PLEASANT VALLEY SCHOOL DISTRICT
EARLY EDUCATION CENTER (EEC)
at EL RANCHO ELEMENTARY
CAMPUS-WIDE FIRE ALARM REPLACEMENT

550 TEMPLE AVE, CAMARILLO, CA 93010

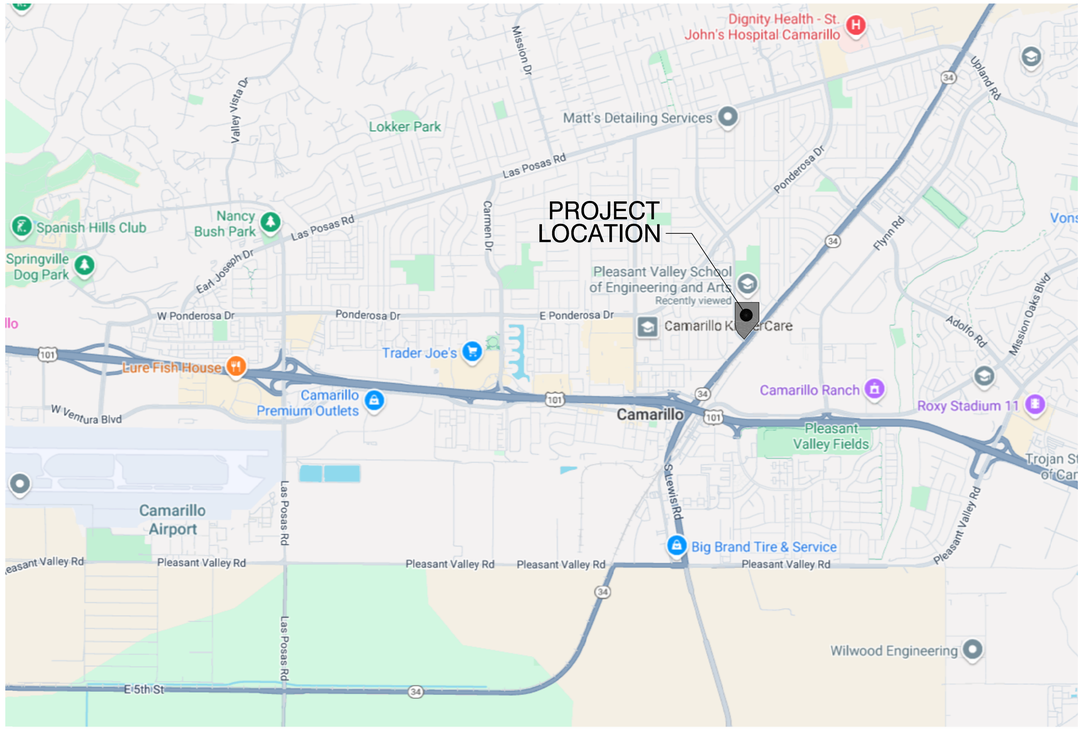
PTN #72553-63 DSA #03-125105

GENERAL REQUIREMENTS:

1. ALL WORK SHALL CONFORM TO 2022 EDITION TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY ADDENDA OR CONSTRUCTION CHANGE DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.
3. A 'DSA CERTIFIED' PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342, CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE (PART 1, TITLE 24, CCR).
4. A 'DSA CERTIFIED' INSPECTOR WITH CLASS 3 CERTIFICATION IS REQUIRED FOR THIS PROJECT.
5. A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE SCHOOL BOARD SHALL CONDUCT ALL THE REQUIRED TESTS AND INSPECTIONS FOR THIS PROJECT.
6. 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. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHERE-IN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CALIFORNIA CODE OR REGULATIONS, 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 DIVISION OF THE STATE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

GENERAL NOTES

1. ANY DIFFERENCE BETWEEN THE EXISTING CONSTRUCTION AS OBSERVED IN THE FIELD AND AS SHOWN ON THE DRAWINGS SHALL BE REPORTED TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING WORK THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND COORDINATING ALL DIMENSIONS. REVIEW BUILDING LAYOUT WITH ARCHITECT BEFORE STARTING ANY FOOTING EXCAVATION OR FOUNDATION WORK.
3. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL SITE CONDITIONS REGARDLESS OF INFORMATION SHOWN ON THE DRAWINGS. DISCREPANCIES BETWEEN CONDITIONS SHOWN OR NOT SHOWN ON DRAWINGS AND ACTUAL EXISTING VISIBLE, DISCERNABLE CONDITIONS AT THE JOB SITE, DO NOT RELIEVE THE CONTRACTOR FROM PERFORMING THE WORK OF THIS CONTRACT IN FULL CONFORMANCE WITH THE CONTRACT DOCUMENTS.
4. IT SHALL BE THE RESPONSIBILTY OF THE GENERAL CONTRACTOR TO INSURE THAT ALL APPLICABLE SAFETY LAWS ARE STRICTLY ENFORCED AND TO MAINTAIN A SAFE CONSTRUCTION PROJECT.
5. BIDDERS MUST VISIT THE BUILDING SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS TO PROVIDE A PROJECT COMPLETE IN EVERY DETAIL AND READY FOR OCCUPANCY. DISCREPANCIES OR DELETIONS MUST BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE THE BID DATE FOR CORRECTION.
6. ANY DAMAGE DONE TO THE EXISTING SITE OR FACILITIES DURING THE COURSE OF THE WORK SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT HIS OWN EXPENSE WITH NO ADDITIONAL COST TO THE DISTRICT.
7. BIDDERS SHALL ASSUME THAT ALL ITEMS INDICATED ON THE DRAWINGS ARE NEW CONSTRUCTION IF NOT INDICATED WITH AN (N) OR "NEW", UNLESS INDICATED AS "(E)" OR "EXISTING".
8. ALL NEW WORK SHALL MATCH EXISTING IN KEEPING WITH GOOD CONSTRUCTION PRACTICE. IT IS THE INTENT OF THESE DOCUMENTS THAT THE PORTION OF THE SURFACE WHICH HAS BEEN INSTALLED, REPAIRED OR REPLACED, SHALL MATCH THE EXISTING ADJACENT SURFACES, AND THAT THE NEW WORK WILL NOT BE DISCERNABLE FROM THE EXISTING.
9. WHERE MINIMUM DIMENSIONS ARE INDICATED, EXISTING DIMENSIONS IN EXCESS OF THAT SHOWN MAY BE RETAINED UNLESS OTHERWISE NOTED.
10. CONTRACTOR SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ALL OMISSIONS AND CONFLICTS BETWEEN THE ELEMENTS OF THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THE WORK INVOLVED.
11. CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, LANDSCAPE SITE FEATURES TO REMAIN. ALL DAMAGED WORK SHALL BE REPLACED WITH THE SAME MATERIALS, INCLUDING MATCHING THE EXISTING COLORS AND TEXTURES BY THE CONTRACTOR AT HIS OWN EXPENSE WITH NO ADDITIONAL COST TO THE DISTRICT.
12. FIRE SAFETY DURING DEMOLITION AND CONSTRUCTION SHALL COMPLY WITH THE APPLICABLE REQUIREMENTS OF THIS CODE AND THE APPLICABLE PROVISIONS OF CHAPTER 33 OF CFC
13. THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.
14. LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).
15. MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.
16. ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.
17. A LISTING OF CERTIFIED ATT CAN BE FOUND AT: HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.
18. THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.
19. PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.



VICINITY MAP

SCALE: N.T.S.

N

APPLICABLE CODES

CONSTRUCTION SHALL COMPLY WITH THE FOLLOWING:

PART 1	2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), TITLE 24 C.C.R.
PART 2	2022 CALIFORNIA BUILDING CODE (CBC), TITLE 24 C.C.R.
PART 3	2022 CALIFORNIA ELECTRICAL CODE (CEC), TITLE 24 C.C.R.
PART 4	2022 CALIFORNIA MECHANICAL CODE (CMC), TITLE 24 C.C.R.
PART 5	2022 CALIFORNIA PLUMBING CODE (CPC), TITLE 24 C.C.R.
PART 6	2022 CALIFORNIA ENERGY CODE, TITLE 24 C.C.R.
PART 8	2022 CALIFORNIA HISTORICAL BUILDING CODE, TITLE 24 C.C.R.
PART 9	2022 CALIFORNIA FIRE CODE (CFC), TITLE 24, C.C.R.
PART 10	2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), TITLE 24, C.C.R.
PART 11	2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), TITLE 24, C.C.R.
PART 12	2022 CALIFORNIA REFERENCED STANDARDS CODE, TITLE 24, C.C.R.

STATE BUILDING CODE

(Part 1, Title 24, C.C.R.)

The Intent of these drawings and specification is that the work of the alteration, rehabilitation or reconstruction is to be in accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or noncomplying construction be discovered which is not covered by the contract documents wherein the finished work will not comply with Title 24, California Code of Regulations, a change order, or a separate set of plans and specifications, detailing and specifying the required work shall be submitted to and approved by the Division of the State Architect before proceeding with the work

Changes to the approved drawings and specifications shall be made by an addenda or a construction change document (CCD) approved by the Division of the State Architect, as required by Section 4-338, Part 1, Title 24, CCR.

PROJECT TEAM

ARCHITECT
KRUGER BENSEN ZIEMER ARCHITECTS, INC.
199 FIGUEROA STREET, SUITE 100A
VENTURA, CA 93001
OFFICE: (805) 963-1726
PRINCIPAL-IN-CHARGE: TODD A. JESPERSEN, AIA
EMAIL ADDRESS: toddj@kbzarch.com
PROJECT TEAM:
NHU HOANG
EMAIL ADDRESS: nhuh@kbzarch.com

ELECTRICAL ENGINEER
LUCCI & ASSOCIATES INC.
3251 CORTE MALPASO #511
CAMARILLO, CA 93010
OFFICE: (805) 389-6520
ENGINEER: KEN LUCCI
EMAIL ADDRESS: ken@luccilland.com

OWNER

PLEASANT VALLEY SCHOOL DISTRICT
600 TEMPLE AVE, CAMARILLO, CA 93010
OFFICE: (805) 389-2100

PROJECT SCOPE

REPLACE (E) FIRE ALARM SYSTEM WITH NEW FULLY AUTOMATIC FIRE ALARM SYSTEM WITH VOICE EVACUATION

SHEET INDEX

GENERAL
1. G-001 TITLE SHEET

ARCHITECTURAL
2. A-100 SITE PLAN

ELECTRICAL
3. E100 GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST
4. E600 NEW FIRE ALARM MASTER LEGEND
5. E601 ENLARGED FIRE ALARM PLAN - WEST
6. E602 ENLARGED FIRE ALARM PLAN - EAST
7. E603 HONEYWELL CUT SHEETS MULTI-CRITERIA CO & SMOKE SENSOR & MONITOR MODULE
8. E604 HONEYWELL CUT SHEETS SPEAKER STROBES & PHOTOELECTRIC SMOKE SENSOR
9. E605 HONEYWELL CUT SHEETS TEMPERATURE SENSORS & RELAY
10. E606 EMERGENCY VOICE/ALARM/DETECTION COMM SYSTEM - FIRE ALARM DETAILS
11. E607 POINT TO POINT FIRE ALARM/EVACS GENERIC WIRING DETAIL
12. E608 ELECTRICAL DETAILS
13. E609 GENTEX CUT SHEETS OUTDOOR SPEAKER STROBES & BACK BOX
14. E610 BUILDING 100 - KINDERGARTEN FIRE ALARM PLAN - NEW WORK
15. E620 BUILDING 200 - FIRE ALARM PLAN - NEW WORK
16. E630 BUILDING 300 - FIRE ALARM PLAN - NEW WORK
17. E640 BUILDING 400 - FIRE ALARM PLAN - NEW WORK
18. E650 BUILDING 500 CLASSROOM - FIRE ALARM PLAN - NEW WORK
19. E660 BUILDING 600 CLASSROOM - FIRE ALARM PLAN - NEW WORK
20. E670 BUILDING 700 CLASSROOM - FIRE ALARM PLAN - NEW WORK
21. E680 BUILDING 800 MULTIPURPOSE - FIRE ALARM PLAN - NEW WORK
22. E682 BUILDING 20 FOOD FIRE ALARM PLAN NEW WORK
23. E683 BUILDING 30 STORAGE FIRE ALARM PLAN - NEW WORK
24. E684 BUILDING 40 - FIRE ALARM PLAN - NEW WORK
25. E685 BUILDING 50 CLASSROOM - FIRE ALARM PLAN - NEW WORK
26. E700 FIRE RISER DIAGRAM
27. E702 FIRE ALARM RISER FOR BLDGS AND 600/700
28. E703 BUILDING INTERCONNECTION RISER
29. E730 BUILDING 300, 40, & 50 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS
30. E740 BUILDING 400 & 500 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS
31. E780 BUILDING 800, 20 & 30 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS

TOTAL: 31 SHEETS

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP & SIGNATURE

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CAMPUS-WIDE FIRE ALARM REPLACEMENT

KRUGER BENSEN ZIEMER ARCHITECTS, INC. AIA
199 FIGUEROA ST, STE 100A VENTURA CA 93001
TELEPHONE (805) 963-1726 WWW.KBZARCH.COM

TODD A JESPERSEN, AIA
PRINCIPAL-IN-CHARGE

NHU HOANG
PROJECT ASSISTANT

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ARCHITECTS STAMP & SIGNATURE

LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2027 STATE OF CALIFORNIA

signed 09.18.2025

ENGINEERS STAMP & SIGNATURE

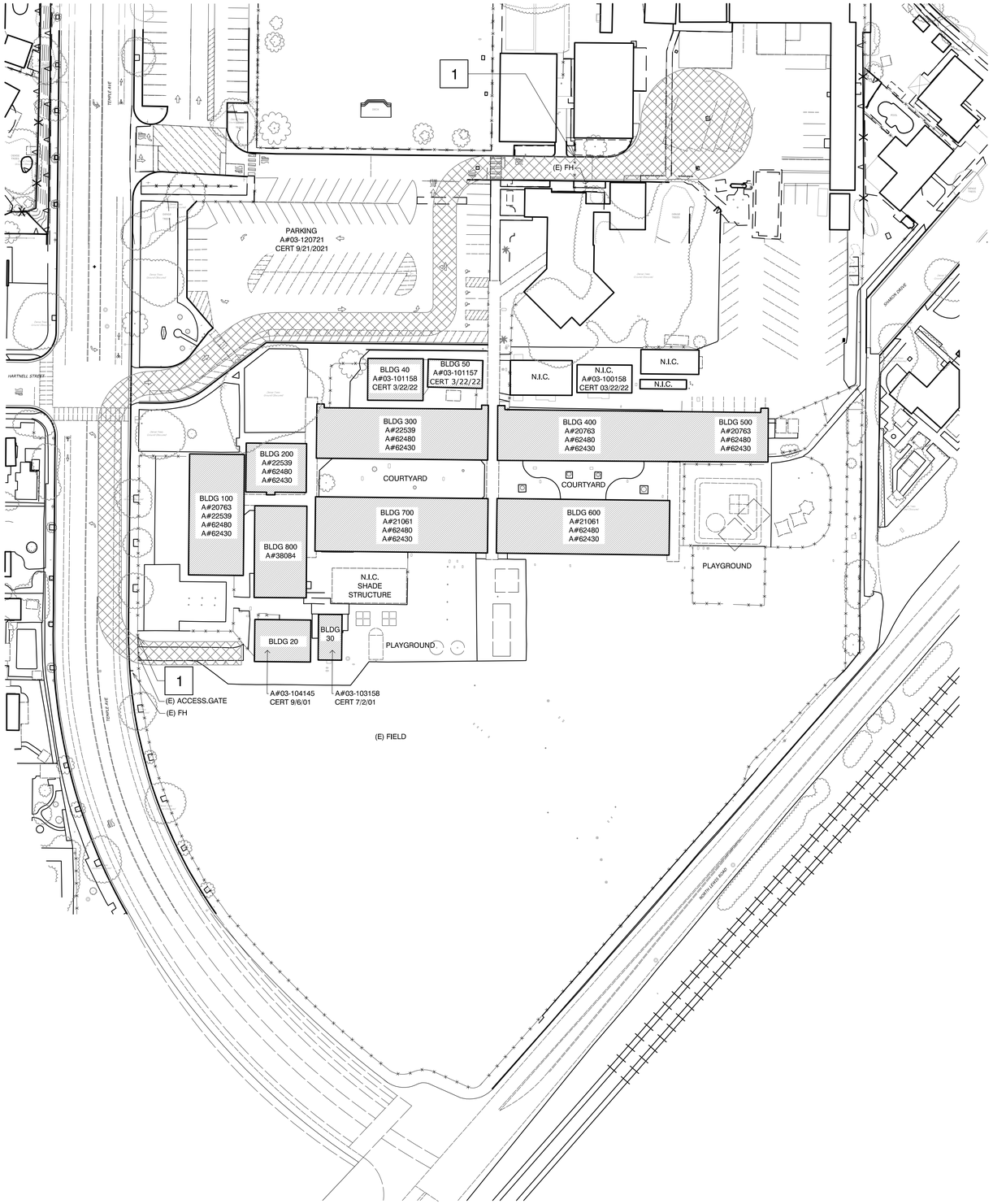
CONSULTANT INFORMATION

REVISION	DESCRIPTION	DATE	BY
5	-	-/-/-	XX
4	-	-/-/-	XX
3	-	-/-/-	XX
2	-	-/-/-	XX
1	-	-/-/-	XX

DRAWN NH
CHECKED TJ
DATE 03/17/2025
JOB. NO. 24044

SHEET TITLE TITLE SHEET

SHEET G-001



1 SITE PLAN
SCALE : 1" = 50' - 0"

N

CODE ANALYSIS

BLDG. NAME	OCC. TYPE	CONSTRUCTION TYPE	FIRE SPRINKLER	ALLOWABLE AREA	ACTUAL AREA
BUILDING 100 KINDERGARTEN	E	V-B	NONE	9,500 S.Q.	4,900 S.Q.
BUILDING 200 ADMIN	E	V-B	NONE	9,500 S.Q.	2,200 S.Q.
BUILDING 300 CLASSROOM	E	V-B	NONE	9,500 S.Q.	6,457 S.Q.
BUILDING 400 CLASSROOM	E	V-B	NONE	9,500 S.Q.	6,600 S.Q.
BUILDING 500 CLASSROOM	E	V-B	NONE	9,500 S.Q.	3,476 S.Q.
BUILDING 600 CLASSROOM	E	V-B	NONE	9,500 S.Q.	6,973 S.Q.
BUILDING 700 CLASSROOM	E	V-B	NONE	9,500 S.Q.	6,935 S.Q.
BUILDING 800 MULTI-PURP.	A-3	V-B	NONE	6,000 S.Q.	3,528 S.Q.
BUILDING 20 FOOD KITCHEN	E	V-B	NONE	9,500 S.Q.	1,742 S.Q.
BUILDING 30 STORAGE	E	V-B	NONE	9,500 S.Q.	793 S.Q.
BUILDING 40 CLASSROOM	E	V-B	NONE	9,500 S.Q.	1,711 S.Q.
BUILDING 50 ADMIN	E	V-B	NONE	9,500 S.Q.	1,127 S.Q.

LEGEND

BUILDING TO RECEIVE NEW FIRE ALARM WORK

(E) 20'-0" WIDE FIRE ACCESS LANE A#03-120721

KEYNOTES

1 PROVIDE KNOX BOX AT GATE: KNOXBOX 3200, SURFACE MOUNT, HINGED DOOR, BLACK, MODEL 3262

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SS ☐ FLS ☑ ACS ☐
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4	-	-/-/-	XX
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2	-	-/-/-	XX
1	-	-/-/-	XX

DRAWN NH
CHECKED TJ
DATE 03/17/2025
JOB. NO. 24044

SHEET TITLE SITE PLAN

SHEET A-100

GENERAL NOTES

A. GENERAL

1. SCOPE
THE DRAWINGS AND THESE GENERAL NOTES DESCRIBE THE SCOPE OF WORK AND SYSTEMS. THE MATERIAL REQUIRED FOR THE WORK SHALL BE CONTRACTOR FURNISHED AND CONTRACTOR INSTALLED, UNLESS SPECIFICALLY NOTED OTHERWISE. THE WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING PRINCIPAL SYSTEMS AND EQUIPMENT.

2. PERMITS AND CHARGES
OBTAIN AND PAY FOR ALL NECESSARY CONSTRUCTION PERMITS, INSPECTION FEES, AND OTHER CHARGES BY AGENCIES HAVING JURISDICTION.

3. REGULATIONS AND CODES
PROVIDE AND INSTALL ALL MATERIALS IN CONFORMANCE WITH THE 2022 C.E.C., CALIFORNIA ADMINISTRATIVE CODE TITLE 8, AND OTHER CODES AND REGULATIONS HAVING JURISDICTION. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE INSPECTING AUTHORITY AND THE MANUFACTURERS RECOMMENDATIONS.

4. VERIFYING EXISTING CONDITIONS
BEFORE SUBMITTING BID, BECOME THOROUGHLY FAMILIAR WITH ACTUAL EXISTING CONDITIONS AT THE BUILDING. THE INTENT OF THE WORK IS SHOWN ON THE DRAWINGS AND DESCRIBED HEREINAFTER. BY THE ACT OF SUBMITTING A BID PROPOSAL FOR THE WORK, THE CONTRACTOR SHALL BE DEEMED TO HAVE MADE SUCH STUDY AND EXAMINATION AND TO ACCEPT ALL CONDITIONS PRESENT AT THE SITE. NO REQUEST FOR ADDITIONAL PAYMENT WILL BE CONSIDERED AS VALID, DUE TO FAILURE TO ALLOW FOR CONDITIONS WHICH MAY EXIST.

5. COORDINATION
COORDINATE ALL WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTION REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT. ELECTRICAL EQUIPMENT LOCATIONS INDICATED ARE SHOWN DIAGRAMMATICALLY, EXACT LOCATION SHALL BE VERIFIED. SCALING OFF OF DRAWINGS SHALL BE DONE AT CONTRACTORS RISK. DO NOT SCALE DEVICES, LIGHTING FIXTURES OR ANY EQUIPMENT FROM PLANS. LIGHTING FIXTURE QUANTITIES AND LENGTHS SHALL BE CONTRACTORS RESPONSIBILITY. FIXTURES ARE SHOWN FOR CIRCUITING ONLY. CONTRACTOR TO VERIFY SIZES & QUANTITIES PRIOR TO BID.

6. SERVICE CONTINUITY
UNINTERRUPTED EXISTING ELECTRICAL POWER SHALL BE MAINTAINED TO OTHER TRADES FOR TEMPORARY POWER AREAS OF THE SITE DURING CONSTRUCTION. PROVIDE ANY TEMPORARY SERVICES AS MAY BE REQUIRED. IDENTIFY AT BID TIME, ALL WORK TO BE DONE ON PREMIUM TIME AND THE TOTAL OVERTIME MAN-HOURS REQUIRED FOR COMPLETION.

7. AS BUILT
PROVIDE RECORD DRAWINGS IN ACAD TO THE OWNER WITH ALL CHANGES NOTED THEREON AT THE COMPLETION OF THE PROJECT. RECORD DRAWINGS SHALL BE SIGNED AND DATED BY CONTRACTOR PRIOR TO RELEASE OF FINAL RETENTION OF ALL MONIES.

8. GUARANTEE
CONTRACTOR SHALL UNCONDITIONALLY GUARANTEE ALL LABOR AND MATERIALS ON ALL WORK AGAINST DEFECTS IN WORKMANSHIP AND MATERIALS FOR A PERIOD OF ONE YEAR.

9. SHOP DRAWINGS
SUBMIT SHOP DRAWINGS AND MATERIAL LIST FOR REVIEW PRIOR TO COMMENCING ANY WORK. ALL EQUIPMENT TO BEAR U.L. LABEL OR THAT OF ANOTHER ACCEPTABLE TESTING LABORATORY. SHOP DRAWINGS MUST BE STAMPED BY THE CONTRACTOR FOR CONFORMANCE PRIOR TO SUBMITTAL. SUBMIT THREE HARD COPY SETS OF SHOP DRAWINGS FOR REVIEW PRIOR TO PURCHASING ALL BREAKER MOUNTING HARDWARE, DISCONNECT SWITCHES, FUSES, CONTROLLERS, LIGHTING FIXTURES, LIGHT SWITCHES, RECEPTACLES, ETC.

10. CONTRACTOR BID
CONTRACTOR'S BID SHALL BE BASED ON ALL WORK SHOWN ON THE PLANS AND AS SPECIFIED. IF CONTRACTOR PROPOSES TO SUBSTITUTE FOR EQUIPMENT SPECIFIED, HE SHALL SUBMIT HIS REQUEST FOR CONSIDERATION OF THE OWNER AND ENGINEER PRIOR TO BID IN WRITING. ALL SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER IN WRITING. SUCH REVIEW SHALL NOT RELIEVE THE CONTRACTOR COMPLYING WITH THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND THE CONTRACTOR SHALL BE RESPONSIBLE AT HIS OWN EXPENSE FOR ANY CHARGES RESULTING FROM HIS PROPOSED SUBSTITUTIONS WHICH AFFECT OTHER PARTS OF HIS OWN WORK, THE OWNER, ENGINEER OF RECORD OR THE WORK OF OTHER CONTRACTORS.

B. MATERIAL AND INSTALLATION
ALL WORK AND MATERIAL SHALL CONFORM TO THE LATEST RULES OF THE GOVERNING ELECTRICAL CODE AND INSTALLATION SHALL BE OF THE LATEST INDUSTRY STANDARDS OF WORKMANSHIP.

ALL MATERIALS SHALL BE NEW AND LISTED FOR THE APPLICATION BY UNDERWRITERS LABORATORY (U.L.).

1. CONDUITS
CONDUIT SHALL BE EMT, PVC, IMC, RIGID OR FLEXIBLE STEEL TYPE. CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH UL-1. A GROUND WIRE IS REQUIRED IN ALL FLEXIBLE CONDUIT AND UNDERGROUND CONDUIT. BUSHINGS SHALL BE INSTALLED ON ALL COMMUNICATION, TELEPHONE & SPEAKER CONDUITS. PROVIDE 3/16" NYLON PULL STRING IN ALL EMPTY CONDUITS. NO MC, BX OR AC90 SHALL BE PERMITTED. FLEXIBLE STEEL CONDUIT RUNS SHALL BE LIMITED TO A MAXIMUM LENGTH OF 6 FOOT. ALL CONNECTIONS SHALL BE COMPRESSION & NOT SCREW TYPE. ALL FIRE ALARM CONDUITS SHALL BE PAINTED RED.

2. FEEDERS AND BRANCH CIRCUITS IDENTIFICATION
IDENTIFY FEEDERS WITH THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER-CURRENT DEVICE, LOAD END, AND IN PULL BOXES WITH E-Z CODE OR OTHER APPROVED WIRE MARKER. IDENTIFY BRANCH CIRCUITS WITH I.D. MARKERS, THE CORRESPONDING CIRCUIT DESIGNATION AT THE OVER-CURRENT DEVICE, AT ALL SPLICES, IN JUNCTION BOXES, AND IN OUTLETS. USE PLASTIC COATED SELF-STICKING MARKERS SUCH AS THOMAS & BETTS E-Z CODE FOR IDENTIFICATION OF CONDUCTORS. IDENTIFY SIGNAL & COMMUNICATION CABLES AT TERMINAL AND OUTLET UNIQUELY WITH PERMANENT LABELING.

3. CONDUCTORS
DELIVER ALL CONDUCTORS TO THE JOB SITE IN ORIGINAL UNBROKEN CARTON OR REEL, PROPERLY TAGGED WITH U.L. LABEL, SIZE, TYPE, MANUFACTURER, TRADE NAME AND THE DATE OF MANUFACTURE. (MUST BE MANUFACTURED WITHIN 6 MONTHS) PROVIDE COPPER CONDUCTORS #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. PROVIDE STRANDED COPPER CONDUCTORS FOR ALL WIRING. USE CONDUCTORS WITH 90°C THHN/THWN 600 VOLTS INSULATION, UNLESS OTHERWISE NOTED. CONDUCTOR SIZE NO.1 AWG AND SMALLER WITH 90 DEGREE C INSULATION ARE TO USE THE 60 DEGREE COLUMN OF THE CODE, TABLE 310-16, TO DETERMINE AMPACITY. CONDUCTORS #1/0 AWG AND LARGER WITH 75 DEGREE AND 90 DEGREE INSULATION ARE TO USE THE 75 DEGREE COLUMN OF CODE, TABLE 310-16, TO DETERMINE AMPACITY. (110.14C) WHERE THE NUMBER OF CONDUCTORS IN A RACEWAY OR CABLE EXCEEDS THREE, THE ALLOWABLE AMPACITY OF EACH CONDUCTOR SHALL BE REDUCED PER TABLE 310.15(B)(3)(a).

