = 0.91	TOTAL VOLT DROP = 0.487	DEVICE #         1st         2nd         3rd         4th         5th         6th         7th         8th         9th         10th           GAUGE WIRE         12 <td< td=""><td>TOTAL VOLT DROP = 0.46</td></td<>	TOTAL VOLT DROP = 0.46
		TOTAL CIRCUIT AMPS = 0.828	



APCHITECTUPE INTERIORS PLANNING

2155 SOUTH BASCOM AVE.
SUITE 200
CAMPBELL. CA 95003
PHONE: 403-879-0800
FAX: 408-377-0066

NO. C-24673
NO

(DSA STAMP AREA)

SKOONS

NO. ITEM

CAMPLE

HARVE

HARVE

HOOV

ACEMENT

 DRAWN BY:
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 CHECKED BY:
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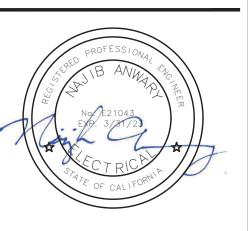
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VOLTAGE DROP CALCULATIONS (SPEAKER CIRCUITS)						
				,		
SPEAKER CIRCUIT No.S4c   Nominal Speaker Voltage ( 25 or 70 )   25	SPEAKER CIRCUIT No.S3d	SPEAKER CIRCUIT No.S3a   Nominal Speaker Voltage ( 25 or 70 )   25	SPEAKER CIRCUIT No.S2b   Nominal Speaker Voltage ( 25 or 70 )   25     Minimum Device Voltage   20   20	SPEAKER CIRCUIT No.S1d   Nominal Speaker Voltage ( 25 or 70 )   25	SPEAKER CIRCUIT No.S1a   Nominal Speaker Voltage ( 25 or 70 )   25	
Total Circuit Current in amps   0.320   Wire   Ohm's	Total Circuit Current in amps	Total Circuit Current in amps	Total Circuit Current in amps	Total Circuit Current in amps   0.300   Wire   Ohm's	Total Circuit Current in amps	
Wire Gauge for balance of circuit 12 1.98	Wire Gauge for balance of circuit 12 1.98	Wire Gauge for balance of circuit 12 1.98	Wire Gauge for balance of circuit 12 1.98   rom   Calculated   Voltage	Wire Gauge for balance of circuit 12 1.98   from Calculated Voltage	Wire Gauge for balance of circuit 12 1.98	
Device         Device         previous         Device         At         Drop from         Percent           Number         Power         device         Current         Device         source         Drop	Device Device previous Device At Drop from Percent  Number Power device Current Device source Drop	Device         Device         previous         Device         At         Drop from         Percent           Number         Power         device         Current         Device         source         Drop	Device         Device         previous         Device         At         Drop from         Percent           Number         Power         device         Current         Device         source         Drop	Device         Device         previous         Device         At         Drop from         Percent           Number         Power         device         Current         Device         source         Drop	Device         Device         previous         Device         At         Drop from         Percent           Number         Power         device         Current         Device         source         Drop	
Device 1         2.000         100         0.080         24.87         0.127         0.51%           Device 2         0.500         40         0.020         24.84         0.165         0.66%	Device 1         2.000         265         0.080         24.69         0.315         1.26%           Device 2         0.500         50         0.020         24.64         0.358         1.43%	Device 1         2.000         50         0.080         24.92         0.075         0.30%           Device 2         0.500         40         0.020         24.88         0.123         0.49%	Device 1         0.500         40         0.020         24.97         0.025         0.10%           Device 2         0.500         95         0.020         24.92         0.078         0.31%	Device 1         0.500         400         0.020         24.52         0.475         1.90%           Device 2         0.500         40         0.020         24.48         0.520         2.08%	Device 1         2.000         20         0.080         24.97         0.030         0.12%           Device 2         2.000         80         0.080         24.87         0.125         0.50%	
Device 3         2.000         95         0.080         24.75         0.247         0.99%           Device 4         0.500         45         0.020         24.73         0.272         1.09%           Device 5         0.600         45         0.020         24.73         0.272         1.09%	Device 3         2.000         15         0.080         24.63         0.370         1.48%           Device 4         0.500         65         0.020         24.60         0.401         1.60%	Device 3         0.500         70         0.020         24.80         0.200         0.80%           Device 4         2.000         40         0.080         24.76         0.242         0.97%	Device 3         2.000         40         0.080         24.90         0.097         0.39%           Device 4         0.500         25         0.020         24.90         0.101         0.40%           Device 4         0.500         25         0.020         24.90         0.101         0.40%	Device 3         2.000         55         0.080         24.42         0.576         2.30%           Device 4         0.500         25         0.020         24.41         0.594         2.38%           Device 5         0.600         25         0.020         24.71         0.500         25	Device 3         0.500         40         0.020         24.84         0.160         0.64%           Device 4         0.500         45         0.020         24.80         0.196         0.78%           Device 7         0.000         20         0.020         24.70         0.047         0.070	
Device 5         0.500         50         0.020         24.70         0.296         1.18%           Device 6         2.000         20         0.080         24.70         0.304         1.22%           Device 7         0.500         40         0.020         24.69         0.307         1.23%	Device 5         0.500         60         0.020         24.58         0.425         1.70%           Device 6         2.000         50         0.080         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%	Device 5         0.500         60         0.020         24.72         0.284         1.14%           Device 6         0.500         35         0.020         24.69         0.307         1.23%           Device 7         0.500         25         0.020         24.68         0.320         1.28%	Device 5         0.500         85         0.020         24.89         0.108         0.43%           END         0.000         24.89         0.108         0.43%           END         0.000         24.89         0.108         0.43%	Device 5         0.500         55         0.020         24.37         0.629         2.52%           Device 6         0.500         30         0.020         24.35         0.645         2.58%           Device 7         2.000         65         0.080         24.32         0.676         2.71%	Device 5   2.000   30   0.080   24.78   0.217   0.87%	
END 0.000 24.69 0.307 1.23% END 0.000 24.69 0.307 1.23%	END 0.000 24.56 0.441 1.76% END 0.000 24.56 0.441 1.76%	Device 8         0.500         45         0.020         24.66         0.342         1.37%           Device 9         2.000         50         0.080         24.64         0.362         1.45%	END 0.000 24.89 0.108 0.43% END 0.000 24.89 0.108 0.43%	Device 8 0.500 35 0.020 24.32 0.682 2.73%  Device 9 0.500 45 0.020 24.31 0.685 2.74%	Device 8	
END         0.000         24.69         0.307         1.23%           END         0.000         24.69         0.307         1.23%	END         0.000         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%	Device 10         0.500         30         0.020         24.64         0.364         1.46%           END         0.000         24.64         0.364         1.46%	END 0.000 24.89 0.108 0.43% END 0.000 24.89 0.108 0.43%	END         0.000         24.31         0.685         2.74%           END         0.000         24.31         0.685         2.74%	Device 10         0.500         55         0.020         24.71         0.288         1.15%           END         0.000         24.71         0.288         1.15%	
END         0.000         24.69         0.307         1.23%           END         0.000         24.69         0.307         1.23%           END         0.000         24.69         0.307         1.23%	END         0.000         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%	END 0.000 24.64 0.364 1.46% END 0.000 24.64 0.364 1.46%	END 0.000 24.89 0.108 0.43% END 0.000 24.89 0.108 0.43% END 0.000 24.89 0.108 0.43%	END         0.000         24.31         0.685         2.74%           END         0.000         24.31         0.685         2.74%           END         0.000         24.31         0.685         2.74%	END         0.000         24.71         0.288         1.15%	
END         0.000         24.69         0.307         1.23%           END         0.000         24.69         0.307         1.23%           END         0.000         24.69         0.307         1.23%	END         0.000         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%           END         0.000         24.56         0.441         1.76%	END     0.000     24.64     0.364     1.46%       END     0.000     24.64     0.364     1.46%       END     0.000     24.64     0.364     1.46%	END         0.000         24.89         0.108         0.43%           END         0.000         24.89         0.108         0.43%           END         0.000         24.89         0.108         0.43%	END     0.000     24.31     0.685     2.74%       END     0.000     24.31     0.685     2.74%       END     0.000     24.31     0.685     2.74%	END   0.000   24.71   0.288   1.15%	
Totals 8.000 390 End of Line Voltage 24.69	Totals 7.500 505 End of Line Voltage 24.56	Totals 9.500 445 End of Line Voltage 24.64	Totals 4.000 285 End of Line Voltage 24.89	Totals 7.500 750 End of Line Voltage 24.31	Totals 9.500 515 End of Line Voltage 24.71	
Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	
Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals         Voltage         Totals         Voltage         Totals         Voltage           Current         Distance         Drop         Current         Distance         Drop         Current         Distance         Drop	Totals         Voltage         Totals         Voltage         Totals         Voltage           Current         Distance         Drop         Current         Distance         Drop         Current         Distance         Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop  Current Distance Drop Current Distance Drop	
0.320         390         0.31         0.320         390         0.494         0.320         390         0.247           End of Line Voltage         24.69         End of Line Voltage         24.51         End of Line Voltage         24.75           Percent Drop         1 23%         Percent Drop         1 98%         Percent Drop         0 99%	0.300         505         0.44         0.300         505         0.600         0.300         505         0.300           End of Line Voltage         24.56         End of Line Voltage         24.40         End of Line Voltage         24.70           Percent Drop         1.76%         Percent Drop         2.40%         Percent Drop         1.20%	0.380         445         0.36         0.380         445         0.670         0.380         445         0.335           End of Line Voltage         24.64         End of Line Voltage         24.33         End of Line Voltage         24.67           Percent Drop         1.46%         Percent Drop         2.68%         Percent Drop         1.34%	0.160         285         0.11         0.160         285         0.181         0.160         285         0.090           End of Line Voltage         24.89         End of Line Voltage         24.82         End of Line Voltage         24.91           Percent Drop         0.43%         Percent Drop         0.72%         Percent Drop         0.36%	0.300         750         0.69         0.300         750         0.891         0.300         750         0.446           End of Line Voltage         24.31         End of Line Voltage         24.11         End of Line Voltage         24.55           Percent Drop         2.74%         Percent Drop         3.56%         Percent Drop         1.78%	0.380         515         0.29         0.380         515         0.775         0.380         515         0.387           End of Line Voltage         24.71         End of Line Voltage         24.23         End of Line Voltage         24.61           Percent Drop         1.15%         Percent Drop         3.10%         Percent Drop         1.55%	
Percent Drop 1.23% Percent Drop 1.98% Percent Drop 0.99%  SPEAKER CIRCUIT No.S4d	Percent Drop   1.76%   Percent Drop   2.40%   Percent Drop   1.20%	Percent Drop   1.46%   Percent Drop   2.68%   Percent Drop   1.34%	Percent Drop 0.43% Percent Drop 0.72% Percent Drop 0.36%  SPEAKER CIRCUIT No.S2c	Percent Drop 2.74% Percent Drop 3.56% Percent Drop 1.78%  SPEAKER CIRCUIT No.S1e	Percent Drop 1.15% Percent Drop 3.10% Percent Drop 1.55%  SPEAKER CIRCUIT No.S1b	
Nominal Speaker Voltage ( 25 or 70 )   25	Nominal Speaker Voltage ( 25 or 70 )   25	Nominal Speaker Voltage ( 25 or 70 )     25	Nominal Speaker Voltage ( 25 or 70 )   25	Nominal Speaker Voltage ( 25 or 70 )   25	Nominal Speaker Voltage ( 25 or 70 ) 25  Minimum Device Voltage   20	
Total Circuit Current in amps 0.200 Wire Ohm's Total Circuit Power 5.000 Gauge Per 1000	Total Circuit Current in amps         0.500         Wire         Ohm's           Total Circuit Power         12.500         Gauge         Per 1000	Total Circuit Current in amps 0.360 Wire Ohm's  Total Circuit Power 9.000 Gauge Per 1000	Total Circuit Current in amps         0.420         Wire         Ohm's           Total Circuit Power         10.500         Gauge         Per 1000	Total Circuit Current in amps 0.520 Wire Ohm's Total Circuit Power 13.000 Gauge Per 1000	Total Circuit Current in amps         0.280         Wire         Ohm's           Total Circuit Power         7.000         Gauge         Per 1000	
Distance from source to 1st device 50 12 1.98  Wire Gauge for balance of circuit 12 1.98  Voltage Voltage	Distance from source to 1st device 50 12 1.98  Wire Gauge for balance of circuit 12 1.98  From Calculated Voltage	Distance from source to 1st device 50 12 1.98  Wire Gauge for balance of circuit 12 1.98  Voltage Voltage	Distance from source to 1st device   50   12   1.98	Distance from source to 1st device	Distance from source to 1st device 50 12 1.98  Wire Gauge for balance of circuit 12 1.98	
Device   Device   previous   Device   At   Drop from   Percent	From Calculated Voltage   Device   Device   Device   Device   Device   At   Drop from   Percent   Device   Drop   Drop	Device   Device   previous   Device   At   Drop from   Percent			Device   Device   Drevice   Device   Device   Device   Device   Device   Device   Drop   Device   Drop   Drop	
Device 1         0.500         185         0.020         24.85         0.147         0.59%           Device 2         2.000         30         0.080         24.83         0.168         0.67%	Device 1         0.500         65         0.020         24.87         0.129         0.51%           Device 2         0.500         40         0.020         24.80         0.205         0.82%	Device 1         0.500         40         0.020         24.94         0.057         0.23%           Device 2         2.000         20         0.080         24.92         0.084         0.34%	Device 1         2.000         250         0.080         24.58         0.416         1.66%           Device 2         0.500         55         0.020         24.51         0.490         1.96%	Device 1         0.500         350         0.020         24.28         0.721         2.88%           Device 2         2.000         35         0.080         24.21         0.790         3.16%	Device 1         0.500         150         0.020         24.83         0.166         0.67%           Device 2         2.000         55         0.080         24.78         0.223         0.89%	
Device 3         2.000         60         0.080         24.81         0.192         0.77%           Device 4         0.500         50         0.020         24.80         0.196         0.78%	Device 3         0.500         45         0.020         24.71         0.287         1.15%           Device 4         2.000         30         0.080         24.66         0.339         1.36%	Device 3         0.500         40         0.020         24.87         0.125         0.50%           Device 4         0.500         45         0.020         24.83         0.168         0.67%	Device 3         0.500         50         0.020         24.45         0.553         2.21%           Device 4         0.500         60         0.020         24.38         0.624         2.50%	Device 3         0.500         90         0.020         24.06         0.940         3.76%           Device 4         2.000         35         0.080         24.00         0.995         3.98%	Device 3         0.500         35         0.020         24.75         0.248         0.99%           Device 4         0.500         30         0.020         24.73         0.267         1.07%	
END         0.000         24.80         0.196         0.78%           END         0.000         24.80         0.196         0.78%           END         0.000         24.80         0.196         0.78%	Device 5         0.500         95         0.020         24.53         0.474         1.90%           Device 6         2.000         50         0.080         24.46         0.542         2.17%           Device 7         0.500         75         0.020         24.38         0.619         2.48%	Device 5         2.000         30         0.080         24.81         0.194         0.78%           Device 6         0.500         35         0.020         24.79         0.213         0.85%           Device 7         0.500         45         0.020         24.77         0.235         0.94%	Device 5         0.500         40         0.020         24.33         0.669         2.68%           Device 6         0.500         55         0.020         24.27         0.725         2.90%           Device 7         2.000         40         0.080         24.24         0.763         3.05%	Device 5         0.500         35         0.020         23.96         1.040         4.16%           Device 6         0.500         35         0.020         23.92         1.081         4.32%           Device 7         2.000         90         0.080         23.82         1.181         4.72%	Device 5	
END 0.000 24.80 0.196 0.78% END 0.000 24.80 0.196 0.78%	Device 8 2.000 40 0.080 24.34 0.657 2.63%  Device 9 0.500 70 0.020 24.30 0.701 2.81%	Device 8 2.000 20 0.080 24.76 0.243 0.97%  Device 9 0.500 40 0.020 24.75 0.246 0.98%	Device 8         0.500         40         0.020         24.21         0.789         3.16%           Device 9         0.500         55         0.020         24.18         0.819         3.28%	Device 8	Device 8 0.500 45 0.020 24.68 0.319 1.28%  END 0.000 24.68 0.319 1.28%	
END         0.000         24.80         0.196         0.78%           END         0.000         24.80         0.196         0.78%	Device 10         0.500         40         0.020         24.28         0.723         2.89%           Device 11         2.000         35         0.080         24.26         0.740         2.96%	END 0.000 24.75 0.246 0.98% END 0.000 24.75 0.246 0.98%	Device 10         2.000         40         0.080         24.16         0.838         3.35%           Device 11         0.500         50         0.020         24.15         0.846         3.39%	Device 10         0.500         25         0.020         23.73         1.272         5.09%           Device 11         2.000         45         0.080         23.71         1.286         5.14%	END         0.000         24.68         0.319         1.28%           END         0.000         24.68         0.319         1.28%	
END 0.000 24.80 0.196 0.78% END 0.000 24.80 0.196 0.78%	Device 12         0.500         25         0.020         24.26         0.744         2.98%           Device 13         0.500         25         0.020         24.25         0.746         2.98%           END         0.000         24.25         0.746         2.98%	END 0.000 24.75 0.246 0.98% END 0.000 24.75 0.246 0.98%	Device 12         0.500         55         0.020         24.15         0.851         3.40%           END         0.000         24.15         0.851         3.40%	END         0.000         23.71         1.286         5.14%           END         0.000         23.71         1.286         5.14%           END         0.000         23.71         1.286         5.14%	END 0.000 24.68 0.319 1.28%  END 0.000 24.68 0.319 1.28%	
END         0.000         24.80         0.196         0.78%           END         0.000         24.80         0.196         0.78%           END         0.000         24.80         0.196         0.78%	END         0.000         24.25         0.746         2.98%           END         0.000         24.25         0.746         2.98%           END         0.000         24.25         0.746         2.98%	END         0.000         24.75         0.246         0.98%           END         0.000         24.75         0.246         0.98%           END         0.000         24.75         0.246         0.98%	END         0.000         24.15         0.851         3.40%           END         0.000         24.15         0.851         3.40%           END         0.000         24.15         0.851         3.40%	END     0.000     23.71     1.286     5.14%       END     0.000     23.71     1.286     5.14%       END     0.000     23.71     1.286     5.14%	END	
Totals 5.000 325 End of Line Voltage 24.80	Totals 12.500 635 End of Line Voltage 24.25	Totals 9.000 315 End of Line Voltage 24.75	Totals 10.500 790 End of Line Voltage 24.15	Totals 13.000 850 End of Line Voltage 23.71	Totals 7.000 435 End of Line Voltage 24.68	
Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS	Point to Point Method End of Line Method Load Centering Method  CIRCUIT IS WITHIN LIMITS CIRCUIT IS WITHIN LIMITS  CIRCUIT IS WITHIN LIMITS	
Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop Current Distance Drop	Totals Voltage Totals Voltage Totals Voltage  Current Distance Drop Current Distance Drop  Current Distance Drop Current Distance Drop	