4. STRUCTURAL SUPPORT (SEE E600 FOR MOUNTING DETAILS)

5. ELECTRICAL CERTIFICATION
"ELECTRICIANS" PERFORMING WORK ON THIS PROJECT SHALL BE CURRENTLY CERTIFIED IN ACCORDANCE WITH THE STATE OF CALIFORNIA AB931 AND THE DIVISION OF APPRENTISHIP STANDARDS SECTION 3099.

C. DEMOLITION

1. NOTIFY THE OWNER IMMEDIATELY WHEREVER EXISTING EQUIPMENT IS ENCOUNTERED WHICH MUST BE RELOCATED DUE TO THE NEW CONSTRUCTION, AND WHICH IS NOT INDICATED ON THE PLANS.
2. ALL REMOVED MATERIALS AND EQUIPMENT WHICH ARE SALVAGEABLE SHALL REMAIN THE PROPERTY OF THE OWNER. DELIVER SUCH SALVAGED MATERIALS AND EQUIPMENT ON THE PREMISES AS DIRECTED BY OWNER, AND NEATLY PILE OR STORE THEM AND PROTECT FROM DAMAGE. REMOVE FROM PREMISES AND DISPOSE OF ALL MATERIALS CONSIDERED BY THE OWNER TO BE SCRAP.
3. ALL EXISTING FIRE ALARM & ELECTRICAL DEVICES, CIRCUITS CONDUCTORS, FEEDERS ETC., WHEN NOTED TO BE REMOVED, SHALL BE REMOVED TO THE LAST ACTIVE DEVICE. DEVICES NO LONGER UTILIZED BUT REMAINING AS LAST ACTIVE DEVICE SHALL BE LABELED AS 'SPARE'. COORDINATE ALL OUTAGES WITH OWNERS REPRESENTATIVE.
4. DISCONNECT AND MAKE SAFE ALL ELECTRICAL SYSTEMS ON SITE AND IN WALL, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.
5. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.
6. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY AND RE-LABEL DEVICES AS SPARES.
7. REMOVE ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. CUT CONDUIT FLUSH WITH WALLS AND FLOOR, AND PATCH SURFACES.
8. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK.
9. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.
10. BEGINNING OF DEMOLITION MEANS CONTRACTOR ACCEPTS EXISTING CONDITIONS.

D. EXECUTION

1. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT AND MATERIALS. WHEN WORKING ON FINISHED SURFACES, LIMIT DAMAGE TO THE CONFINES AS MUCH AS POSSIBLE AND RESTORE TO THE ORIGINAL CONDITION ALL SURFACES WHICH ARE DAMAGED BECAUSE OF THE INSTALLATION OF THIS WORK.
2. EQUIPMENT, MATERIALS AND SUPPLIES REMOVED FOR PROTECTION SHALL BE REPLACED IN ORIGINAL LOCATIONS. ANY MATERIALS DAMAGED SHALL BE REPLACED WITH NEW MATERIALS OF LIKE KIND AND QUALITY.
3. DO ALL DRILLING, CUTTING, CHANNELING AND PATCHING REQUIRED TO INSTALL ELECTRICAL WORK AS INDICATED OR HEREIN SPECIFIED. M ALL HOLES, CURBS, ETC., IN FLOORS, CEILINGS AND WALLS SHALL BE PATCHED, UNLESS INDICATED OTHERWISE. PAINT ALL NEW ELECTRICAL RACEWAYS, CABINETS, ENCLOSURES AND FITTINGS PENETRATING INTO FIRE RATED ENVELOPES, SPACES, ETC.
4. ALL CONDUIT RUNS SHALL BE CONCEALED, UNLESS SHOWN OTHERWISE. PROVIDE A PULL WIRE IN ALL EMPTY CONDUITS.
5. EXISTING CONDITION SHOWN IS FROM AVAILABLE RECORD DRAWINGS AND VISUAL FIELD SURVEY AND SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL VERIFY ACTUAL EXISTING CONDITION AT SITE.
6. ALL WORK SHOWN IS NEW UNLESS SPECIALLY INDICATED AS EXISTING (X). ALL ELECTRICAL EQUIPMENT MOUNTING AND ANCHORAGE MUST CONFORM WITH LOCAL AND STATE SEISMIC CODES.

E. GROUNDING & BONDING
FURNISH AND INSTALL COMPLETE BONDING AND GROUNDING SYSTEM AS REQUIRED BY CODES. CONTINUITY OF GROUNDING SHALL BE MAINTAINED MECHANICALLY AND ELECTRICALLY THROUGHOUT THE SYSTEM. A GREEN GROUNDING CODE SIZED CONDUCTOR SHALL BE CARRIED IN ALL CONDUITS.

F. INSTALLATION

1. IT IS THE INTENT OF THESE PLANS AND SPECIFICATIONS THAT A COMPLETE AND WORKABLE ELECTRICAL INSTALLATION BE PROVIDED FOR ALL THE EQUIPMENT DESCRIBED OR SHOWN AS BEING IN THIS CONTRACT. TOWARD THIS END FURNISH ALL LABOR AND TOOLS NECESSARY AND FURNISH AND INSTALL ALL APPARATUS, MATERIALS AND EQUIPMENT IN A FASHION COMPLYING WITH ALL APPLICABLE CODES, INCLUDING ITEMS REQUIRED BUT NOT NORMALLY SHOWN, SUCH AS LAMPS, COUPLINGS, HANGERS, BRACKETS, CLAMPS, BOXES, CONNECTORS AND HARDWARE. REFER ALSO TO WRITTEN SPECIFICATIONS FOR GENERAL, MECHANICAL AND ELECTRICAL SECTIONS.
2. PROCURE ALL PERMITS FROM LEGALLY CONSTITUTED AUTHORITIES, ARRANGE FOR ALL INSPECTIONS AND PAY ALL COSTS FOR FEES AND TESTS IN CONNECTION THEREWITH. COMPLY WITH CODES: NOTHING IN THESE PLANS AUTHORIZES DEVIATION FROM APPLICABLE CODES.
3. DETERMINE EXACT ROUTING OF CONCEALED FEEDERS AND BRANCH HOMERUNS IN COOPERATION WITH OTHER TRADES TO SIMPLIFY INSTALLATION WHEREVER POSSIBLE BUT SUBJECT TO APPROVAL OF ARCHITECT FOR VISUAL AND STRUCTURAL REASONS.
4. DO NOT RUN ANY CONDUIT IN SLAB IF ITS OUTSIDE DIAMETER EXCEEDS 1/3 THE THICKNESS OF THE SLAB. LOCATE CONDUITS WITHIN THE MIDDLE OF THE SLAB. WHERE CONDUITS ARE GROUPED IN PARALLEL RUNS, SPACE THEM 3" OR MORE APART. WHERE CONDUITS CROSS EACH OTHER, THICKEN SLAB PROPORTIONATELY OVER A HORIZONTAL AREA EQUAL TO TEN TIMES THE DIAMETER OF THE LARGEST CONDUIT. REFER ALSO TO DETAILS SHOWN.
5. SIZE OUTLET BOXES IN CONFORMITY WITH CODE FOR NUMBER AND GAUGE OF CONDUCTORS THEREIN, EXCEPT WHERE NOTED TO BE LARGER. MINIMUM BOX SIZE SHALL BE 4" SQUARE BY 1-1/2" DEEP.
6. EXAMINE PLANS TO DISCERN A FIRE RATING OF ONE HOUR OR MORE, PROVIDE A ONE, TWO OR THREE HOUR FIRE-RATED ENCLOSURE AS NOTED.
7. ALL ELECTRICAL WORK SHALL BE INSTALLED SO AS TO BE READILY ACCESSIBLE FOR OPERATING, SERVICING, MAINTAINING AND REPAIRING. ALL CONDUIT SHALL BE CONCEALED WHERE POSSIBLE. EXPOSED CONDUIT SHALL BE IN STRAIGHT LINES PARALLEL WITH, OR AT RIGHT ANGLES TO, COLUMN LINES OR BEAMS AND SEPARATED BY AT LEAST THREE (3) INCHES FROM WATER LINES WHENEVER THEY RUN LONG SIDE OR ACROSS SUCH LINES. CONDUIT SHALL NOT BE RUN BELOW CABLE TRAYS OR LIGHT FIXTURES WITHOUT SPECIFIC APPROVAL OF THE OWNERS REPRESENTATIVE. HANGERS SHALL BE FASTENED TO STEEL, CONCRETE OR MASONRY, BUT NOT TO PIPING. HANGERS AND SUPPORT SYSTEMS ARE AN INTEGRAL PART OF THE VISUAL ENVIRONMENT. ALL HANGERS AND SUPPORTS EXPOSED TO PUBLIC VIEW MUST BE SHOWN IN DETAIL ON PLANS SUBMITTED TO ENGINEER FOR APPROVAL OF APPEARANCE. ALL HANGERS MUST BE UNIFORMLY SPACED AND NEATLY INSTALLED WITH NO EXCESS MATERIAL BEYOND WHAT IS REQUIRED FOR THE SUPPORT FUNCTION. CONTRACTOR SHALL SELECT ACCESSORIES AND HARDWARE WITH A SMOOTH, NEAT FINISHED APPEARANCE AND PAINT ALL EXPOSED CONDUIT HANGERS TO MATCH THE ADJACENT FINISHES.
8. CONTRACTOR SHALL EXAMINE PLANS AND VERIFY IN FIELD LOCATIONS OF ALL FIRE RATED WALLS, CEILINGS AND FLOORS. CONTRACTOR SHALL SEAL ALL ELECTRICAL SYSTEM PENETRATIONS THROUGH FIRE RATED WALLS, CEILINGS AND FLOORS WITH U.L. LISTED MATERIAL APPROVED BY THE AUTHORITY HAVING JURISDICTION.
9. PANEL CIRCUIT DIRECTORY SHALL COMPLY WITH CEC 408.4.
10. PROVIDE 90% COMPACTION OR SAND SLURRY OVER ALL UNDERGROUND CONDUITS, USE ONLY CLEAN FILL.
11. MARKING - UNDERGROUND SYSTEM SHALL BE LEGIBLY MARKED "UNDERGROUND SYSTEM" AT THE SOURCE OR FIRST DISCONNECTING MEANS OF THE SYSTEM. THE MARKING SHALL BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. (250.21)(C).
12. THE ISSUANCE OF A PERMIT SHALL NOT PREVENT THE BUILDING OFFICIAL FROM REQUIRING THE CORRECTION OF ERRORS ON THESE PLANS OR FROM PREVENTING ANY VIOLATION OF THE CODES ADOPTED BY DSA, RELEVANT LAWS, ORDINANCES, RULES AND/OR REGULATIONS.
13. FOR FIRE RATED WALL/CEILING PENETRATION AND/OR MEMBRANE PENETRATION, COMPLETE NRTL CLASSIFICATION SHEETS SHALL BE PROVIDED TO THE INSPECTOR AT THE TIME OF INSPECTION.
14. PROVIDE SEPARATE SUBMITTAL; OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND APPROVALS FOR ALL FIRE ALARM SYSTEM INSTALLATIONS AND/OR MODIFICATIONS FROM THE FIRE DEPARTMENT.
15. ALL INSTALLED MATERIALS AND EQUIPMENT SHALL BE LISTED U.L., NRTL OR LISTED AND APPROVED BY AN APPROVED TESTING LABORATORY.
16. ALL NEW OVERCURRENT DEVICES INSTALLED IN EXISTING PANELS/SWITCHBOARDS SHALL MATCH THE MAKE, MODEL AND INTERRUPTING CAPACITY OF THE EXISTING OVERCURRENT DEVICES.
17. RACEWAY SEALS. CONDUITS OR RACEWAYS THROUGH WHICH MOISTURE MAY CONTACT LIVE PARTS SHALL BE SEALED OR PLUGGED AT EITHER OR BOTH ENDS.
18. THE IDENTIFICATION OF EVERY CIRCUIT OF A PANEL BOARD AND SWITCHBOARD SHALL BE LEGIBLY IDENTIFIED AS TO ITS CLEAR, EVIDENT, AND SPECIFIC PURPOSE OR USE AND SHALL INCLUDE SUFFICIENT DETAIL TO ALLOW EACH CIRCUIT TO BE DISTINGUISHED FROM ALL OTHERS. 2016 C.E.C 408.4 - PROVIDE MORE DETAIL ON PANEL SCHEDULE CIRCUIT DESCRIPTIONS.

H. FIRE ALARM SYSTEM

1. CONTRACTOR SHALL PROVIDE AND INSTALL A SILENT KNIGHT FIRE ALARM FULLY ADDRESSABLE SYSTEM FOR THE PROJECT AREA TO INCLUDE:
   A) SMOKE DETECTORS IN ALL REQUIRED AREAS
   B) HEAT DETECTORS IN ALL REQUIRED AREAS
   C) STROBES/SPEAKERS IN ALL REQUIRED AREAS
   D) CO DETECTORS WHERE REQUIRED
   E) SPEAKERS IN ALL REQUIRED AREAS
2. CONTRACTOR SHALL BE BUILDING STANDARD AND SHALL BE SELECTED FIRE ALARM SYSTEM FACTORY AUTHORIZED AND APPROVED VENDOR - NO "PARTS & SMARTS"

4.. ALL DEVICES AND EQUIPMENT SHALL BE CALIFORNIA STATE FIRE MARSHALL APPROVED AND CURRENTLY LISTED.

5. CONTRACTOR SHALL WARRANTY ALL DEVICES AND SYSTEMS FOR A PERIOD OF TWO YEARS.
6. CONTRACTOR SHALL PROVIDE 3 (THREE) HARD COPY SETS OF FIRE ALARM MANUALS FOR ALL SYSTEMS AND DEVICES IN ADDITION TO 6 (SIX) HARD COPY SETS OF A SYSTEM OPERATIONAL MANUAL TAILORED FOR THE PROJECT SPACE.
7. CONTRACTOR SHALL PROVIDE AN INDIVIDUALLY ADDRESSABLE TOTALLY SUPERVISED SYSTEM WITH BATTERY BACK-UP FOR MONITORING OR INITIATING CIRCUITS WITH DUAL RATE BATTERY CHARGER.
8. CONTRACTOR SHALL PROVIDE A SATISFACTORY SYSTEM TEST IN THE PRESENCE OF THE OWNER, FIRE PREVENTION BUREAU AND CONSULTING ENGINEER.
9. CONTRACTOR SHALL PROVIDE A CENTRAL MASTER ANNUNCIATOR PANEL IN THE ADMINISTRATION BUILDING AND A REMOTE PANEL IN AN AREA PER OWNERS REPRESENTATIVE AND LOCAL FIRE MARSHAL.
10. ANNUNCIATOR PANEL SHALL BE NONGRAPHIC WITH NAMEPLATE AND LED FOR EACH DEVICE ADDRESS, WITH AUDIBLE ALARM AND KEYED SILENCE SWITCH.
11. CONTRACTOR SHALL PROVIDE ALL CONNECTION TO POWER PANELS, CONDUIT AND WIRE AND CONNECTIONS REQUIRED TO PROVIDE AN OPERATIONAL FIRE ALARM SYSTEM.
12. UNIQUELY LABEL ALL ADDRESSABLE DEVICES TO MATCH FIRE ALARM PROGRAMMING & AS BUILTS.

COLOR CODE FOR CONDUCTORS

PROVIDE CONDUCTOR COLOR CODE AS FOLLOWS:
120/208VAC,3Ø,4W OR 120/208VAC, 1Ø, 3W: BLUE,BLACK,RED FOR PHASE CONDUCTORS AND WHITE FOR NEUTRAL, GREEN FOR GROUND.

277/480VAC,3Ø,4W: ORANGE,BROWN,YELLOW FOR PHASE CONDUCTORS AND WHITE FOR NEUTRAL, GREEN FOR GROUND.

DERATING TABLE

NEC #310-8 ADJUSTMENT FACTORS

(a) MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY OR CABLE. WHERE THE NUMBER OF CURRENT-CARRYING CONDUCTORS IN A RACEWAY OR CABLE EXCEEDS THREE, THE ALLOWABLE AMPACITIES SHALL BE REDUCED AS SHOWN IN THE FOLLOWING TABLE:

NUMBER OF CURRENT-CARRYING CONDUCTORS	PERCENT OF VALUES IN TABLES AS ADJUSTED FOR AMBIENT TEMPERATURE IF NECESSARY
4 THROUGH 6	80
7 THROUGH 9	70
10 THROUGH 20	50
21 THROUGH 30	45
31 THROUGH 40	40
41 AND ABOVE	35

WHERE SINGLE CONDUCTORS OR MULTICONDUCTOR CABLES ARE STACKED OR BUNDLED LONGER THAN 24 INCHES (610 mm) WITHOUT MAINTAINING SPACING AND ARE NOT INSTALLED IN RACEWAYS, THE ALLOWABLE AMPACITY OF EACH CONDUCTOR SHALL BE REDUCED AS SHOWN IN THE ABOVE TABLE.

EXCEPTION NO. 1: WHERE CONDUCTORS OF DIFFERENT SYSTEMS, AS PROVIDED IN SECTION 300-3, ARE INSTALLED IN A COMMON RACEWAY OR CABLE, THE DERATING FACTORS SHOWN ABOVE SHALL APPLY TO THE NUMBER OF POWER AND LIGHTING (ARTICLES 210, 215, 220, AND 230) CONDUCTORS ONLY.

EXCEPTION NO. 2: FOR CONDUCTORS INSTALLED IN CABLE TRAYS, THE PROVISIONS OF SECTION 318-11 SHALL APPLY.

EXCEPTION NO. 3: DERATING FACTORS SHALL NOT APPLY TO CONDUCTORS IN NIPPLES HAVING A LENGTH NOT EXCEEDING 24 INCHES (610mm).

SYMBOLS

(SEE E600 FOR FIRE ALARM DEVICE SYMBOLS)

DUPLEX RECEPTACLE, WALL MOUNTED @ +18"AFF, NEMA 5-20R U.O.N.
JUNCTION BOX (CEILING MTD.) SIZE PER TABLE AND NEC ARTICLE 370
JUNCTION BOX (WALL MTD.) SIZE PER TABLE AND NEC ARTICLE 370
BRANCH CIRCUIT PANELBOARD - 240/120V, 1Ø, 3W OR 3Ø, 3W, 240VAC OR 120/208VAC, 3Ø, 4W.
BRANCH CIRCUIT PANELBOARD - 480/277V, 3Ø, 4W
4'X8'X3/4" TELEPHONE BACKBOARD, MARINE PLYWOOD AND PAINTED WITH FIRE RESISTANT PAINT, PER OWNERS REPRESENTATIVE.
CONDUIT RUN CONCEALED ABOVE CEILING OR IN WALLS,
CONDUIT RUN CONCEALED BELOW FLOOR OR UNDERGROUND
—E— EMERGENCY CIRCUIT
FLEXIBLE CONDUIT (WITH GROUND CONDUCTOR, PROVIDE LIQUID TIGHT CONDUIT IN ALL EXPOSED AREAS)
—T— LOW VOLTAGE CABLE & CONDUIT 3/4"C-1#CAT6 U.O.N.
#10 HASH MARKS INDICATE QUANTITY OF #12 CONDUCTORS. NO HASH MARKS INDICATE (2)#12AWG. (PROVIDE GROUND CONDUCTOR IN ALL CONDUITS.)
WHERE NO NUMBER IS INDICATED, THE CONDUCTORS ARE #12AWG(MIN.) CONDUIT SIZE IS AS REQUIRED BY ELECTRICAL CODE. (3/4" CONDUIT MINIMUM).
2LA 1-3-5,7 INDICATES A HOMERUN TO PNL 2LA, CKTS 1-3-5 WITH SHARED NEUTRAL & CKT 7 WITH DEDICATED NEUTRAL.
3/4"C-2#12 & 1#12 GND
3/4"C-3#12 & 1#12 GND
3/4"C-4#12 & 1#12 GND
3/4"C-5#12 & 1#12 GND
#10 3/4"C-2#10 & 1#10 GND
#10 3/4"C-3#10 & 1#10 GND
#10 3/4"C-4#10 & 1#10 GND
#10 3/4"C-5#10 & 1#10 GND
1" CONDUIT MINIMUM IF UNDERGROUND (CONTRACTOR TO PROVIDE DEDICATED NEUTRALS FOR CIRCUITS WHICH DO NOT HAVE COMMON CIRCUIT HANDLE TIES ON BREAKERS FEEDING THE CIRCUITS)
1 SEE KEY NOTE #1 AS INDICATED ON DRAWING
$ a,b,c,d — CIRCUIT SWITCH LEGS — WALL SWITCHES
60AS 35AF 3P DISCONNECT SWITCH, 60AMP SWITCH, 35 AMP FUSE, 3 POLE W/ OVERCURRENT PROTECTION U.O.N.
M 100A UTILITY METER (OR AS NOTED)
3P 100AS 60AF FUSED DISCONNECT SWITCH 100AMP SWITCH RATING WITH 60 AMP FUSES, 3 POLE
200AF 150AT 3P MOLDED CASE CIRCUIT BREAKER 200 AMP FRAME, 150 AMP TRIP RATING, 3 POLE

LIST OF APPLICABLE CODES

LIST OF APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR
2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

APPLICABLE CODE: 2022 CBC

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30.

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

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

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

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

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2022 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.

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

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

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

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH HCAi (OSHPD) PREAPPROVAL (OPM#) #___________________.

LIST OF DRAWINGS

SHEET #	SHEET DESCRIPTION	SHEET #	SHEET DESCRIPTION
E100	GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST	E682	BUILDING 20 FOOD FIRE ALARM PLAN - NEW WORK
E600	NEW FIRE ALARM MASTER LEGEND	E683	BUILDING 30 STORAGE FIRE ALARM PLAN - NEW WORK
E601	ENLARGED FIRE ALARM PLAN - WEST	E684	BUILDING 40 - FIRE ALARM PLAN - NEW WORK
E602	ENLARGED FIRE ALARM PLAN - EAST	E685	BUILDING 50 CLASSROOM - FIRE ALARM PLAN - NEW WORK
E603	HONEYWELL CUT SHEETS MULTI-CRITERIA CO & SMOKE SENSOR & MONITOR MODULE	E700	FIRE RISER DIAGRAM
E604	HONEYWELL CUT SHEETS SPEAKER STROBES & PHOTOELECTRIC SMOKE SENSOR	E702	FIRE ALARM RISER DIAGRAMS FOR BLDGS AND 600/700
E605	HONEYWELL CUT SHEETS TEMPERATURE SENSORS & RELAY	E703	BUILDING INTERCONNECTION RISER
E606	EMERGENCY VOICE/ALARM/DETECTION COMM SYSTEM - FIRE ALARM DETAILS	E730	BUILDING 300, 40 & 50 EMERGENCY VOICE/ALARM COMM SYSTEM CALCULATIONS
E607	POINT TO POINT FIRE ALARM/EVACS GENERIC WIRING DETAIL	E740	BUILDING 400 & 500 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS
E608	ELECTRICAL DETAILS	E780	BUILDING 800, 20, & 30 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS
E609	GENTEX CUT SHEETS OUTDOOR SPEAKER STROBES & BACK BOX		
E610	BUILDING 100 - KINDERGARTEN FIRE ALARM PLAN -NEW WORK		
E620	BUILDING 200 - FIRE ALARM PLAN - NEW WORK		
E630	BUILDING 300 - FIRE ALARM PLAN - NEW WORK		
E640	BUILDING 400 - FIRE ALARM PLAN - NEW WORK		
E650	BUILDING 500 CLASSROOM FIRE ALARM PLAN - NEW WORK		
E660	BUILDING 600 CLASSROOM FIRE ALARM PLAN - NEW WORK		
E670	BUILDING 700 CLASSROOM FIRE ALARM PLAN - NEW WORK		
E680	BUILDING 800 MULTIPURPOSE FIRE ALARM PLAN - NEW WORK		

SCOPE OF WORK

CONTRACTOR TO REPLACE EXISTING FIRE ALARM SYSTEM WITH NEW FULLY ADDRESSABLE FIRE ALARM SYSTEM WHILE MAINTAINING EXISTING FIRE ALARM SYSTEM REPLACEMENT OF EXISTING FA SYSTEM IS COMPLETE & WILL OCCUR WHILE EXISTING SYSTEM IS ACTIVE. CONTRACTOR TO PROVIDE DETAILED INSTALLATION SCHEDULE FOR PROPOSED WORK TO MEET PVSD TIME SCHEDULE/CONSTRAINTS. BUILDINGS IN PROJECT ARE BUILDINGS 100 KINDERGARTEN, 200 ADMINISTRATION, 300 CLASSROOM, 400 CLASSROOM, 500 CLASSROOM, 600 CLASSROOM, 700 CLASSROOM, 800 MULTIPURPOSE, 20 FOOD SHELTER, 30 STORAGE, 40 OFFICE, 50 CLASSROOM. THERE IS NO COOKING ON SITE & NO ANSUL SYSTEM & SITE IS NON-SPRINKLERED.