0.200         325         0.20         0.200         325         0.257         0.200         325         0.129           End of Line Voltage         24.80         End of Line Voltage         24.74         End of Line Voltage         24.87           Percent Drop         0.78%         Percent Drop         1.03%         Percent Drop         0.51%	0.500         635         0.75         0.500         635         1.257         0.500         635         0.629           End of Line Voltage         24.25         End of Line Voltage         23.74         End of Line Voltage         24.37           Percent Drop         2.98%         Percent Drop         5.03%         Percent Drop         2.51%	0.360         315         0.25         0.360         315         0.449         0.360         315         0.225           End of Line Voltage         24.75         End of Line Voltage         24.55         End of Line Voltage         24.78           Percent Drop         0.98%         Percent Drop         1.80%         Percent Drop         0.90%	0.420         790         0.85         0.420         790         1.314         0.420         790         0.657           End of Line Voltage         24.15         End of Line Voltage         23.69         End of Line Voltage         24.34           Percent Drop         3.40%         Percent Drop         5.26%         Percent Drop         2.63%	0.520         850         1.29         0.520         850         1.750         0.520         850         0.875           End of Line Voltage         23.71         End of Line Voltage         23.25         End of Line Voltage         24.12           Percent Drop         5.14%         Percent Drop         7.00%         Percent Drop         3.50%	0.280         435         0.32         0.280         435         0.482         0.280         435         0.241           End of Line Voltage         24.68         End of Line Voltage         24.52         End of Line Voltage         24.76           Percent Drop         1.28%         Percent Drop         1.93%         Percent Drop         0.96%	
	SPEAKER CIRCUIT No.S4b           Nominal Speaker Voltage ( 25 or 70 )         25	SPEAKER CIRCUIT No.S3c   Nominal Speaker Voltage ( 25 or 70 )	SPEAKER CIRCUIT No.S2d Nominal Speaker Voltage ( 25 or 70 )   25	SPEAKER CIRCUIT No.S2a           Nominal Speaker Voltage ( 25 or 70 )         25	SPEAKER CIRCUIT No.S1c   Nominal Speaker Voltage ( 25 or 70 )   25	
	Minimum Device Voltage 20 Total Circuit Current in amps 0.100 Wire Ohm's	Minimum Device Voltage 20 Total Circuit Current in amps 0.360 Wire Ohm's	Minimum Device Voltage 20 Total Circuit Current in amps 0.240 Wire Ohm's	Minimum Device Voltage   20	Minimum Device Voltage   20	
	Total Circuit Power         2.500         Gauge         Per 1000           Distance from source to 1st device         50         12         1.98           Wire Gauge for balance of circuit         12         1.98	Total Circuit Power         9.000         Gauge         Per 1000           Distance from source to 1st device         50         12         1.98           Wire Gauge for balance of circuit         12         1.98	Total Circuit Power         6.000         Gauge         Per 1000           Distance from source to 1st device         50         12         1.98           Wire Gauge for balance of circuit         12         1.98	Total Circuit Power	Total Circuit Power	
	from Calculated Voltage  Device Device previous Device At Drop from Percent			from Calculated Voltage  Device Device previous Device At Drop from Percent	from Calculated Voltage   Device Device previous Device At Drop from Percent	
	Number         Power         device         Current         Device         source         Drop           Device 1         0.500         45         0.020         24.98         0.018         0.07%	Number         Power         device         Current         Device         source         Drop           Device 1         0.500         125         0.020         24.82         0.178         0.71%	Number         Power         device         Current         Device         source         Drop           Device 1         0.500         350         0.020         24.67         0.333         1.33%	Number         Power         device         Current         Device         source         Drop           Device 1         2.000         115         0.080         24.81         0.191         0.77%	Number         Power         device         Current         Device         source         Drop           Device 1         0.500         450         0.020         24.22         0.784         3.14%	
	Device 2         0.500         35         0.020         24.97         0.029         0.12%           Device 3         0.500         55         0.020         24.96         0.042         0.17%           Device 4         0.500         45         0.020         24.95         0.049         0.20%	Device 2         2.000         40         0.080         24.77         0.232         0.93%           Device 3         0.500         20         0.020         24.75         0.253         1.01%           Device 4         0.500         45         0.020         24.70         0.295         1.18%	Device 2         0.500         30         0.020         24.64         0.359         1.44%           Device 3         0.500         55         0.020         24.60         0.402         1.61%           Device 4         2.000         30         0.080         24.58         0.424         1.69%	Device 2         0.500         40         0.020         24.75         0.245         0.98%           Device 3         2.000         45         0.080         24.70         0.302         1.21%           Device 4         0.500         15         0.020         24.68         0.316         1.27%	Device 2	
	Device 4         0.300         43         0.020         24.93         0.049         0.20%           Device 5         0.500         95         0.020         24.94         0.057         0.23%           END         0.000         24.94         0.057         0.23%	Device 5         2.000         30         0.080         24.68         0.322         1.10%           Device 6         0.500         35         0.020         24.66         0.341         1.36%	Device 4         2.000         30         0.080         24.58         0.424         1.69%           Device 5         0.500         105         0.020         24.53         0.465         1.86%           Device 6         2.000         30         0.080         24.53         0.475         1.90%	Device 5     0.500     90     0.020     24.61     0.395     1.58%       Device 6     2.000     15     0.080     24.59     0.407     1.63%	Device 4   0.500   45   0.020   24.00   0.998   3.99%	
	END 0.000 24.94 0.057 0.23% END 0.000 24.94 0.057 0.23%	Device 7         0.500         45         0.020         24.64         0.362         1.45%           Device 8         2.000         20         0.080         24.63         0.370         1.48%	END 0.000 24.53 0.475 1.90% END 0.000 24.53 0.475 1.90%	Device 7         0.500         45         0.020         24.57         0.428         1.71%           Device 8         2.000         40         0.080         24.56         0.444         1.78%	Device 7         0.500         55         0.020         23.85         1.152         4.61%           Device 8         0.500         45         0.020         23.81         1.195         4.78%	
	END         0.000         24.94         0.057         0.23%           END         0.000         24.94         0.057         0.23%	Device 9         0.500         40         0.020         24.63         0.373         1.49%           END         0.000         24.63         0.373         1.49%           END         0.000         24.63         0.373         1.49%	END 0.000 24.53 0.475 1.90%	Device 9         0.500         60         0.020         24.55         0.449         1.79%           END         0.000         24.55         0.449         1.79%           END         0.000         24.55         0.449         1.79%	Device 9         2.000         45         0.080         23.77         1.234         4.94%           Device 10         0.500         40         0.020         23.74         1.256         5.02%	
	END         0.000         24.94         0.057         0.23%	END     0.000     24.63     0.373     1.49%	END     0.000     24.53     0.475     1.90%	END     0.000     24.55     0.449     1.79%       END     0.000     24.55     0.449     1.79%       END     0.000     24.55     0.449     1.79%	Device 11         0.500         50         0.020         23.72         1.280         5.12%           Device 12         2.000         65         0.080         23.69         1.306         5.22%           Device 13         0.500         40         0.020         23.69         1.309         5.24%	
	END         0.000         24.94         0.057         0.23%           END         0.000         24.94         0.057         0.23%	END         0.000         24.63         0.373         1.49%           END         0.000         24.63         0.373         1.49%	END 0.000 24.53 0.475 1.90% END 0.000 24.53 0.475 1.90%	END         0.000         24.55         0.449         1.79%           END         0.000         24.55         0.449         1.79%	END 0.000 23.69 1.309 5.24% END 0.000 23.69 1.309 5.24%	
	END         0.000         24.94         0.057         0.23%           Totals         2.500         275         End of Line Voltage         24.94	END         0.000         24.63         0.373         1.49%           Totals         9.000         400         End of Line Voltage         24.63	END         0.000         24.53         0.475         1.90%           Totals         6.000         600         End of Line Voltage         24.53	END         0.000         24.55         0.449         1.79%           Totals         10.500         465         End of Line Voltage         24.55	END         0.000         23.69         1.309         5.24%           Totals         11.000         995         End of Line Voltage         23.69	
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	0.100         275         0.06         0.100         275         0.109         0.100         275         0.054           End of Line Voltage         24.94         End of Line Voltage         24.89         End of Line Voltage         24.95	0.360         400         0.37         0.360         400         0.570         0.360         400         0.285           End of Line Voltage         24.63         End of Line Voltage         24.43         End of Line Voltage         24.71	0.240         600         0.47         0.240         600         0.570         0.240         600         0.285           End of Line Voltage         24.53         End of Line Voltage         24.43         End of Line Voltage         24.71	0.420         465         0.45         0.420         465         0.773         0.420         465         0.387           End of Line Voltage         24.55         End of Line Voltage         24.23         End of Line Voltage         24.61	0.440         995         1.31         0.440         995         1.734         0.440         995         0.867           End of Line Voltage         23.69         End of Line Voltage         23.27         End of Line Voltage         24.13	
	Percent Drop 0.23% Percent Drop 0.44% Percent Drop 0.22%	Percent Drop 1.49% Percent Drop 2.28% Percent Drop 1.14%	Percent Drop 1.90% Percent Drop 2.28% Percent Drop 1.14%	Percent Drop 1.79% Percent Drop 3.09% Percent Drop 1.55%	Percent Drop 5.24% Percent Drop 6.93% Percent Drop 3.47%	