CONTRACTOR TO PROVIDE FIRE WATCH FOR ANY PERIOD OF TIME WHEN THE EXISTING FA SYSTEM IS NOT FUNCTIONAL

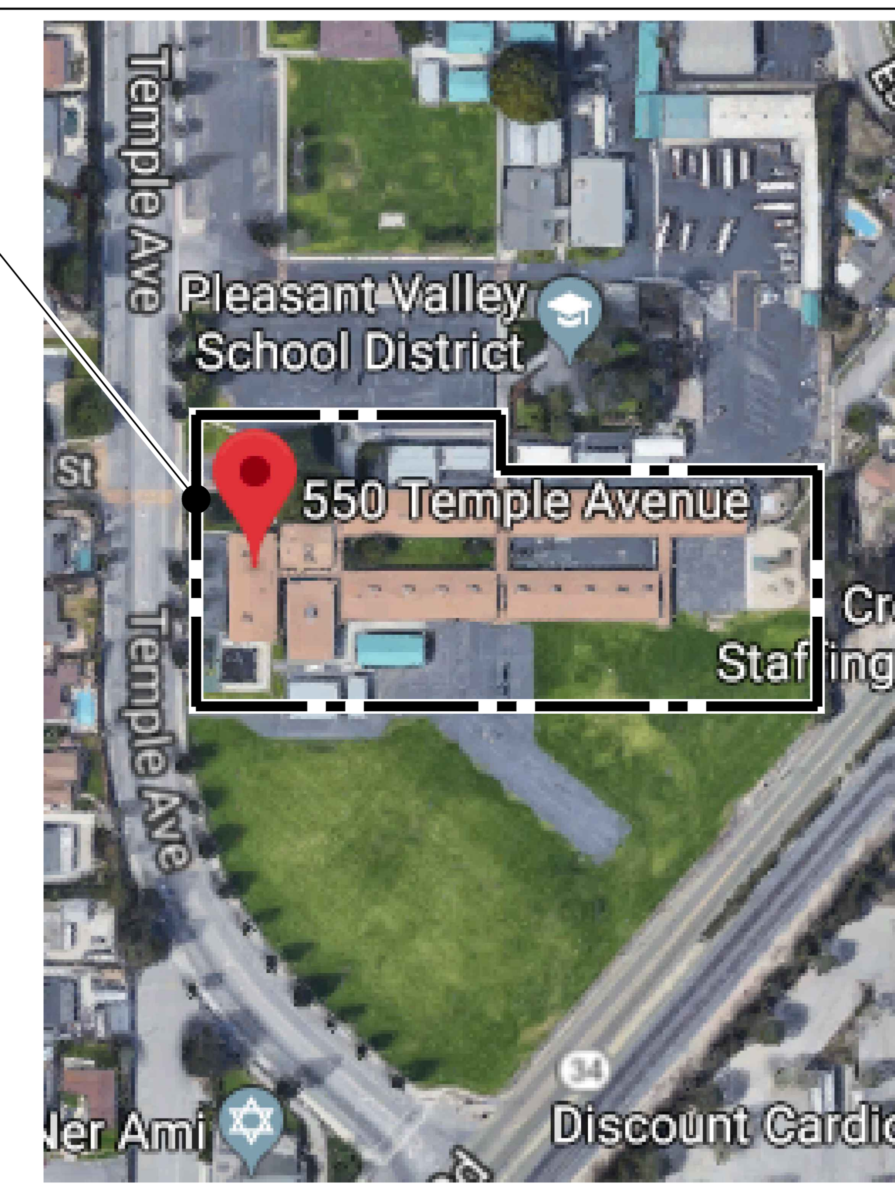
ABBREVIATIONS

A	AMPERES	(F)	FRONT	P	POWER OR POLE
AF	AMP FRAME/AMP FUSE	FS	SHALLOW FLOOR BOX	PBO	PROVIDED BY OTHERS
AFC	AVAILABLE FAULT CURRENT	GC	GENERAL CONTRACTOR	PNL	PANEL
AFF	ABOVE FINISHED FLOOR	GFI	GROUND FAULT INTERRUPTER	PVSD	PLEASANT VALLEY SCHOOL DISTRICT
ARCH	ARCHITECT	GND	GROUND	(R)	REMOVED
AS	AMP SWITCH	HP	HORSEPOWER	RGS	RIGID GALVANIZED STEEL CONDUIT
AT	AMP TRIP	I.C.	ISOLATED GROUND	RM	ROOM
AWG	AMERICAN WIRE GAGE	JB	JUNCTION BOX	SN	SYSTEM NEUTRAL
BKBD	BACKBOARD	KVA	KILO VOLT AMPS=1000VA	TC	TIME CLOCK
C	CONDUIT	LC	LIGHTING CONTACTOR	TTB	TELEPHONE TERMINAL BOARD
CB	CIRCUIT BREAKER	LCL	LONG CONTINUOUS LOAD	TTC	TELEPHONE TERMINAL CABINET
CONT	CONTINUATION	LV	LOW VOLTAGE	TR	TRANSFORMER
CKT	CIRCUIT	MTD	MOUNTED	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
CLG	CEILING	MTB	MAIN TELEPHONE BACKBOARD		
CO	CONDUIT ONLY	MTG	MOUNTING	TPY	TYPICAL
CTV	CABLE TELEVISION	MV	MEDIUM VOLTAGE	UG	UNDERGROUND
(CU)	COPPER	MH	METAL HALIDE	UON	UNLESS OTHERWISE NOTED
CW	COLD WATER PIPE	MFG	MANUFACTURER	UNSW	UNSWITCHED
DIS	DISCONNECT	NEC	NATIONAL ELECTRICAL CODE	VA	VOLT AMPS
DS	DISCONNECT SWITCH	(N)	NEW	V	VOLTS/VOLTAGE
DWG	DRAWING	NIC	NOT IN CONTRACT	W	WATTS/WATTAGE
ECD	ELECTRICAL CONTRACTOR	NL	NIGHT LIGHT	WP	WEATHERPROOF
EM	EMERGENCY LIGHT/FEEDER	N.A.	NORMALLY OPEN	W/	WITH
EOR	ENGINEER OF RECORD	N.C.	NORMALLY CLOSED	(X)	EXISTING

SITE MAP

N

PROJECT AREA



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	.	.

STAMP

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 8340 Exp. 09/30/2026 ELECTRICAL STATE OF CALIFORNIA

LUCCI & ASSOCIATES INC.
CONSULTING ELECTRICAL ENGINEERS
3251 CORTE MALPASO, #511
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16

LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 06/30/2027 STATE OF CALIFORNIA
signed 09.18.2025

SHEET: E100
OF: SHEETS:

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E600.dwg PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center SAVE DATE: 7/2/2025 8:51:08 AM PLOT BY: CM02
DRAFTER: CM02 DRAWING FILENAME: 19753-16-E600 DATE: 11 September 2025 TIME: 1:51 pm PLOT DATE: 9/11/2025 1:51:26 PM
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EMERGENCY VOICE/ALARM COMMUNICATIONS SYSTEM LEGEND

SYMBOL		DESCRIPTION	MODEL #	C.S.F.M. #	BACK BOX REQUIREMENTS
FACP		FIRE ALARM CONTROL PANEL	SILENT KNIGHT IFP-2100 ECS	7165-0559:0505	SURFACE OR FLUSH MOUNT
FATC		FIRE ALARM TERMINAL CABINET	-		FURNISHED BY OTHERS
RPS		NEW REMOTE POWER SUPPLY, 4ckt.	SILENT KNIGHT RPS-1000	7300-0559:0123	SURFACE MOUNT
ANN		FIRE ALARM REMOTE ANNUNCIATOR	SILENT KNIGHT RA-2000	7165-0559:0505	SURFACE MOUNT
SP		SPEAKER ONLY, WALL MOUNT	SYSTEM SENSOR SPSRL	7320-1653:0505	4" SQ. DEEP BOX
		PULL STATION	SILENT KNIGHT IDP-PULL	7150-0559:0157	SINGLE GANG BOX
AMP		50 WATT AMPLIFIER	SILENT KNIGHT ECS-50W	7300-0559:0173	SURFACE OR FLUSH MOUNT
H		HEAT DETECTOR	SILENT KNIGHT IDP-HEAT	7270-0559:0147	4" SQ. BOX W/ 3" ROUND RING
A		ATTIC SPACE HI-TEMP HEAT DETECTOR W/ BASE	SILENT KNIGHT IDP-HEAT-HT	7270-0559:0147	4" SQ. BOX W/ 3" ROUND RING
CO		MULTI CRITERIA DETECTOR W/ BASE (SMOKE, HEAT, CO)	SILENT KNIGHT IDP-FIRE-CO-W	7275-0559:0520	4" SQ. BOX W/ 3" ROUND RING
		SMOKE DETECTOR	SILENT KNIGHT IDP-PHOTO-W	7272-0559:0512	4" SQ. BOX
A		INPUT MODULE	SILENT KNIGHT IDP-MINIMON	7300-0559:0155	4" SQ. BOX
SP		SPEAKER/STROBE COMBO, WALL MOUNT	SYSTEM SENSOR SPSRL	7320-1653:0505	4" SQ. DEEP BOX
SV	C	SPEAKER/STROBE COMBO, CEILING MOUNT	SYSTEM SENSOR SPSCRL	7320-1653:0505	4" SQ. DEEP BOX
S	C	SPEAKER ONLY, CEILING MOUNT	SYSTEM SENSOR SPCRL	7320-1653:0505	4" SQ. DEEP BOX
SP	WP	OUTDOOR SPEAKER	SYSTEM SENSOR SPRK	7320-0569:0141	SURFACE MOUNT BACK BOX
RM		RELAY MODULE	SILENT KNIGHT IDP-RELAY	7300-0559:0155	4" SQ. DEEP BOX
		END OF LINE RESISTOR (EOL)			

SEE E700 FOR MONITORING COMPANY INFORMATION

CALIFORNIA FIRE CODE NOTES:

907.2.3 A MANUAL AND AUTOMATIC FIRE ALARM SYSTEM THAT INTIATES THE OCCUPANT NOTIFICATION SIGNAL UTILIZING AN EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM MEETING THE REQUIREMENTS OF 907.5.2.2 AND INSTALLED IN ACCORDANCE WITH SECTION 907.6 SHALL BE INSTALLED IN GROUP E OCCUPANCIES WITH AN OCCUPANT LOAD OF 50 OR MORE PERSONS OR CONTAINING MORE THAN ONE CLASSROOM OR ONE OR MORE ROOMS USED FOR GROUP E OR -4 DAY CARE PURPOSES IN ACCORDANCE WITH THIS SECTION. WHEN AUTOMATIC SPRINKLER SYSTEMS OR SMOKE DETECTORS ARE INSTALLED, SUCH SYSTEMS OR DETECTORS SHALL BE CONNECTED TO THE BUILDING FIRE ALARM SYSTEM.

EXCEPTIONS:

1. MANUAL FIRE ALARM BOXES ARE NOT REQUIRED IN GROUP E OCCUPANCIES WHERE ALL OF THE FOLLOWING APPLY:
   - 1.1. INTERIOR CORRIDORS ARE PROTECTED BY SMOKE DETECTORS.
   - 1.2. AUDITORIUMS, CAFETERIAS, GYMNASIUMS AND SIMILAR AREAS ARE PROTECTED BY HEAT DETECTORS OR OTHER APPROVED DETECTION DEVICES.
   - 1.3. SHOPS AND LABORATORIES INVOLVING DUSTS OR VAPORS ARE PROTECTED BY HEAT DETECTORS OR OTHER APPROVED DETECTION DEVICES.
   - 1.4. THE CAPABILITY TO ACTIVATE THE EVACUATION SIGNAL FROM A CENTRAL POINT IS PROVIDED.
2. MANUAL FIRE ALARM BOXES ARE NOT REQUIRED IN GROUP E OCCUPANCIES WHERE ALL OF THE FOLLOWING APPLY:
   - 2.1. THE BUILDING IS EQUIPPED THROUGHOUT WITH AN APPROVED AUTOMATIC SPRINKLER SYSTEM INSTALLED IN ACCORDANCE WITH SECTION 907.3.1.1
   - 2.2. THE EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM WILL ACTIVATE ON A SPRINKLER WATER FLOW.
   - 2.3. MANUAL ACTIVATION IS PROVIDED FROM A NORMALLY OCCUPIED LOCATIONS.
   - 2.4. THE CAPABILITY TO ACTIVATE THE EVACUATION SIGNAL FROM A CENTRAL POINT IS PROVIDED.
3. FOR PUBLIC SCHOOL STATE FUNDED CONSTRUCTION PROJECTS SEE SECTION 907.2.29

907.2.3.1 SYSTEM CONNECTION. WHERE MORE THAN ONE FIRE ALARM CONTROL UNIT IS USED AT THE SCHOOL CAMPUS , THEY SHALL BE INTERCONNECTED AND SHALL OPERATE ALL NOTIFICATION APPLIANCES.

EXCEPTION: INTERCONNECTION OF FIRE ALARM CONTROL UNITS IS NOT REQUIRED WHEN ALL OF THE FOLLOWING ARE PROVIDED:
1. BUILDINGS THAT ARE SEPARATED A MINIMUM OF 20 FEET AND IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE; AND
2. THERE IS A METHOD OF TWO WAY COMMUNICATION BETWEEN EACH CLASSROOM AND THE SCHOOL ADMINISTRATIVE OFFICE APPROVED BY THE FIRE ENFORCING AGENCY; AND
3. A METHOD OF MANUAL ACTIVATION OF EACH FIRE ALARM SYSTEM IS PROVIDED.

907.2.3.2 ASSEMBLIES LOCATED WITHIN A GROUP E OCCUPANCY. ASSEMBLY OCCUPANCIES WITH AN OCCUPANT LOAD OF LESS THAN 1,000 AND LOCATED WITHIN A GROUP E OCCUPANCY CAMPUS OR BUILDING SHALL BE PROVIDED WITH A FIRE ALARM SYSTEM AS REQUIRED FOR THE GROUP E OCCUPANCY.

907.2.3.3 NOTIFICATION. THE FIRE ALARM SYSTEM NOTIFICATION SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 907.5.

907.2.3.4 ANNUNCIATION. ANNUNCIATION OF THE FIRE ALARM SYSTEM SHALL COMPLY WITH THE REQUIREMENTS OF SECTION 907.6.4.1.

907.2.3.5. MONITORING. SCHOOL FIRE ALARM SYSTEMS SHALL BE MONITORED IN ACCORDANCE WITH SECTION 907.6.6.3.

907.2.3.6 AUTOMATIC FIRE ALARM SYSTEM. AUTOMATIC DETECTION SHALL BE PROVIDED IN ACCORDANCE WITH THIS SECTION.

907.2.3.6.1 SMOKE DETECTORS. SMOKE DETECTORS SHALL BE INSTALLED AT THE CEILING OF EVERY ROOM AND IN 'CEILING-PLENUMS' UTILIZED FOR ENVIRONMENTAL AIR. WHERE THE CEILING IS ATTACHED DIRECTLY TO THE UNDER SIDE OF THE ROOF STRUCTURE, SMOKE DETECTORS SHALL BE INSTALLED ON THE CEILING ONLY.

EXCEPTION: WHERE THE ENVIRONMENTAL OR AMBIENT CONDITIONS EXCEED SMOKE DETECTOR INSTALLATION GUIDELINES, HEAT DETECTORS OR FIRE SPRINKLERS SHALL BE USED.

907.2.3.6.2 HEAT DETECTORS. MULTI-CRITERIA HEAT DETECTORS SHALL BE INSTALLED IN COMBUSTIBLE SPACES WHERE THE SPRINKLERS OR SMOKE DETECTORS ARE NOT INSTALLED.

907.5.2.2 EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS. EMERGENCY VOICE/ALARM COMMUNICATION SYSTEMS REQUIRED BY THIS CODE SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH NFPA 72. THE OPERATION OF ANY AUTOMATIC FIRE DETECTORS, SPRINKLER WATER FLOW DEVICE OR MANUAL FIRE ALARM BOX SHALL AUTOMATICALLY SOUND AN ALERT TONE FOLLOWED BY VOICE INSTRUCTIONS GIVING APPROVED INFORMATION AND DIRECTIONS FOR A GENERAL OR STAGED EVACUATION IN ACCORDANCE WITH THE BUILDING'S FIRE SAFETY AND EVACUATION PLANS REQUIRED BY SECTION 404.

907.5.2.2.1 MANUAL OVERRIDE. A MANUAL OVERRIDE FOR EMERGENCY VOICE COMMUNICATION SHALL BE PROVIDED ON A SELECTIVE AND ALL-CALL BASIS FOR ALL PAGING ZONES.

907.5.2.2.2 LIVE VOICE MESSAGES. THE EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM SHALL BE ALSO HAVE THE CAPABILITY TO BROADCAST LIVE VOICE MESSAGES BY PAGING ZONES ON A SELECTIVE ALL-CALL BASIS.

907.5.2.2.3 ALTERNATE USES. THE EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM SHALL BE ALLOWED TO BE USED FOR OTHER ANNOUNCEMENTS, PROVIDED THE MANUAL FIRE ALARM USE TAKES PRECEDENCE OVER ANY OTHER USE.

907.5.2.4. GROUP E SCHOOLS. ONE AUDIBLE ALARM NOTIFICATION APPLIANCE SHALL BE MOUNTED ON THE EXTERIOR OF A BUILDING TO ALERT OCCUPANTS AT EACH PLAYGROUND AREA.