(DSA STAMP AREA)









VOLTAGE DROP CALCULATIONS (SPEAKER CIRCUITS)

E FIRE ALARM REPLACEMENT RK MIDDLE SCHOOL AVE, PLEASANTON, CA 94566

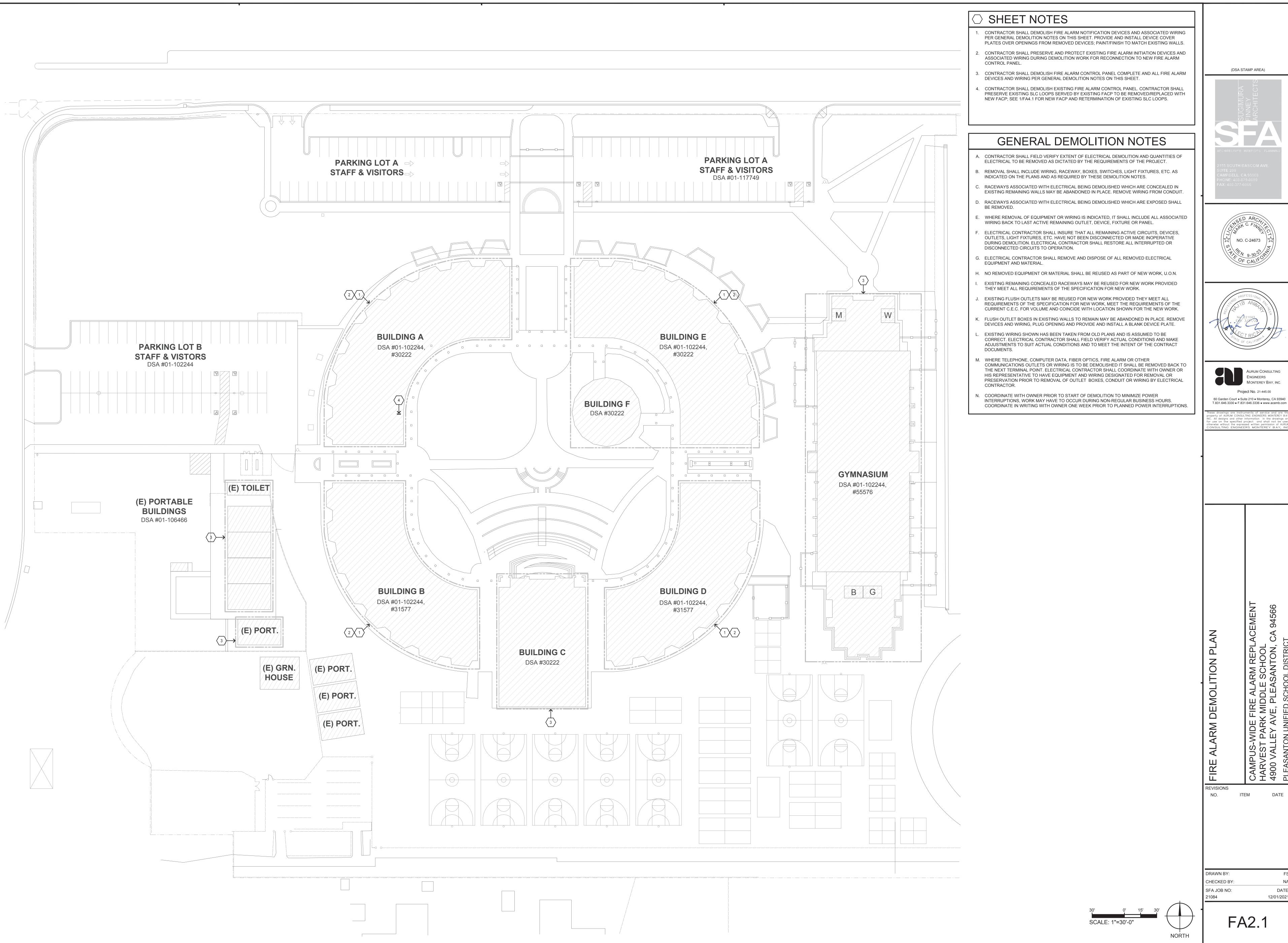
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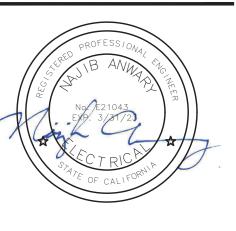
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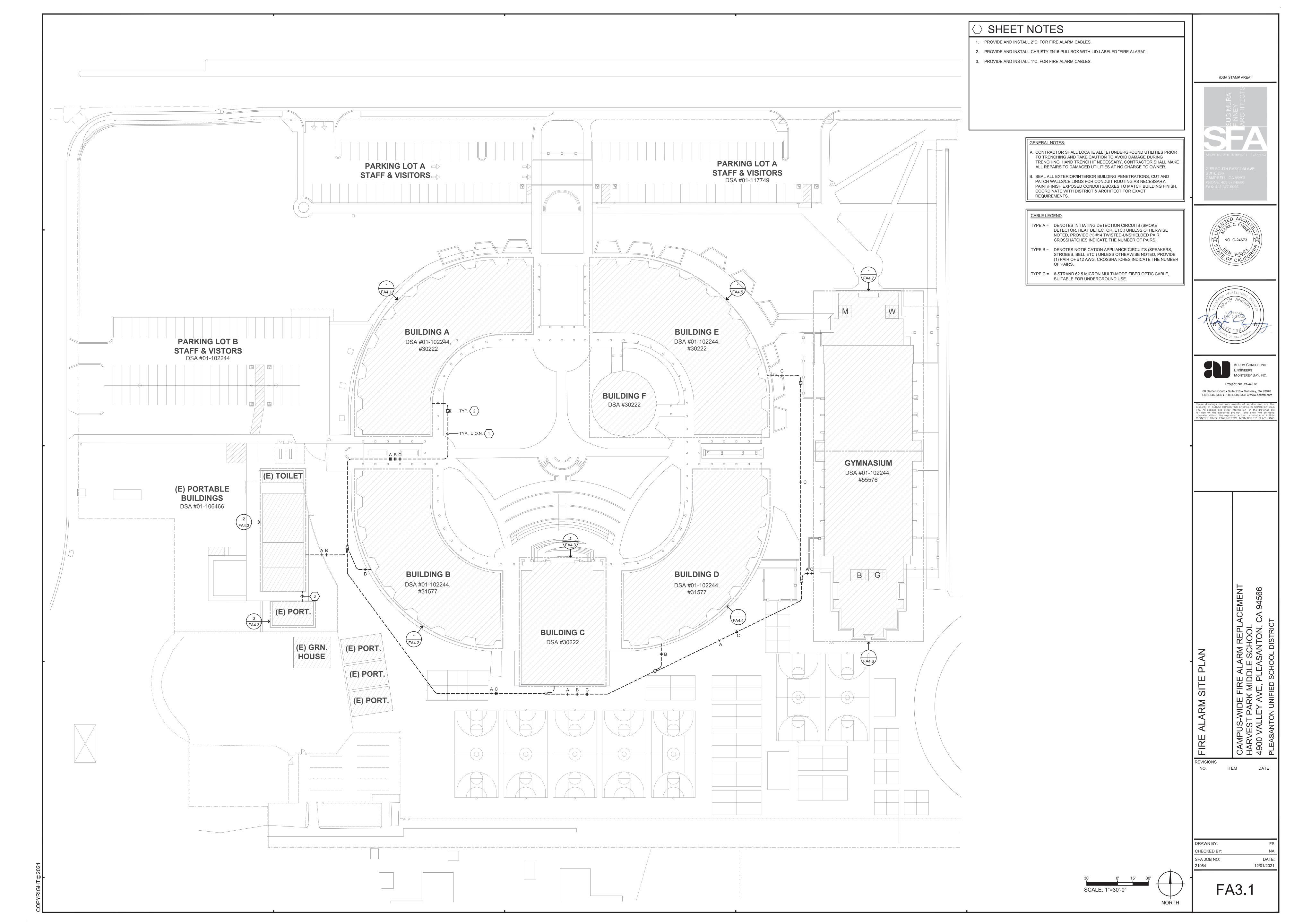
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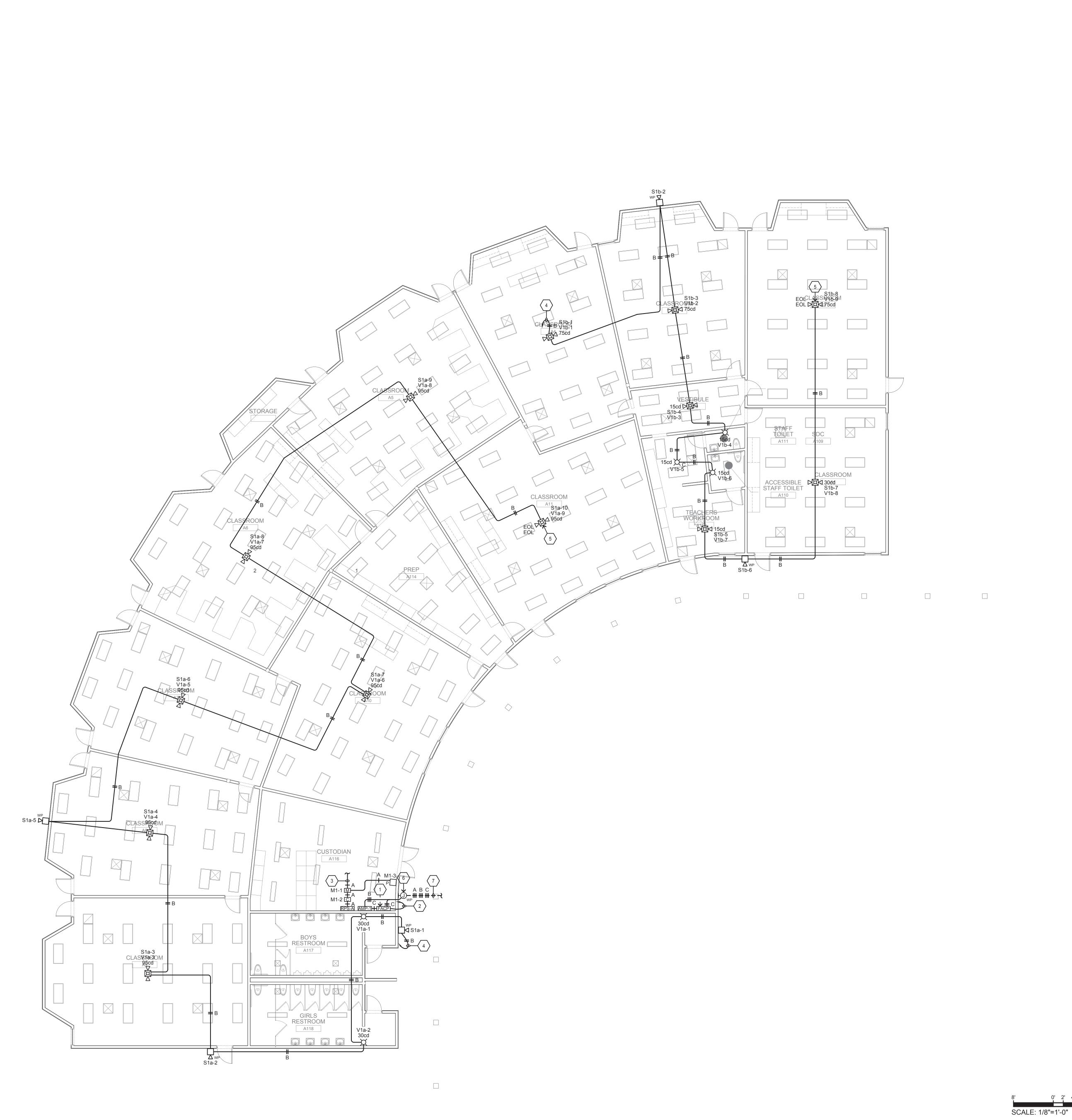
 21084
 12/01/2021











- CONTRACTOR SHALL RETERMINATE EXISTING SLC LOOPS PRESERVED DURING DEMOLITION AT NEW PANEL SLC CARDS AND TEST TO ENSURE FULL FUNCTIONALITY OF EXISTING DEVICE.
- CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "RA" LOCATED IN CUSTODIAN ROOM A116; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 3. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK. 4. HOMERUN TO REMOTE POWER SUPPLY "RPS-A" AND DIGITAL AUDIO AMPLIFIER "AMP-1"
- LOCATED IN CUSTODIAN ROOM A116. 5. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 6. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.

7. SEE SHEET E2.1 FOR CONTINUATION.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE, SUITABLE FOR UNDERGROUND USE.

(DSA STAMP AREA)

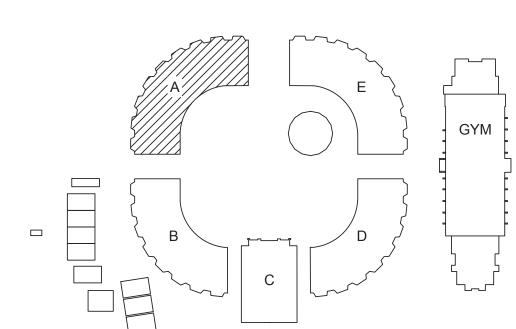








# **BUILDING KEY**



A E	GYM

DATE: 12/01/2021



- CIRCUIT VIA  $\frac{1}{2}$ "C., 2 #12 & 1 #12 GND TO PANEL "BA" LOCATED IN ELECTRICAL ROOM B112; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.
- 3. HOMERUN TO REMOTE POWER SUPPLY "RPS-B" LOCATED IN ELECTRICAL ROOM B112.
- 4. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 5. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.
- 6. SEE SHEET E2.1 FOR CONTINUATION.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS. (DSA STAMP AREA)





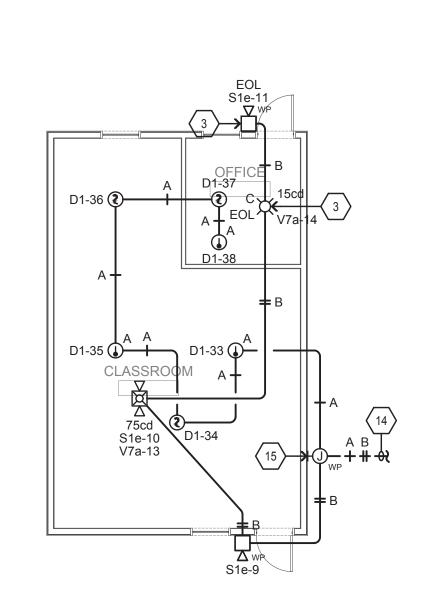


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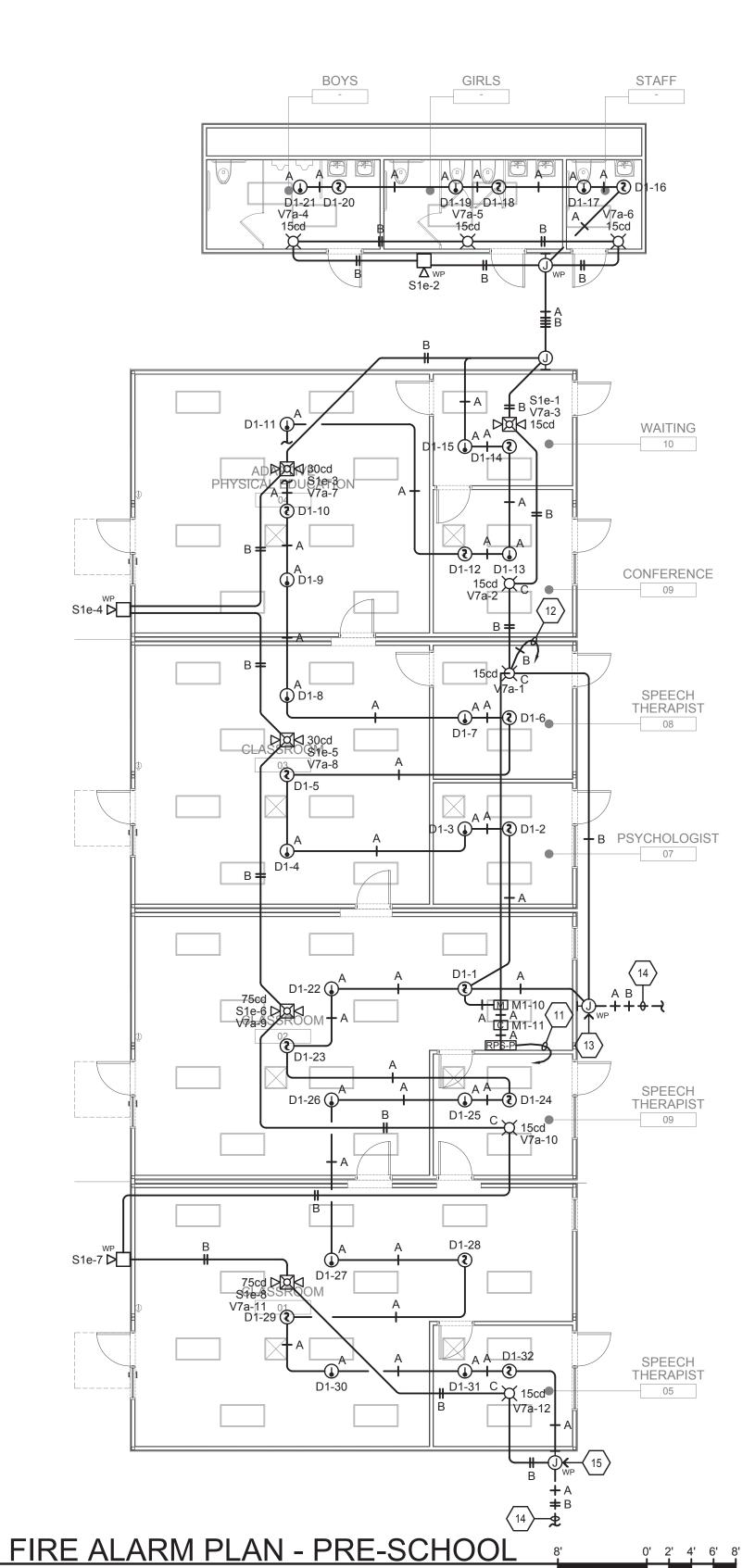
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FA4.2

**BUILDING KEY** 



FIRE ALARM PLAN - PORTABLE



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

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

### CABLE LEGEND

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE, SUITABLE FOR UNDERGROUND USE.
- TYPE D = DENOTES 24VDC CONSTANT POWER CIRCUITS FOR DUCT SMOKE DETECTOR OR BEAM SMOKE DETECTOR; UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE E = DENOTES NOTIFICATION APPLIANCE CIRCUITS FOR BEAM SMOKE DETECTOR TEST SWITCH, UNLESS OTHERWISE NOTED. PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

# SHEET NOTES

- CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "BA" LOCATED IN ELECTRICAL ROOM B112; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- HOMERUN TO REMOTE POWER SUPPLY "RPS-C" AND DIGITAL AUDIO AMPLIFIER "AMP-2" LOCATED IN STORAGE ROOM.
- 3. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 4. LOCATE FOR TAMPER AND FLOW SWITCH.
- BEAM SMOKE DETECTOR TRANSMITTER. INSTALL WITH DIRECT LINE OF SIGHT OF REFLECTOR PLATE; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 6. REFLECTOR PLATE. INSTALL WITH DIRECT LINE OF SIGHT OF TRANSMITTER; FIELD VERIFY EXACT MOUNTING HEIGHT.
- PROJECTED BEAM DETECTOR REMOTE TEST STATION WITH KEYLOCK; CONNECT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT AT +44" A.F.F. TO TOP OF BOS; VERIFY EXACT LOCATION WITH ARCHITECT.
- 8. HOMERUN TO REMOTE POWER SUPPLY "RPS-C" LOCATED IN STORAGE ROOM.
- 9. PROVIDE AND INSTALL CSFM LISTED WIREGUARD FOR ALL DEVICES IN MULTI-USE ROOM. 10. INSTALL HEAT DETECTORS IN BAYS UNDER STAGE.
- 11. CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "P2" LOCATED AT SAME PORTABLE; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 12. HOMERUN TO REMOTE POWER SUPPLY "RPS-P" LOCATED IN CLASSROOM 02.
- 13. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.
- 14. SEE SHEET E2.1 FOR CONTINUATION.
- 15. PROVIDE AND INSTALL 12" X 4" DEEP NEMA 3R PULLCAN.



(DSA STAMP AREA)