907.6.6.3 GROUP E SCHOOLS. FIRE ALARM SYSTEMS *SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX (CENTRAL STATION) OR UUJS (REMOTE & PROPRIETARY) BY THE UNDERWRITERS LABORATORY INC. (UL) OR OTHER APPROVED LISTING AND TESTING LABORATORY OR SHALL COMPLY WITH THE REQUIREMENTS OF FM 3011.*

WIRE CHART

SYMBOL	CIRCUIT DESCRIPTION	WIRE IN CONDUIT	UNDERGROUND/ WET SYMBOL	WIRE IN CONDUIT UNDERGROUND/WET
SBUS 4-WIRE TOTAL	COMM CIRCUIT - POWER	2 CONDUCTOR 2/14 FPL SOLID TWISTED/UNSHIELDED	SBUSU	2 CONDUCTOR 2/14 FPL TWISTED WEST PENN #AQ225
	COMM CIRCUIT - DATA	2 CONDUCTOR 2/14 FPL SOLID TWISTED/SHIELDED		2 CONDUCTOR 2/14 FPL TWISTED/SHIELDED WEST PENN #AQ295
VBUS	AMPLIFIER COMM CIRCUIT	2 CONDUCTOR 2/16 FPL SOLID TWISTED/SHIELDED	VBUSU	2 CONDUCTOR 2/16 FPL STRANDED TWISTED/SHIELDED WEST PENN #AQ294
D	SIGNAL LINE CIRCUIT (SLC)	2 CONDUCTOR 2/16 FPL SOLID TWISTED/UNSHIELDED	DD	2 CONDUCTOR 2/16 FPL TWISTED/ UNSHIELDED WEST PENN #AQ225
N	NOTIFICATION APPLIANCE CIRCUIT (NAC)	2 CONDUCTOR 2/12 FPL SOLID TWISTED/UNSHIELDED OR THHN	NN	2 CONDUCTOR 2/12 FPL TWISTED/ UNSHIELDED WEST PENN #AQ227
S	SPEAKER APPLIANCE CIRCUIT (SAC)	2 CONDUCTOR 2/16 FPL SOLID TWISTED/SHIELDED	SS	2 CONDUCTOR 2/16 FPL STRANDED TWISTED/SHIELDED WEST PENN #AQ294
P	SOUNDER BASE POWER CIRCUIT	2 CONDUCTOR 2/16 FPL SOLID TWISTED/UNSHIELDED	PP	2 CONDUCTOR 2/16 FPL TWISTED/ UNSHIELDED WEST PENN #AQ225

SEQUENCE OF OPERATION

DEVICE \ ACTION	THROUGHOUT BUILDING SOUND GENERAL ALARM	SOUND TROUBLE BUZZER	ACTIVATE ADDRESSABLE MODULE FOR MONITORING	ANNUNCIATE AT PANEL	TRANSMIT TROUBLE SIGNAL FOR ALL APPLICABLE COMPONENTS TO SUPERVISING STATION	TRANSMIT ALARM SIGNAL TO SUPERVISING STATION	ACTIVE REMOTE POWER SUPPLY PANEL (FCPS)	DROP HORN BELL, TONES, SPEAKERS & VISUAL ALARMS FROM F.A. SYSTEM	SHUT DOWN HVAC UNIT
INDICATING CIRCUIT FAILURE		●		●					
INITIATING CIRCUIT FAILURE		●		●					
AC / BATTERY FAILURE		●		●		●			
F.A. SYSTEM LOW BATTERY		●		●					
SMOKE DETECTORS	●			●		●	●	●	●
HEAT DETECTORS	●			●		●	●	●	●
CARBON MONOXIDE DETECTOR	●			●		●	●	●	
ISOLATOR LINE TROUBLE		●		●					
EARTH GROUND FAULT		●			●				
ELECTRICAL ROOM SMOKE	●		●	●		●	●	●	

SCOPE OF WORK:

PROVIDE A NEW EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM FOR THE PLEASANT VALLEY SCHOOL DISTRICT REMODEL.

NEW E.V.A.C.S SYSTEM WILL PROVIDE FULL AUTOMATIC COVERAGE (INCLUDING CARBON MONOXIDE DETECTION) AND INTELLIGENT VOICE EVACUATION.

EXISTING CAMPUS FIRE ALARM CONTROL PANEL WILL BE REPLACED WITH A SILENT KNIGHT IFP-2100ECS FOR THE EXISTING CAMPUS FIRE ALARM SYSTEM.

PROVIDE A FIRE WATCH IF ANY BUILDING IS WITHOUT A FUNCTIONAL FIRE ALARM SYSTEM. NEW FA SYSTEM SHALL BE ACTIVE & APPROVED PRIOR TO DECOMMISSIONING THE EXISTING FA SYSTEM.

GENERAL NOTES:

1. APPLICABLE STANDARD 2022 NFPA 72
2. INSTALLATION OF THE SYSTEMS SHALL NOT BE STARTED UNTIL DETAILED DESIGN DOCUMENTS AND SPECIFICATION, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS FOR EACH COMPONENT OF THE SYSTEM HAS BEEN APPROVED BY DSA.
3. UPON COMPLETION OF THE INSTALLATION OF THE SYSTEMS, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF A DSA PROJECT INSPECTOR.
4. A STAMPED SET OF APPROVED FIRE ALARM DESIGN DOCUMENTS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION.
5. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF DSA AND THE ARCHITECT/ENGINEER OF THE PROJECT.
6. DSA, ARCHITECT/ENGINEER AND OWNER SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO THE FINAL INSPECTION AND/OR TESTING.
7. ALL PENETRATIONS THROUGH RATED ASSEMBLIES, REQUIRING OPENING PROTECTION SHALL BE PROVIDED WITH A PENETRATION FIRE STOP SYSTEM AS IDENTIFIED IN CBC CHAPTER 7, UL OR OTHER LAB TESTING CRITERIA. APPROVED TYPE OF MATERIALS SHALL BE IDENTIFIED WITHIN THE SPECIFICATION WITHIN THE FIRE ALARM SECTION.
8. WALL MOUNTED VISUAL NOTIFICATION DEVICES SHALL HAVE THEIR BOTTOMS MOUNTED AT 80" MINIMUM AND 96" MAXIMUM FROM FINISHED FLOOR.
9. WALL MOUNTED AUDIBLE NOTIFICATION DEVICES SHALL HAVE THEIR TOPS MOUNTED AT 90" MINIMUM AND 100" MAXIMUM FROM FINISHED FLOOR AND NO CLOSER THAN 6" TO A HORIZONTAL STRUCTURE.
10. AUDIBLE DEVICES TO BE AT LEAST 15 DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75 DBA AT 10 FEET OR MORE THAN 110 DBA AT THE MINIMUM HEARING DISTANCE. SOUND LEVEL SHALL BE MAINTAINED FOR DURATION OF AT LEAST 60 SECTIONS 5 DBA MUST BE MAINTAINED.
11. AUDIBLE DEVICES SHALL BE SYNCHRONIZED TEMPORAL CODE 3 PATTERN.
12. THE CONTRACTOR SHALL ADJUST/INSTALL ALL DEVICES TO MAXIMIZE PERFORMANCE AND TO MINIMIZE FALSE ALARMS.
13. VISUAL DEVICES SHOULD NOT EXCEED 2 FLASHES PER SECOND AND SHOULD NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THE DEVICE SHALL HAVE A PULSING LIGHT SOURCE NOT LESS THAN 15 CANDELA. VISUAL DEVICES WITHIN 55' FROM EACH OTHER SHALL BE SYNCHRONIZED.
14. UNDERGROUND AND EXTERIOR CONDUITS TO HAVE WATERTIGHT FITTINGS AND WIRE TO BE APPROVAL FOR WET LOCATIONS.
15. ALL FIRE ALARM WIRING SHALL BE FLP OR FPLP (FIRE POWER LIMITED OR FIRE POWER LIMITED PLENUM) AS REQUIRED FOR APPLICATION. WIRING IN CONDUIT ABOVE GROUND MAY BE THHN OR THWN.
16. PER CEC STANDARDS, ALL WIRING IS TO BE PULLED THROUGH EACH JUNCTION BOX AND CONNECTED DIRECTLY TO EACH FIRE DEVICE. DO NOT SPLICE THE WIRE IN UNDERGROUND LOCATIONS. THERE MUST BE AT LEAST 6' OF LEAD WIRE FROM THE BOX TO THE DEVICE. ALL BOXES TO BE SIZED PER CEC.
17. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1' FROM FIRE SPRINKLERS OR 3' FROM ANY SUPPLY DIFFUSER. IN AREA OF CONSTRUCTION OR POSSIBLE DAMAGE/CONTAMINATION ON NEWLY INSTALLED FIRE ALARM DEVICES SHALL BE COVERED UNTIL THAT AREA IS READY TO BE TURNED OVER TO THE OWNER.
18. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT, SURFACE RACEWAY OR OPEN RUN ABOVE CEILINGS, UNDER FLOORS AND IN WALLS IN A NEAT AND PROTECTED MANOR AS INDICATED ON DESIGN DOCUMENTS. EXPOSED CIRCUITS ARE ONLY PERMITTED WHEN NOTED AS EXPOSED ON DESIGN DOCUMENTS.
19. FIRE ALARM PANEL, REMOTES, AND COMPONENTS SHALL BE SECURED TO MOUNTING SURFACES PER MANUFACTURERS SPECIFICATIONS. NO SINGLE DEVICE SHALL EXCEED THE WEIGHT OF 20 LBS. WITHOUT SPECIAL MOUNTING DETAILS.
20. A DEDICATED BRANCH CIRCUIT SHALL BE PROVIDED FOR FIRE ALARM EQUIPMENT. THIS CIRCUIT SHALL BE ENERGIZED FROM THE COMMON USE AREA PANEL AND SHALL HAVE NO OTHER OUTLETS. THE BREAKER SHALL HAVE A RED LOCKING DEVICE TO BLOCK THE HANDLE IN THE "ON" POSITION. THE CIRCUIT BREAKER SHALL BE LABELED "FIRE ALARM CIRCUIT CONTROL". CIRCUIT ID TO BE LABELED AT FIRE PANEL/EXTENDERS.
21. THE INSTALLING CONTRACTOR SHALL PROVIDE A RECORD OF COMPLETION PER NFPA 72, FIGURE 10.18.2.1.1.
22. CONTROL PANELS, REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48".
23. THE INSTALLING CONTRACTOR SHALL PROVIDE SYSTEM PROGRAMMING FOR SUPERVISORY MONITORING PER CBC SECTION 901.6.2.
24. SUPERVISORY MONITORING SHALL BE TESTED AND VERIFIED AS SENDING CORRECT SIGNALS IN CONJUNCTION WITH FINAL ACCEPTANCE TEST.
25. ALL CEILINGS BASED ON 10' SMOOTH CEILINGS UNLESS OTHERWISE NOTED.

PROJECT DATA:

LIST OF APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR

2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR

2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR

2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR

2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR

2022 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 CCR

2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR

2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR

2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR

2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR

TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS

APPLICABLE STANDARDS

FOR A LIST OF APPLICABLE STANDARDS, INCLUDING CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS, REFER TO CBC CHAPTER 35 AND CFC CHAPTER 80.

BUILDING CLASSIFICATION:

	ALL CLASSROOMS/MODULARS	MULTIPURPOSE
	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT	A. OCCUPANCY TYPE: A-3 B. CONSTRUCTION TYPE: V-B-MS ONE STORY C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT	A. DIVISION OF THE STATE ARCHITECTA.

ALL BUILDINGS ARE NON SPRINKLER BUILDINGS

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ARCHITECT: ENGINEER:
LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
555 LANTANA STREET, SUITE A-1
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519
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SHEET TITLE: NEW FIRE ALARM MASTER LEGEND

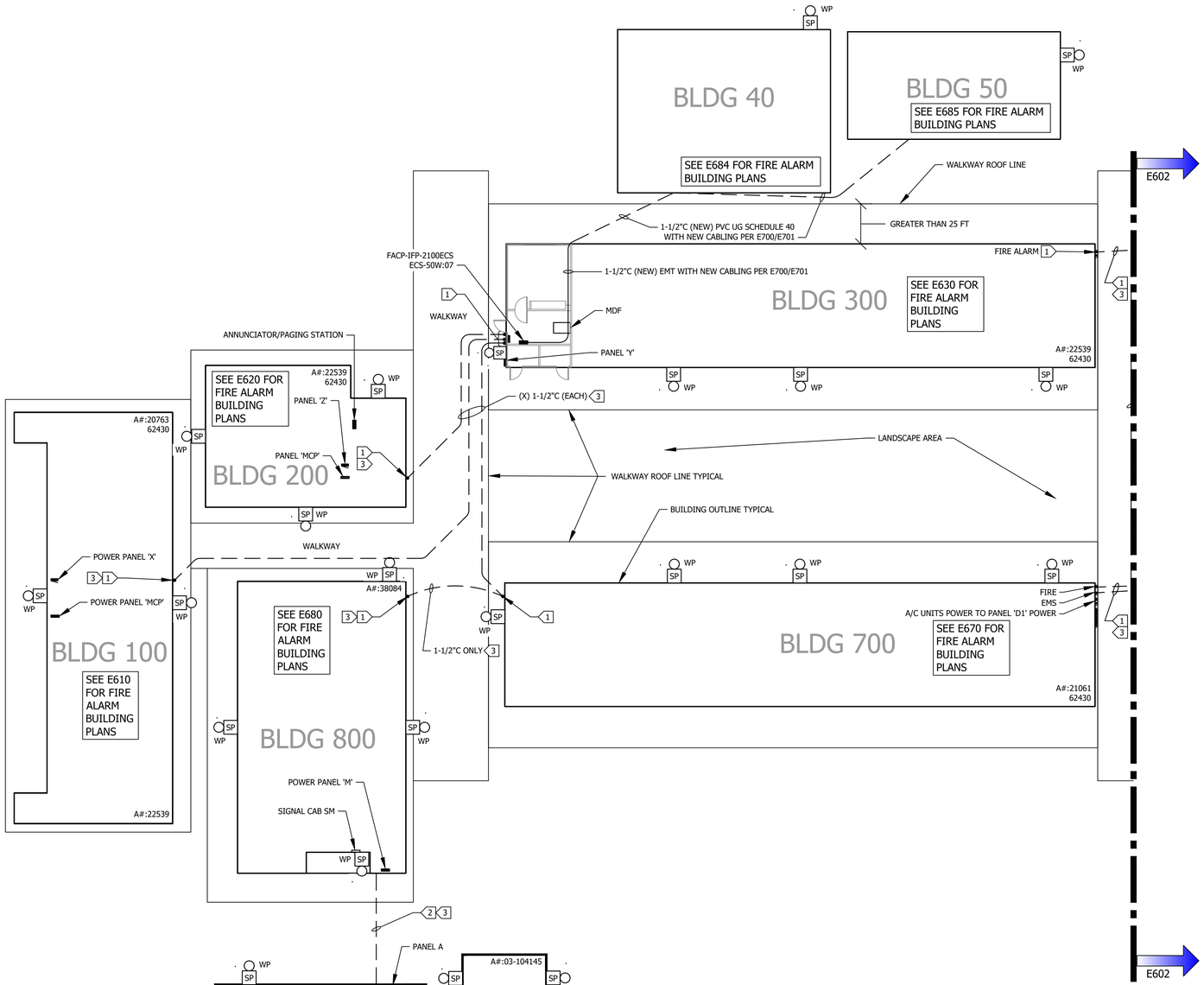
PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E600
OF: SHEETS:

LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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SCALE: 1"=15'

0 15 30

ENLARGED FIRE ALARM PLAN - WEST

SCALE: 1"=15'-0" NEW WORK - 1 - E601

N

SHEET NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL DEVICES ON SITE.
2. 3/4" CONDUIT MINIMUM UNLESS OTHERWISE NOTED ABOVE GROUND, 1"C MINIMUM UNDER GROUND (UG).