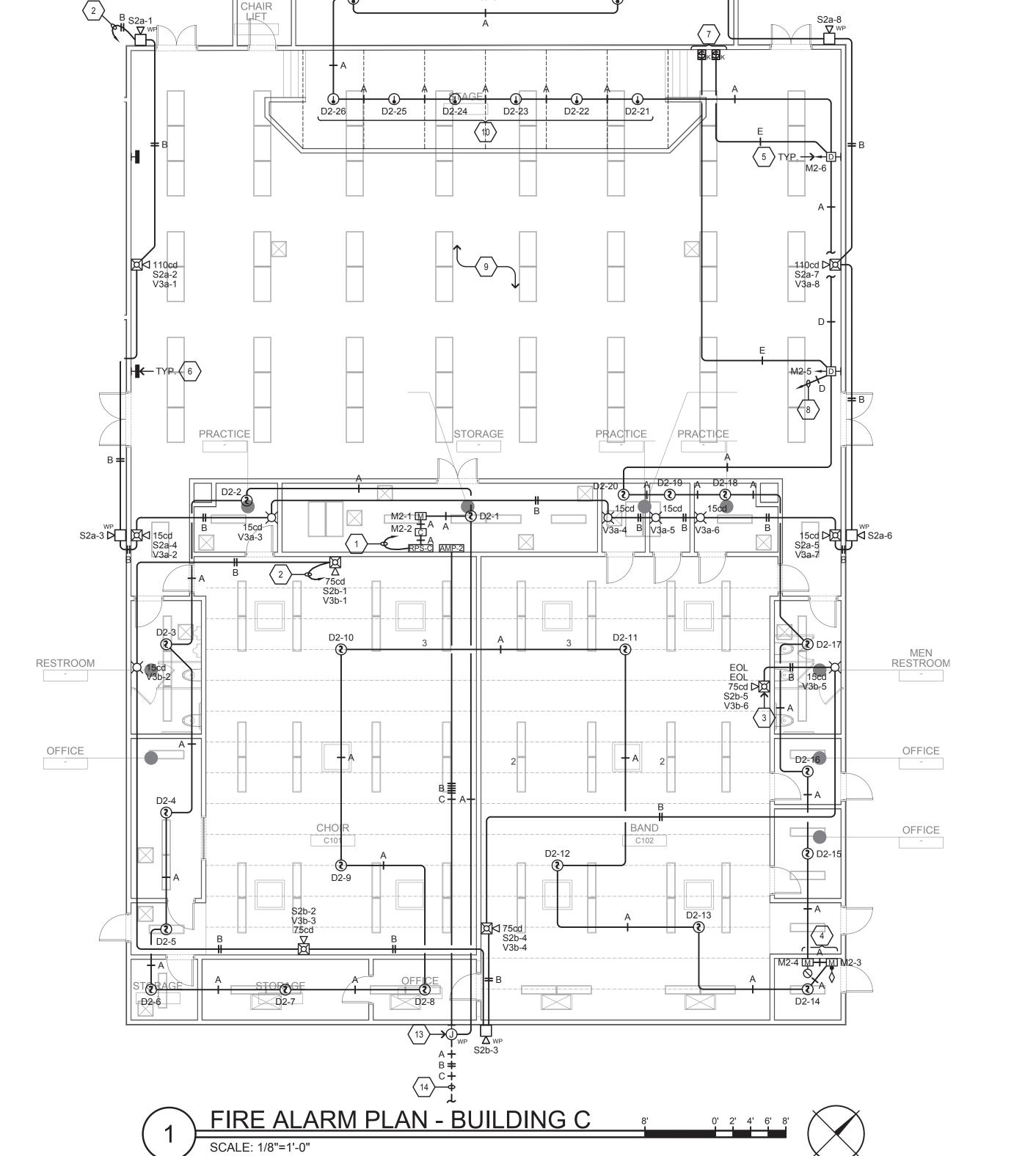


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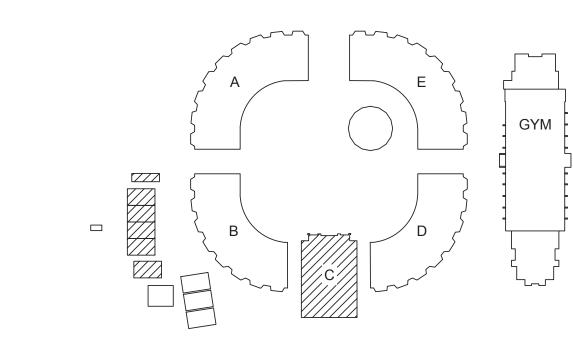
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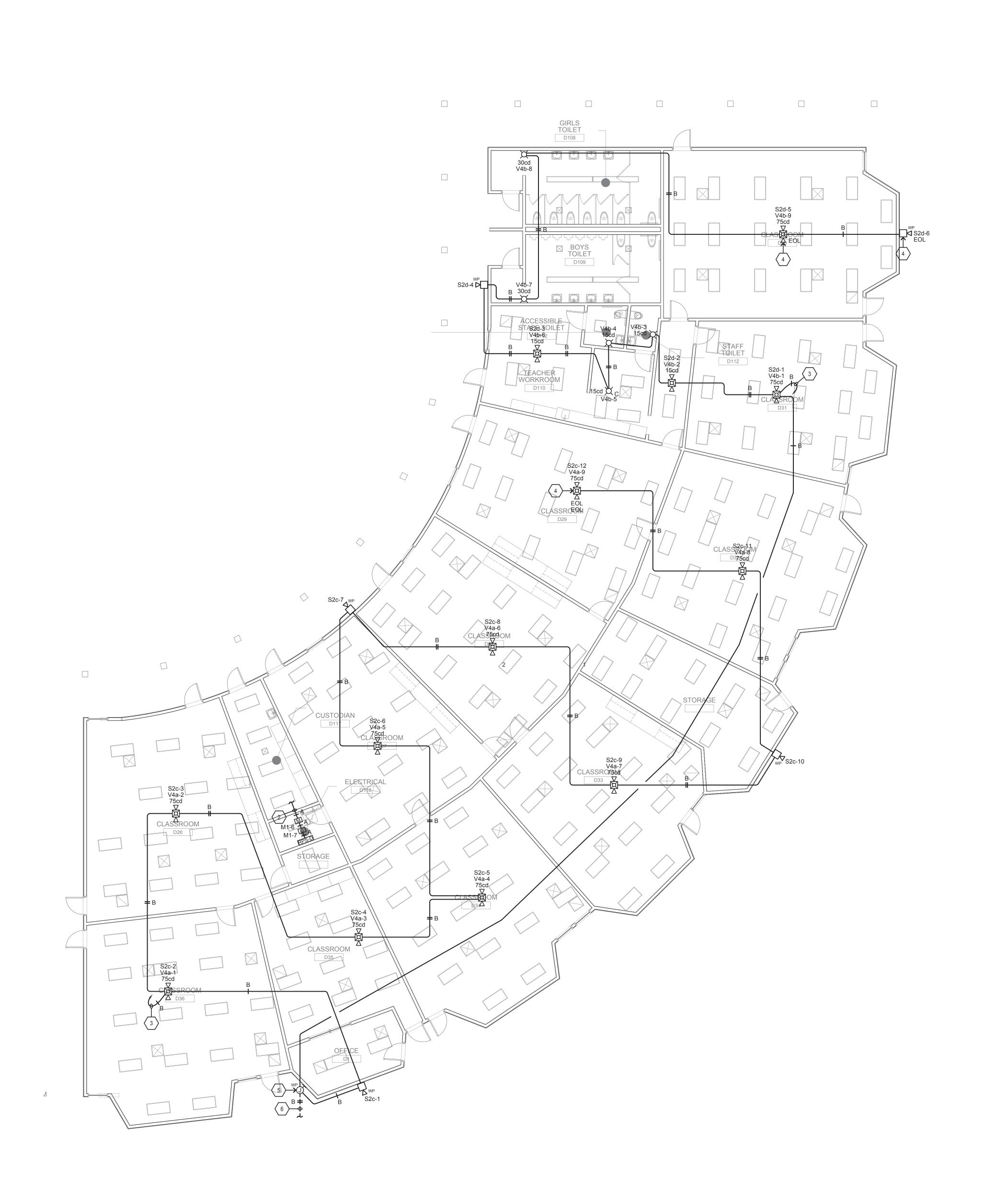
FA4.3

12/01/2021



**BUILDING KEY** 





- CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "DA" LOCATED IN ELECTRICAL ROOM D116; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.
- 3. HOMERUN TO REMOTE POWER SUPPLY "RPS-D" LOCATED IN ELECTRICAL ROOM D116.
- 4. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 5. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.
- 6. SEE SHEET E2.1 FOR CONTINUATION.

### GENERAL NOTES:

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

### CABLE LEGEND

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

(DSA STAMP AREA)



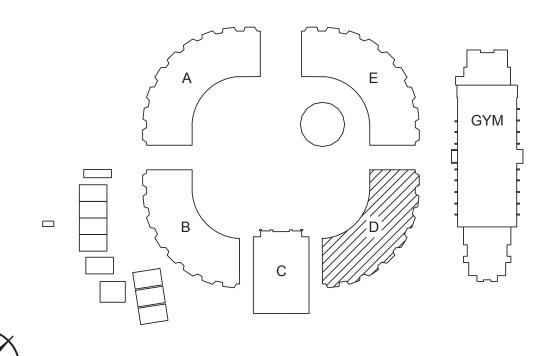


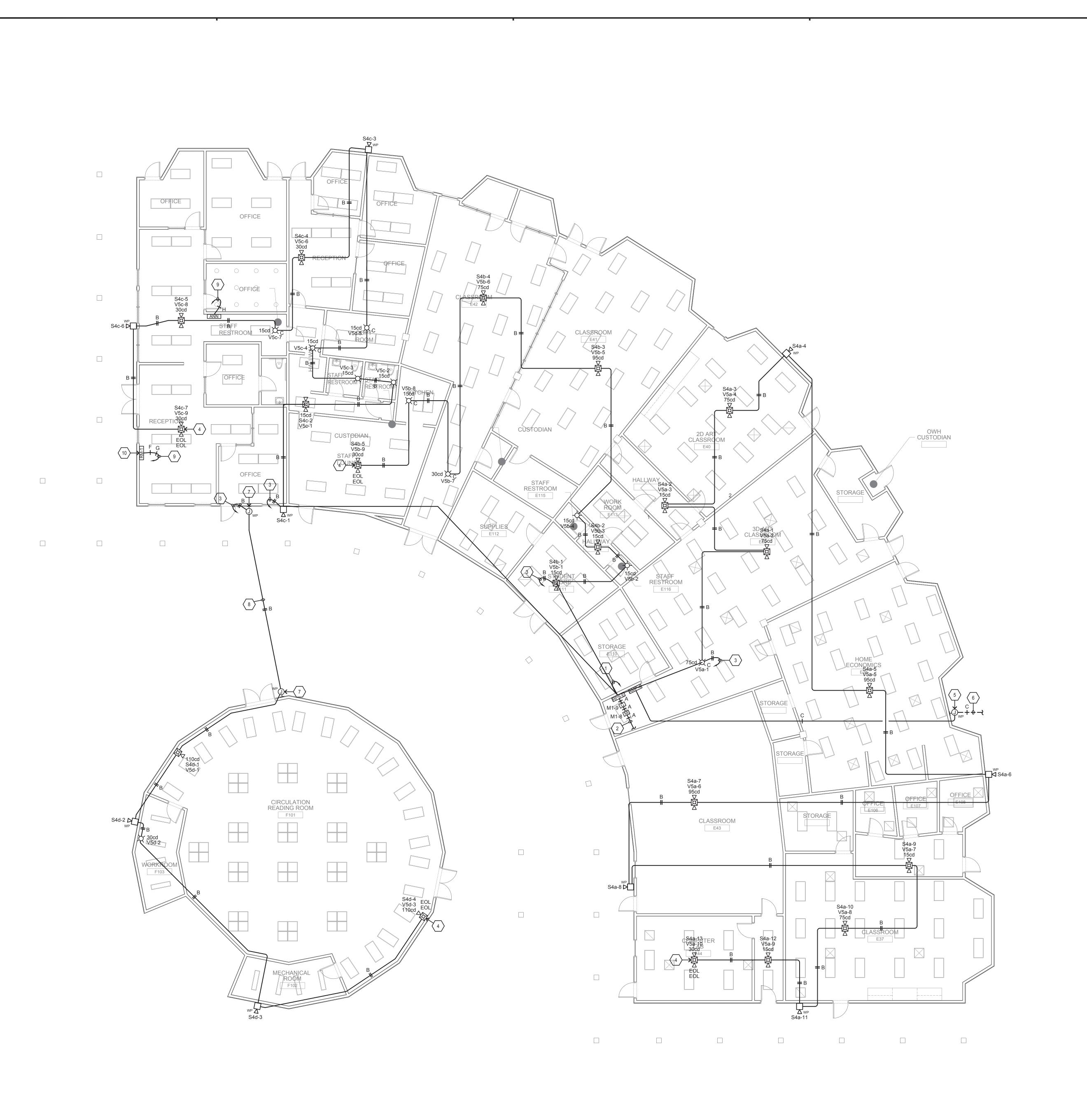


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FA4.4

**BUILDING KEY** 





- CIRCUIT VIA 1/2"C., 2 #12 & 1 #12 GND TO PANEL "EB" LOCATED IN 3-D ART CLASSROOM E29; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. CONNECT TO NEAREST EXISTING INITIATION DEVICE PRESERVED DURING DEMOLITION WORK.
- 3. HOMERUN TO REMOTE POWER SUPPLY "RPS-E" AND DIGITAL AUDIO AMPLIFIER "AMP-4" LOCATED IN 3-D ART CLASSROOM E29.
- 4. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 5. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.

7. PROVIDE AND INSTALL 12" X 4" DEEP NEMA 3R PULLCAN.

- 6. SEE SHEET E2.1 FOR CONTINUATION.

AND ARCHITECT PRIOR TO ROUGH-IN.

- 8. PROVIDE AND INSTALL 1"C. FOR FIRE ALARM CABLES. ROUTE CONDUIT ABOVE EXISTING CANOPY BETWEEN BUILDINGS; PAINT/FINISH EXPOSED CONDUITS TO MATCH CANOPY FINISH.
- 9. HOMERUN TO FIRE ALARM CONTROL PANEL "FACP" LOCATED IN CUSTODIAN ROOM A116 AT
- 10. LOCATE REMOTE MICROPHONE AT RECEPTION DESK; VERIFY EXACT LOCATION WITH DISTRICT

### **GENERAL NOTES:**

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

### CABLE LEGEND

**BUILDING KEY** 

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER
- TYPE F = DENOTES 24VDC POWER CIRCUIT FOR REMOTE MICROPHONE POWERED FROM DVC. PROVIDE (1) PAIR OF #14 AWG.
- TYPE G = DENOTES TROUBLE CONTACTS MONITORED BY FACP AND LOW LEVEL AUDIO INPUT FROM REMOTE MICROPHONE. PROVIDE (2) TWISTED UNSHIELDED PAIR #14 AWG.
- TYPE H = DENOTES 24VDC NON-RESETTABLE POWER CIRCUIT AND RDP BUS FOR REMOTE ANNUNCIATION. PROVIDE (2) TWISTED SHIELDED PAIR #14 AWG.

(DSA STAMP AREA)

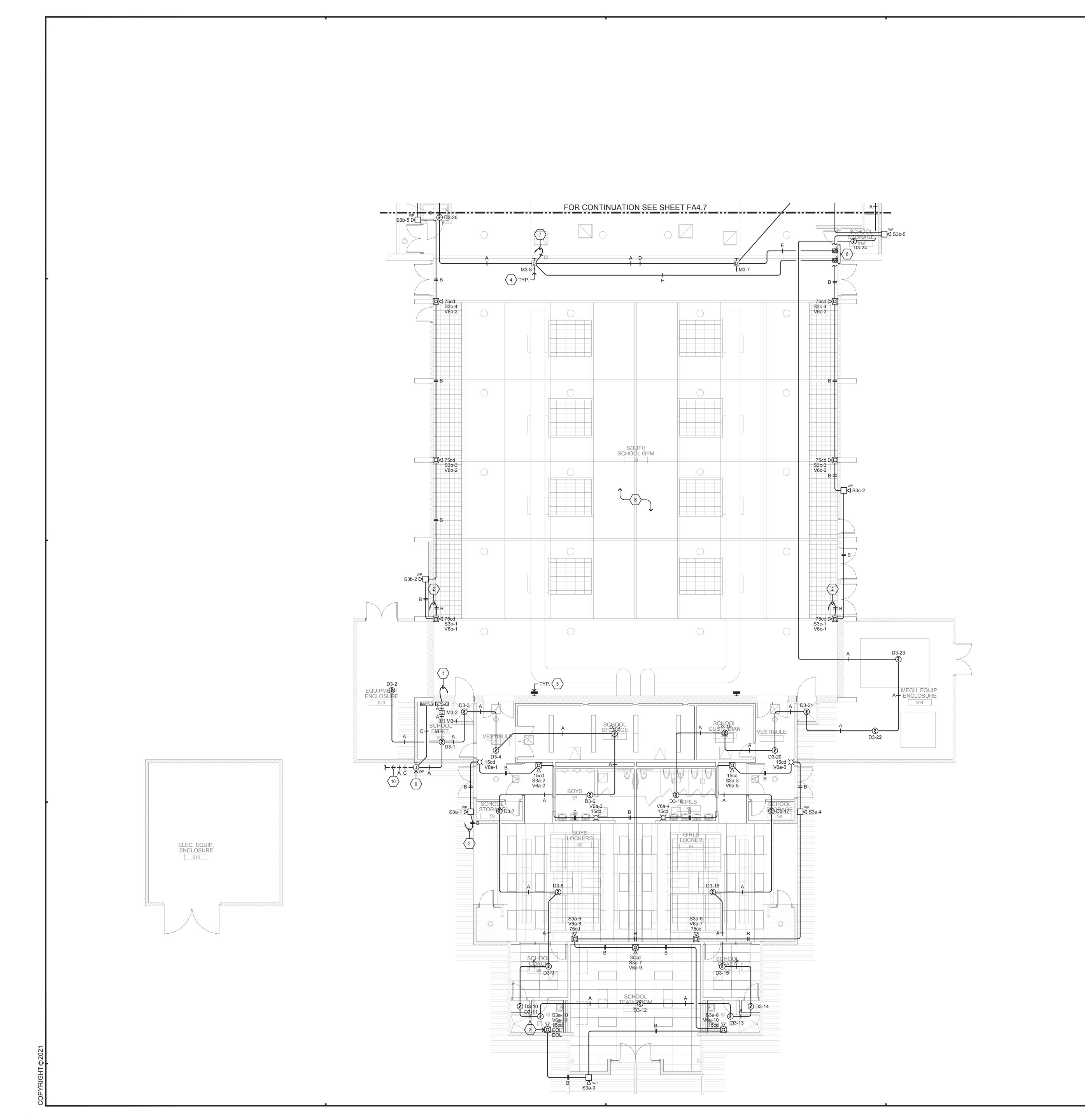








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- CIRCUIT VIA ½"C., 2 #12 & 1 #12 GND TO PANEL "GL1" LOCATED IN SCHOOL ELECTRICAL ROOM S12; AT PANEL PROVIDE AND INSTALL 20 AMP, 1-POLE BREAKER WITH LOCK-ON DEVICE WITH RED MARKINGS LABELED "FIRE ALARM/ECS".
- 2. HOMERUN TO REMOTE POWER SUPPLY "RPS-G" AND DIGITAL AUDIO AMPLIFIER "AMP-3" SCHOOL ELECTRICAL ROOM S12.
- 3. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- BEAM SMOKE DETECTOR TRANSMITTER. INSTALL WITH DIRECT LINE OF SIGHT OF REFLECTOR PLATE; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 5. REFLECTOR PLATE. INSTALL WITH DIRECT LINE OF SIGHT OF TRANSMITTER; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 6. PROJECTED BEAM DETECTOR REMOTE TEST STATION WITH KEYLOCK; CONNECT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT AT +44" A.F.F. TO TOP OF BOS; VERIFY EXACT LOCATION WITH ARCHITECT.
- 7. HOMERUN TO REMOTE POWER SUPPLY "RPS-C" LOCATED IN STORAGE ROOM.
- PROVIDE AND INSTALL CSFM LISTED WIREGUARD FOR ALL DEVICES IN MULTI-USE ROOM.
- 9. PROVIDE AND INSTALL 18" X 6" DEEP NEMA 3R PULLCAN.
- 10. SEE SHEET E2.1 FOR CONTINUATION.

### **GENERAL NOTES:**

A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY.
PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH.
COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.

B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM.
ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

### CABLE LEGEND

**BUILDING KEY** 

- TYPE A = DENOTES INITIATING DETECTION CIRCUITS (SMOKE DETECTOR, HEAT DETECTOR, ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) #14 TWISTED-UNSHIELDED PAIR. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE B = DENOTES NOTIFICATION APPLIANCE CIRCUITS (SPEAKERS, STROBES, BELL ETC.) UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE C = 6-STRAND 62.5 MICRON MULTI-MODE FIBER OPTIC CABLE, SUITABLE FOR UNDERGROUND USE.
- TYPE D = DENOTES 24VDC CONSTANT POWER CIRCUITS FOR DUCT SMOKE DETECTOR OR BEAM SMOKE DETECTOR; UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.
- TYPE E = DENOTES NOTIFICATION APPLIANCE CIRCUITS FOR BEAM SMOKE DETECTOR TEST SWITCH. UNLESS OTHERWISE NOTED, PROVIDE (1) PAIR OF #12 AWG. CROSSHATCHES INDICATE THE NUMBER OF PAIRS.

(DSA STAMP AREA)







AURUM CONSULTING
ENGINEERS
MONTEREY BAY, INC.

Project No. 21-445.00

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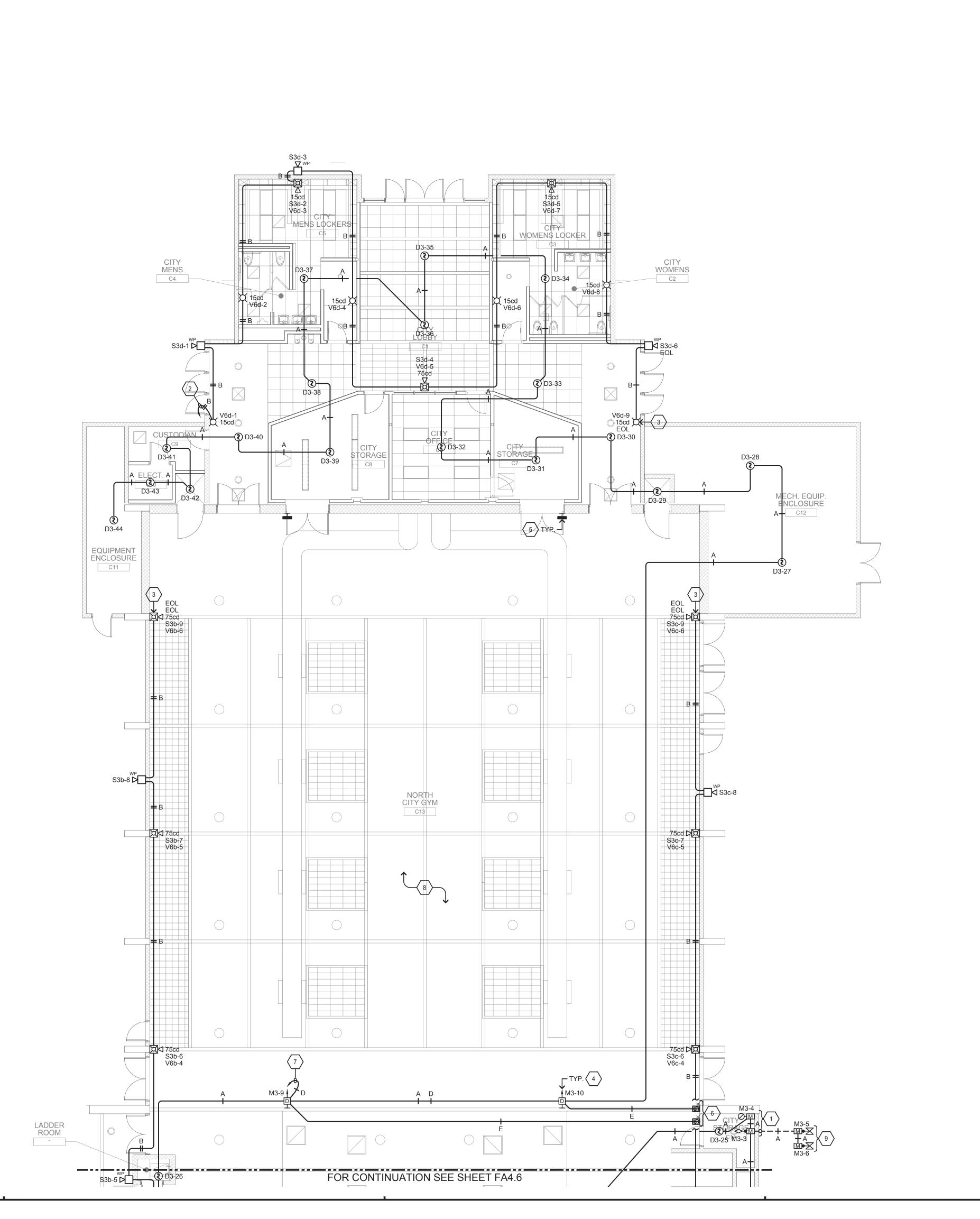
47