KEY NOTES:

1. EXISTING EMPTY FA CONDUITS INTO BUILDING ACCESSIBLE CEILING.
2. PROVIDE NEW UNDERGROUND 1-1/4"C FOR FIRE ALARM SYSTEM BETWEEN BUILDINGS INTO ACCESS CEILINGS INTO FATS/RPS/FACP PER RISER DIAGRAM E700/E701.
3. PROVIDE FA CABLING PER E700/E701 FA RISER DIAGRAM.

NO BUILDINGS ARE FIRE SPRINKLERED

LEGEND

UNDERGROUND

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 6340 Exp. 08/30/2026 ELECTRICAL STATE OF CALIFORNIA

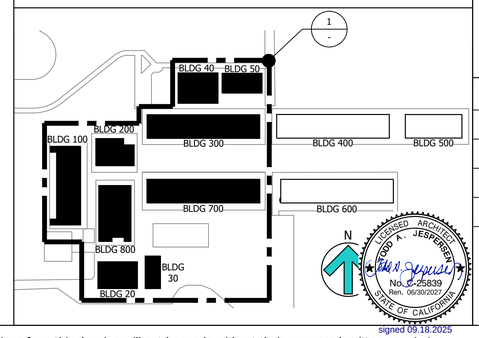
CONSULTING ELECTRICAL ENGINEERS
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CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: ENLARGED FIRE ALARM PLAN - WEST

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

KEY PLAN



DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E601
OF: SHEETS:

signed 09.18.2025

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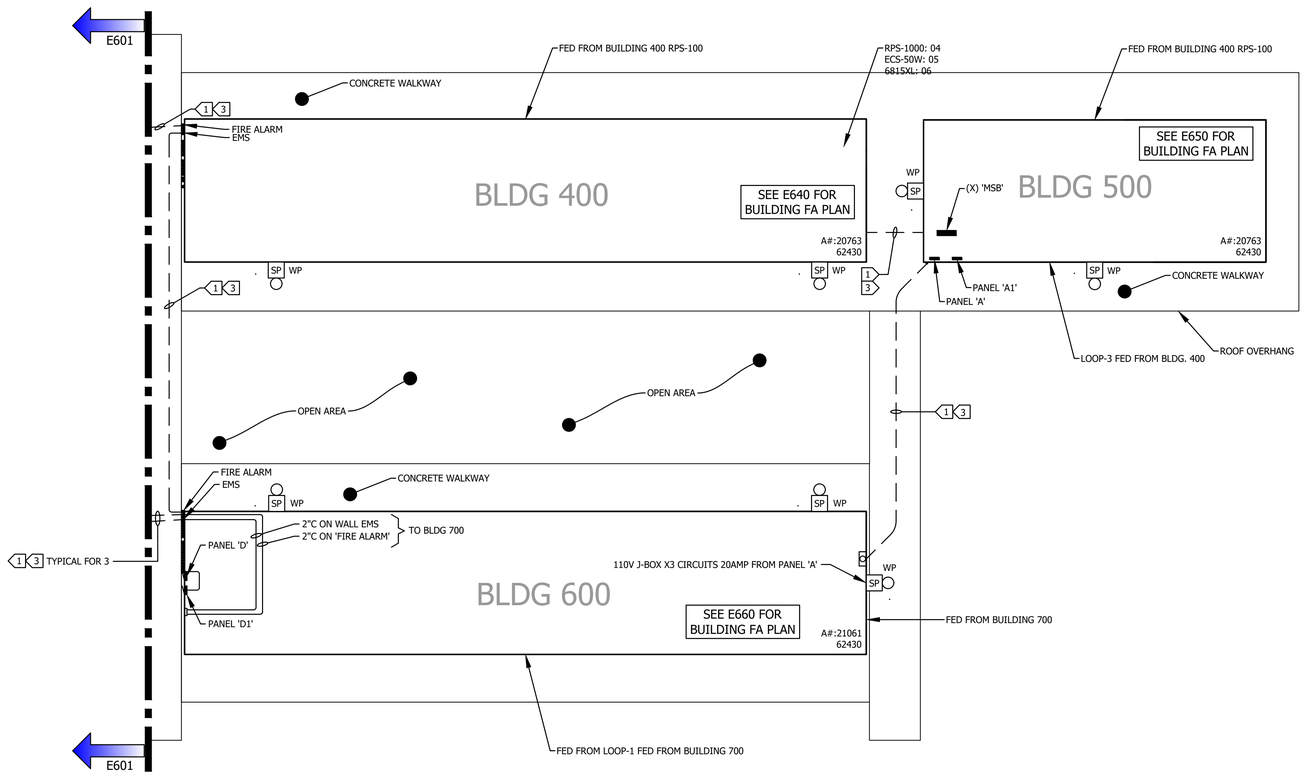
L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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DRAFTER: CM02 DRAWING FILENAME: 19753-16-E602
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E602.dwg



SCALE: 1"=15'
0 15 30

ENLARGED FIRE ALARM PLAN - EAST

SCALE: 1"=15'-0"

1 / E602

N

SHEET NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATION OF ALL DEVICES ON SITE.
2. 3/4" CONDUIT MINIMUM UNLESS OTHERWISE NOTED ABOVE GROUND, 1"C MINIMUM UNDER GROUND (UG).

KEY NOTES:

1. EXISTING EMPTY FA CONDUITS INTO BUILDING ACCESSIBLE CEILING.
2. PROVIDE NEW UNDERGROUND 1-1/4"C FOR FIRE ALARM SYSTEM BETWEEN BUILDINGS INTO ACCESS CEILINGS INTO FATS/RPS/FACP PER RISER DIAGRAM E700/E701.
3. PROVIDE FA CABLING PER E700/E701 FA RISER DIAGRAM.

NO BUILDINGS ARE FIRE SPRINKLERED

LEGEND

— — — UNDERGROUND

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DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

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REV#	DESCRIPTION	DATE
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REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

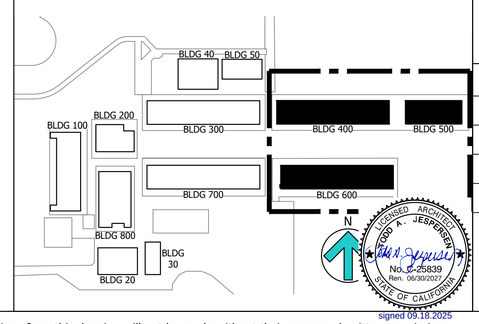
CONSULTING ELECTRICAL ENGINEERS
2531 LUCIA MESA, #111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: ENLARGED FIRE ALARM PLAN - EAST

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

KEY PLAN



DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E602
OF: SHEETS:

signed 09.18.2025

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Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E501.dwg: DATE: NOV 14, 2023 TIME: 1:43 PM

INSTALLATION AND MAINTENANCE INSTRUCTIONS

Farenhyt™ Series

Honeywell

15S-3003-004

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.Farenhyt.com

IDP-Monitor Module

SPECIFICATIONS

Normal Operating Voltage:	15 to 32 VDC
Maximum Current Draw:	5.0 mA (LED on)
Average Operating Current:	375µA (group poll), 350 µA (direct poll), 600 µAmps (communication, IDC shorted)
EOL Resistance:	47K Ohms
Max. IDC wiring resistance:	1,500 Ohms
Maximum IDC Voltage:	11 Volts
Maximum IDC Current:	450µA
Temperature Range:	32°F to 120°F (0°C to 49°C)
Humidity:	10% to 93% Non-condensing
Dimensions:	4½" H x 4" W x 1¼" D (Mounts to a 4" square by 2⅛" deep box.)
Accessories:	SMB500 Electrical Box

BEFORE INSTALLING

This information is included as a quick reference installation guide. Refer to the control panel installation manual for detailed system information. If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect power to the control panel before installing the modules.

NOTICE: This manual should be left with the owner/user of this equipment.

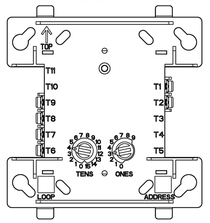
GENERAL DESCRIPTION

The IDP-Monitor Module is intended for use in intelligent, two-wire systems, where the individual address of each module is selected using the built-in rotary switches. It provides either a Class A or Class B fault tolerant initiating device circuit (IDC) for normally open contact fire alarm and supervisory devices, or either normally open or normally closed security devices. The module has a panel controlled LED indicator.

COMPATIBILITY REQUIREMENTS

To ensure proper operation, this module shall be connected to a compatible Honeywell Farenhyt series system control panel (list available from Honeywell).

FIGURE 1. CONTROLS AND INDICATORS:



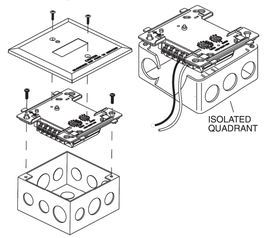
C1067-00

MOUNTING

The IDP-Monitor mounts directly to 4-inch square electrical boxes (see Figure 2). The box must have a minimum depth of 2⅛ inches. Surface mounted electrical boxes (SMB500) are available from Honeywell.

FIGURE 2. MODULE MOUNTING:

NOTE: For UL Listed security installations, the IDP-Monitor must be mounted within the control panel enclosure.



C1066-00

WIRING

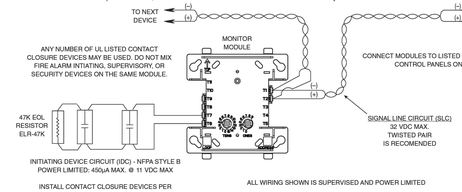
NOTE: All wiring must conform to applicable local codes, ordinances, and regulations. This module is intended for power limited wiring only.

1. Install module wiring in accordance with the job drawings and appropriate wiring diagrams.
2. Set the address on the module per job drawings.
3. Secure module to electrical box (supplied by installer), as shown in Figure 2.

NOTE: All references to power limited represent "Power Limited (Class 2)".

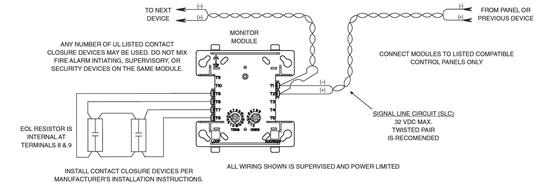
FIGURE 3. TYPICAL 2-WIRE INITIATING CIRCUIT CONFIGURATION, NFPA STYLE B OR SECURITY SYSTEMS:

NOTE: For UL Listed security installations, the IDP-Monitor must be mounted within the control panel enclosure.



C0918-00

FIGURE 4. TYPICAL 4-WIRE FAULT TOLERANT INITIATING CIRCUIT CONFIGURATION, NFPA STYLE D:



C0919-00

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The detector will go into alarm if gas entry is successful. It may take up to 1 minute for the device to alarm. Once the detector is in alarm allow 5 minutes for the CO to clear and exit the detector.

The detector will automatically enable the signal processing after 10 minutes.

Testing the detector will activate the alarm relay and send a signal to the panel.

CLEANING

Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place. (See Figure 4.)
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by aligning the arrows on the top with the two round-top posts on the sensing chamber, and gently pressing it until it fits securely.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place. NOTE: Make sure that the thermistors do not become bent under the cover.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

ABOUT CARBON MONOXIDE DETECTORS

⚠CAUTION

CAUTION: This carbon monoxide detector is designed for indoor use only. Do not expose to rain or moisture. Do not knock or drop the detector. The detector will not protect against the risk of carbon monoxide poisoning if not properly wired. The detector will only indicate the presence of carbon monoxide gas at the sensor. Carbon monoxide gas may be present in other areas.

This carbon monoxide detector is NOT:

- Designed to detect any gas other than carbon monoxide
- To be seen as a substitute for the proper servicing of fuel-burning appliances or the sweeping of chimneys.
- To be used on an intermittent basis, or as a portable alarm for the spillage of combustion products from fuel-burning appliances or chimneys.

Carbon monoxide gas is a highly poisonous gas which is released when fuels are burnt. It is invisible, has no smell and is therefore impossible to detect with the human senses. Under normal conditions in a room where fuel burning appliances are well maintained and correctly ventilated, the amount of carbon monoxide released into the room by appliances should not be dangerous.

SYMPTOMS OF CARBON MONOXIDE POISONING

Carbon monoxide bonds to the hemoglobin in the blood and reduces the amount of oxygen being circulated in the body. The following symptoms are examples taken from NFPA 72 and 720. They represent approximate values for healthy adults:

Concentration (ppm CO)	Symptoms
200	Mild headache after 2-3 hours of exposure
400	Headache and nausea after 1-2 hours of exposure
800	Headache, nausea, and dizziness after 45 minutes of exposure; collapse and unconsciousness after 2 hours of exposure

Many causes of reported carbon monoxide poisoning indicate that while victims are aware that they are not well, they become so disoriented that they are unable to save themselves by either exiting the building or calling for assistance.

Also young children and pets may be the first to be affected.

Per UL standard 2075, the IDP-FIRE-CO-W and IDP-FIRE-CO-IV has been tested to the sensitivity limits defined in UL standard 2034.

ALARM THRESHOLDS ARE AS FOLLOWS:

Parts Per Million	Detector response time, min.
70 ± 5ppm	60-240
150 ± 5ppm	10-50
400 ± 10ppm	4-15

What to do if the carbon monoxide detector goes into alarm:

Immediately move to a spot where fresh air is available, preferably outdoors.

IMPORTANT: This detector should be tested and maintained regularly following National Fire Protection Association (NFPA) 720 requirements.