E FIRE ALARM REPLACEMENT
RK MIDDLE SCHOOL
AVE, PLEASANTON, CA 94566

CAMPUS-WIDE FIRE ALARI HARVEST PARK MIDDLE SO 4900 VALLEY AVE, PLEASA

REVISIONS
NO. ITEM

DRAWN BY: F
CHECKED BY: N
SFA JOB NO: DAT



- 1. LOCATE FOR TAMPER AND FLOW SWITCH.
- 2. HOMERUN TO REMOTE POWER SUPPLY "RPS-G" AND DIGITAL AUDIO AMPLIFIER "AMP-3" SCHOOL ELECTRICAL ROOM S12.
- 3. PROVIDE AND INSTALL LAMICOID NAMEPLATE ON DEVICE READING "EOL".
- 4. BEAM SMOKE DETECTOR TRANSMITTER. INSTALL WITH DIRECT LINE OF SIGHT OF REFLECTOR PLATE; FIELD VERIFY EXACT MOUNTING HEIGHT.
- 5. REFLECTOR PLATE. INSTALL WITH DIRECT LINE OF SIGHT OF TRANSMITTER; FIELD VERIFY EXACT MOUNTING HEIGHT.
- PROJECTED BEAM DETECTOR REMOTE TEST STATION WITH KEYLOCK; CONNECT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT AT +44" A.F.F. TO TOP OF BOS; VERIFY EXACT LOCATION WITH ARCHITECT.
- 7. HOMERUN TO REMOTE POWER SUPPLY "RPS-C" LOCATED IN STORAGE ROOM.
- 8. PROVIDE AND INSTALL CSFM LISTED WIREGUARD FOR ALL DEVICES IN MULTI-USE ROOM. 9. PROVIDE AND INSTALL 1"C. TO PIV LOCATION; FIELD VERIFY EXACT LOCATION ON SITE.

### **GENERAL NOTES:**

- A. SEAL ALL EXTERIOR/INTERIOR BUILDING PENETRATIONS, CUT AND PATCH WALLS/CEILINGS FOR CONDUIT ROUTING AS NECESSARY. PAINT/FINISH EXPOSED CONDUITS/BOXES TO MATCH BUILDING FINISH. COORDINATE WITH DISTRICT & ARCHITECT FOR EXACT REQUIREMENTS.
- B. ALL INDOOR SPEAKERS/HORNS SHALL BE 0.5 WATTS RATED MINIMUM. ALL OUTDOOR SPEAKERS/HORNS SHALL BE 2 WATTS RATED MINIMUM.

### CABLE LEGEND

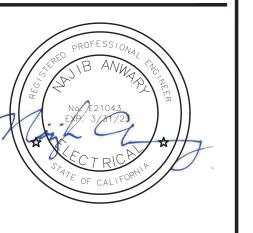
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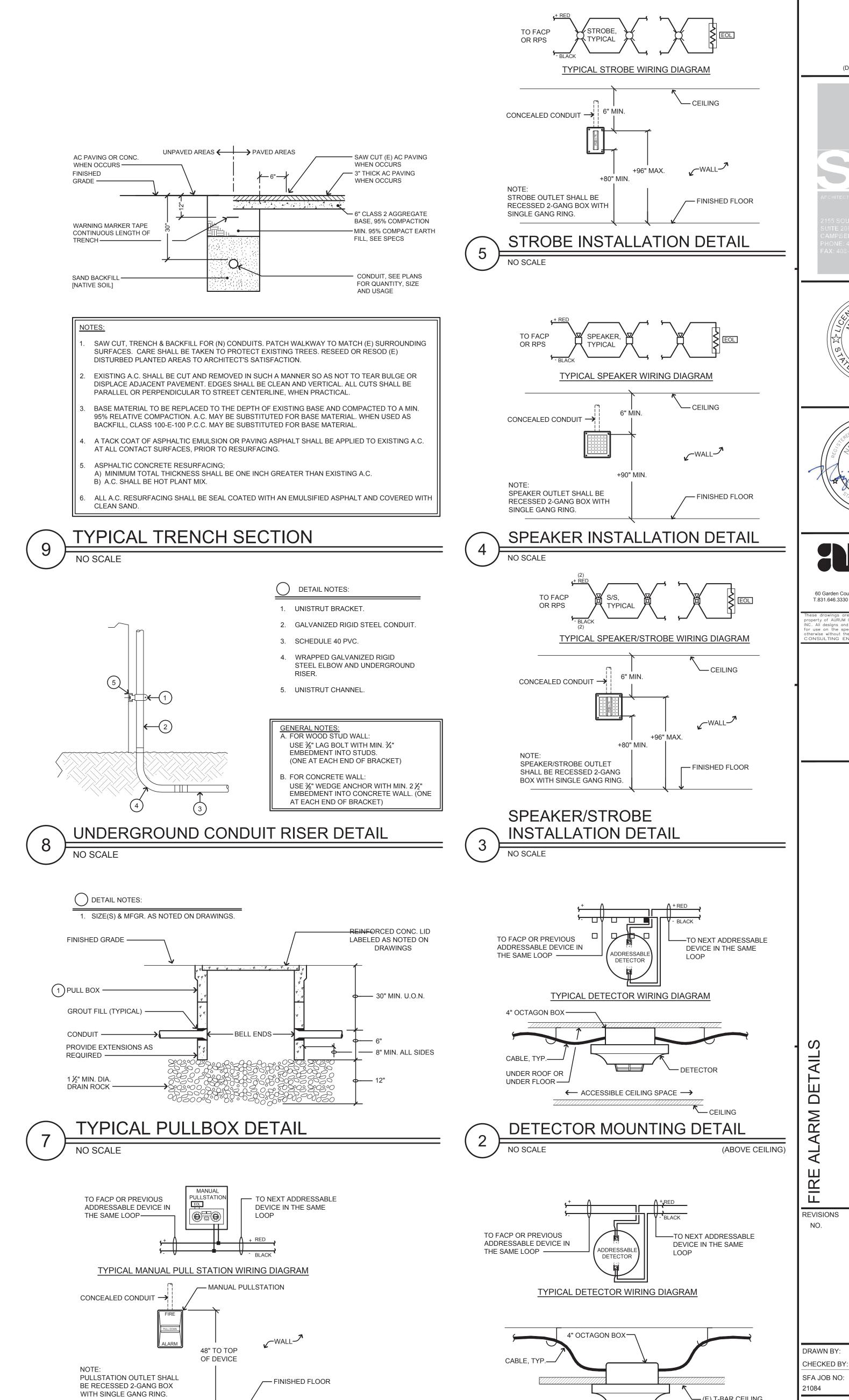




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CHECKED BY: SFA JOB NO: 12/01/2021



**PULL STATION MOUNTING DETAIL** 

NO SCALE

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12/01/2021

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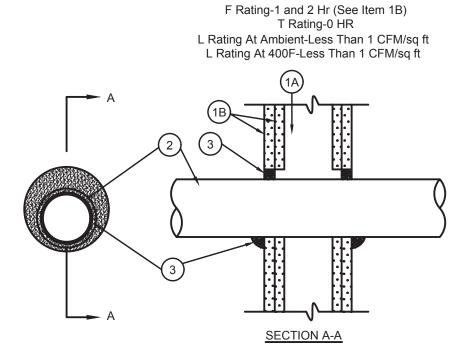
DETECTOR MOUNTING DETAIL

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SEE FLOOR PLAN DRAWINGS FOR RATED WALL LOCATIONS U.L. System No. W-L-1049



1. Wall Assembly-The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the

following construction features: A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3-5/8 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.

B. Wallboard, Gypsum\*-5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 25-3/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrant-One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 in. (point contact) to max 1-3/4 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A. Steel Pipe-Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe-Nom 24 in. diam (or smaller) cast or ductile iron pipe.

C. Conduit-Nom 4 in. diam (or smaller) steel electrical metallic tubing, nom 6 in. diam (or smaller) steel conduit or nom I in. diam (or smaller) flexible steel conduit.

- D. Copper Tubing-Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
- E. Copper Pipe-Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

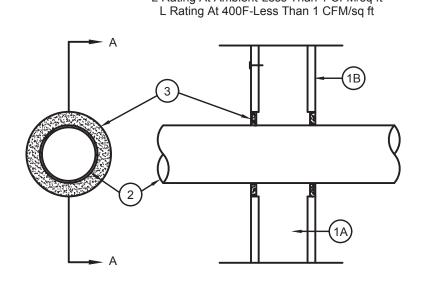
3. Fill, Void or Cavity Material\*-Sealant-Min 5/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At the point contact location between through penetrant and gypsum wallboard, a min 3/8 in. diam bead of fill material shall be applied at the gypsum wallboard/through penetrant interface on both surfaces

Specified Technologies Inc.-SpecSeal 100, 101, 102 or 105 Sealant 'Bearing the UL Classification Marking

2-HR FIRE-RATED WALL PENETRATION

SEE FLOOR PLAN DRAWINGS FOR RATED WALL LOCATIONS U.L. System No. W-L-1062 F Rating-1 HR T Rating-0 HR

L Rating At Ambient-Less Than 1 CFM/sq ft



SECTION A-A 1. Wall Assembly-The fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the

following construction features: A. Studs-Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in OC. Steel studs to be min 3|Q5|W/|A8|S in. wide and spaced max 24 in. OC.

B. Wallboard Gypsum\*-One Layer of nom |Q5|W/|A8|S in. thick gypsum wallboard as specified in the individual Wall and Partition Design. Max diam of opening is 4|Q3|W/|A4|S

2. Through Penetrants-One metallic conduit to be installed within the firestop system. The space between the conduit and periphery of opening shall be a min |Q1|W/|A4|S in. to a max |Q3|W/|A8|S in. Conduit to be rigidly supported on both sides of wall assembly. A nominal 4 in. diameter (or smaller) electrical metallic tubing or steel conduit may be used.

3. Fill, Void or Cavity Material\*-Caulk-Min 1|Q1|W/|A2|S in. thickness of fill material applied within the annulus, flush with both surfaces of wall.

General Electric Co.-Pensit 100 Caulk.

Specified Technologies Inc.-Pensil 100 Sealant and Pensit 300 Sealant.

\*Bearing the UL Classification Marking

1-HR FIRE-RATED WALL PENETRATION