CO SENSOR LIFETIME

The CO cell has an expected lifetime of approximately ten years. The detector is programmed to signal the approach of end of this lifetime to the control panel. The CO cell is not a field replaceable component. The smoke sensor will continue to operate using either sensing elements (photoelectric, heat and infrared) even though the CO cell is no longer operational. The CO detector will not operate once the CO cell has reached its end of life.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

SPECIAL APPLICATION

When configured at the fire alarm control panel, this detector is capable of operating in a special application mode such that it has a higher sensitivity than is normally allowed by UL 268 for areas where early warning is important. In this mode, the detector does not comply with the Cooking Nuisance Smoke Test. Detectors (Sampling ports) set to the special application mode are not suitable for use in areas where cooking appliances may be used. If cooking appliances are used within the protected space, a normal application detector or normal application mode must be used for that area.

Special application mode is not for general use and the detector may be more prone to false alarms if used in unsuitable environments. While no list is all-inclusive, some examples of unsuitable environments for special application mode are areas with airborne particulate or aerosols including sawing, drilling, and grinding operations, textile or agricultural processing, or areas with engines that are not vented to the outside. A complete list of aerosol and particulate sources is available in the Annex of NFPA 72.

Suitable environments for special application mode could include early warning for hospitals, museums, assisted living and other areas that do not have airborne particulate or aerosols.

Refer to the fire alarm control panel documentation for information on how to configure the detector for special application mode.

Please refer to insert for the Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

DEVICE AND SYSTEM SECURITY

Before installing this product ensure that the tamper seal on the packaging is present and unbroken and the product has not been tampered with since leaving the factory. Do not install this product if there are any indications of tampering. If there are any signs of tampering the product should be returned to the point of purchase.
It is the responsibility of the system owner to ensure that all system components, i.e. devices, panels, wiring etc., are adequately protected to avoid tampering of the system that could result in information disclosure, spoofing, and integrity violation.

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INSTALLATION AND MAINTENANCE INSTRUCTIONS

Farenhyt® Series Black

Honeywell

15S-6603-000

IDP-FIRE-CO-W and IDP-FIRE-CO-IV Multi-Criteria CO and Smoke Sensor

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.Farenhyt.com

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Operating Current @ 24 VDC:	200 uA (one communication every 5 seconds with green LED blink on communication)
Maximum Alarm Current:	2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on)
Maximum Current:	4.5 mA @ 24 VDC (one communication every 5 seconds with amber LED solid on)
Operating Humidity Range:	15% to 90% Relative Humidity, Non-condensing
Operating Temperature Range:	32°F to 120°F (0°C to 38°C)
Air Velocity:	0 to 4000 ft./min. (0 to 1219.2 m/min.)
Height:	2.7" (69 mm) installed in B200S series sounder base
Diameter:	6.875" (175 mm) installed in B200S series sounder bases
Weight:	3.4 oz. (95 g)
Isolator Load Rating:	0.0063*

*Please refer to your isolator base/module manual for isolator calculation instructions.

UL 2075 listed for Carbon Monoxide
UL 268 listed for Open Air Protection
UL 521 listed for Heat Detectors

This sensor must be installed in compliance with the control panel system installation manual. For local audible indication of a fire and/or carbon monoxide alarm, it is recommended to install the multi-criteria carbon monoxide (CO) and smoke sensors into a B200S series sounder base. If a local audible device is not used, care should be taken to develop a proper response plan. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72 and NFPA 720. For a complete list of compatible bases, refer to the Base/Sensor Cross Reference Chart at systemsensor.com.

GENERAL DESCRIPTION DOES THIS SUPPORT CLIP MODE

Models IDP-FIRE-CO-W and IDP-FIRE-CO-IV are plug-in type multi-criteria smoke sensors that offer a photoelectric sensing chamber combined with a carbon monoxide (CO) sensor, 135°F (57.2°C) fixed temperature heat detector and infrared (IR) sensors, as well as a carbon monoxide detector. The IDP-FIRE-CO-W and IDP-FIRE-CO-IV also transmit an alarm signal due to heat (135°F/57.2°C) per UL 521.

All sensors transmit an analog representation of smoke and/or carbon monoxide density over a communication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 2.)

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA100Z).

Honeywell panels offer different features sets across different models. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others.

The multi-criteria CO and smoke sensors only support IDP protocol systems. The possible features available in the multi-criteria CO and smoke sensors, if supported by the control unit are:

1. The sensor's LEDs can operate in three ways—on, off, and blinking—and they can be set to red, green, or amber. This is controlled by the panel.
2. The remote output may be synchronized to the LED operation or controlled independent of the LEDs.
3. Devices are point addressable up to 159 addresses.

Please refer to the operation manual for the UL listed control panel for specific operation. The photoelectric sensors require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPACING

Honeywell recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet apart (9.1 m). For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or the System Smoke Detector Application Guide, available from Honeywell.

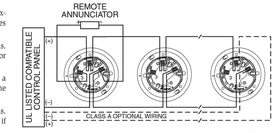
WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) per the base wiring diagram. (See Figure 1.)
2. Set the desired address on the sensor address switches. (See Figure 2.)
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control panel and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

FIGURE 1. WIRING DIAGRAM

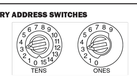


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⚠CAUTION

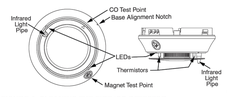
Do not loop wire under terminal 1 or 2. Break wire run to provide supervision of connections.

FIGURE 2. ROTARY ADDRESS SWITCHES



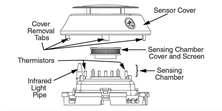
C0162-00

FIGURE 3. FEATURES OF THE FIRE/CO DETECTOR



C2043-00

FIGURE 4. CLEANING THE FIRE/CO DETECTOR



C2044-00

⚠CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

TAMPER RESISTANCE

Models IDP-FIRE-CO-W and IDP-FIRE-CO-IV include a tamper-resistant capability that prevents removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72. Sensitivity readings are available through the FACP. Refer to the manufacturer's published instructions for proper use.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)
This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.

a. Hold the test magnet in the magnet test area as shown in Figure 3.
b. The sensor should alarm the panel.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

NOTE: The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

B. Smoke Entry
Canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector.

The multi-criteria CO and smoke sensor uses algorithms to process signals received from multiple sensors to determine alarm conditions and reduce false alarms. Therefore, a single burst of canned smoke will not immediately place the detector into an alarm condition because the detector algorithms correctly determine a burst of canned smoke is not fire. In order to perform functional testing of the photoelectric sensor, the device must be placed into test mode. Test mode allows the detector to isolate the individual sensors for testing. The device can be placed into test mode through either of the following methods.

a. Put the device into test mode by holding a test magnet in the magnet test area as shown in Figure 3 for 6-12 seconds.

NOTE: If the magnet is held in place for too long the fire alarm test function will be triggered. (See Magnet Test, above.) Reset the panel and proceed with testing the smoke entry portion of the device.

b. Perform smoke entry testing immediately following the magnet test. The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

Once in test mode, test the smoke detector using one of the tested and approved aerosol smoke products. Refer to the manufacturer's published instructions for proper use of the canned smoke agent. When used properly, the canned smoke agent will cause the smoke detector to go into alarm.

Tested and approved aerosol smoke products include:

Manufacturer	Model
HSI Fire and Safety	25S, 30S (PURCHECK)
SDi	SMOKE CENTURION , SOLOA10, SMOKESABRE, TRUTEST, SOLO 365
No Climb	TESTIFIRE 2000

⚠CAUTION

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

C. Direct Heat Method (Hair Dryer of 1000-1500 watts)
A hair dryer of 1000-1500 watts should be used to test the thermistors. Direct the heat toward the thermistor, holding the heat source approximately 12 inches (30 cm) from the detector in order to avoid damaging the plastic housing. The detector will reset only after it has had sufficient time to cool. Make sure both thermistors are tested individually.

D. Multi-Criteria Testing
Testfire® by SDi provides testing of the smoke, heat and CO sensors. Consult the manufacturer's published instructions for complete usage instructions.

A sensor that fails any of these tests may need to be cleaned as described under CLEANING, and retested. When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

E. Functional Gas Test
NOTE: Check with local codes and the AHJ to determine whether or not a functional gas test is desired for an installation.

A canned CO testing agent may be used to verify the detector's ability to sense CO. Carbon Monoxide alarm thresholds are designed around CO concentrations over time, as defined in UL standard 2034. Therefore, a single burst of CO test agent will not immediately place the detector into an alarm condition. In order to perform functional testing of the CO sensor, the device must be placed into test mode. Test mode eliminates the time and concentration requirements needed for alarm and allows the CO sensor to be tested. The device can be placed into test mode through either of the following methods.

a. Put the device into test mode by holding a test magnet in the magnet test area as shown in Figure 3 for 6-12 seconds.

NOTE: If the magnet is held in place for too long the fire alarm test function will be triggered. Reset the panel and proceed with testing the CO portion of the device.

b. Perform functional gas entry testing immediately following the magnet test. The magnet test initiates an approximately 10 minute period when the detector's signal processing software routines are not active.

Once in test mode, test the CO sensor using a tested and approved canned CO testing agent. A tested and approved canned CO testing agent is Solo detector testers model C6 CO Detector Tester available from SDi. Complete the CO sensor testing as follows:

Spray a UL approved CO agent into the top of the detector near the CO sensor opening for at least 1 second. CO sensor opening is indicated by a triangle on the sensor cover. (See Figure 3.) Use the applicator straw included with the CO agent to more efficiently direct the CO into the detection cell during testing.

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DATE: 02/26/2026

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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

CONSULTING ELECTRICAL ENGINEERS
2211 ERISTA PLACE, SUITE 1
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE:
HONEYWELL CUT SHEETS
MULTI-CRITERIA CO & SMOKE SENSOR & MONITOR MODULE

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
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SHEET: E603
OF: SHEETS:

LICENSED ARCHITECT
JOSHUA A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA

signed 09.18.2025

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INSTALLATION AND MAINTENANCE INSTRUCTIONS

Farenhyt® Series Black

Honeywell

156-6531-001

IDP-PHOTO-W and IDP-PHOTO-IV Intelligent Photoelectric Smoke Sensors

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.Farenhyt.com

SPECIFICATIONS

Operating Voltage Range:	15 to 32 VDC
Operating Current @ 24 VDC:	200 uA (one communication every 5 seconds with green LED blink on communication)
Maximum Alarm Current:	2 mA @ 24 VDC (one communication every 5 seconds with red LED solid on)
Maximum Current:	4.5 mA @ 24 VDC (one communication every 5 seconds with amber LED solid on)
Operating Humidity Range:	10% to 93% Relative Humidity, Non-condensing
Operating Temperature Range:	32°F to 122°F (0°C to 50°C)
Air Velocity:	0 to 4000 ft./min. (0 to 1219.2 m/min.)
Height:	2.0" (51 mm) installed in B300-6 Base
Diameter:	6.2" (156 mm) installed in B300-6 Base; 4.1" (104 mm) installed in B501 Base
Weight:	3.4 oz. (95 g)
Isolator Load Rating:	0.0063*

*Please refer to your isolator base/module manual for isolator calculation instructions.

UL 268 listed for Open Air Protection.
UL268A listed for Duct Applications.
This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

GENERAL DESCRIPTION

Models IDP-PHOTO-W and IDP-PHOTO-IV are plug-in type smoke sensors that combine a photoelectronic sensing chamber with addressable-analog communications.

The sensors transmit an analog representation of smoke density over a communication line to a control panel. Rotary dial switches are provided for setting the sensor's address. (See Figure 1.)

FIGURE 1. ROTARY ADDRESS SWITCHES:



C0162-00

Two LEDs on the sensor are controlled by the panel to indicate sensor status. An output is provided for connection to an optional remote LED annunciator (P/N RA100Z).

Honeywell Farenhyt panels offer different feature sets across different models. As a result, certain features of the photoelectric sensors may be available on some control panels, but not on others. These devices support IDP protocol mode. The possible features available if supported by the control panel include:

1. The sensor's LEDs can operate in three ways—on, off, and blinking–and they can be set to red, green, or amber. This is controlled by the panel.
2. The remote output may be synchronized to the LED operation or controlled independent of the LEDs.
3. Devices are point addressable up to 159 addresses.

Please refer to the operation manual for the UL listed control panel for specific operation. The photoelectric sensors require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

SPACING

Honeywell recommends spacing sensors in compliance with NFPA 72. In low air flow applications with smooth ceilings, space sensors 30 feet apart (9.1 m). For specific information regarding sensor spacing, placement, and special applications, refer to NFPA 72 or the System Smoke Detector Application Guide, available from Honeywell.

Duct Applications: IDP-PHOTO-W and IDP-PHOTO-IV are listed for use in ducts. See Duct Smoke Detectors Applications Guide HVAG53 for details on pendant mount applications. **NOTE:** Intelligent photoelectric smoke sensors are also listed for use inside DNR(W) duct smoke detectors.

WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color-coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

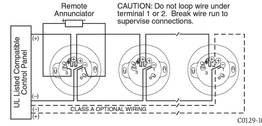
Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) as shown in the wiring diagram. (See Figure 2.)
2. Set the desired address on the sensor address switches. (See Figure 1.)
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control panel and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

⚠CAUTION

Dust covers provide limited protection against airborne dust particles during shipping. Dust covers must be removed before the sensors can sense smoke. Remove sensors prior to heavy remodeling or construction.

FIGURE 2. WIRING DIAGRAM:



C0129-10

TAMPER-RESISTANCE

Intelligent photoelectric smoke sensors include a tamper-resistant capability that prevents their removal from the base without the use of a tool. Refer to the base manual for details on making use of this capability.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.

The sensor can be tested in the following ways:

A. Functional: Magnet Test (P/N M02-04-01 or M02-09-00)

This sensor can be functionally tested with a test magnet. The test magnet electronically simulates smoke in the sensing chamber, testing the sensor electronics and connections to the control panel.

1. Hold the test magnet in the magnet test area as shown in Figure 3.
2. The sensor should alarm the panel.

Two LEDs on the sensor are controlled by the panel to indicate sensor status. Coded signals, transmitted from the panel, can cause the LEDs to blink, latch on, or latch off. Refer to the control panel technical documentation for sensor LED status operation and expected delay to alarm.

B. Smoke Entry

Sensitivity readings are available through the FACP. Refer to the manufacturer's published instructions for proper use.

Additionally, canned aerosol simulated smoke (canned smoke agent) may be used for smoke entry testing of the smoke detector. Tested and approved aerosol smoke products are:

Manufacturer	Model
HSI Fire & Safety	2SS, 30S (PURCHECK)
SDi	SMOKE CENTURIAN, SOLOA4, SMOKESABRE, TRUTEST
No Climb	TESTFIRE 2000

When used properly, the canned smoke agent will cause the smoke detector to go into alarm. Refer to the manufacturer's published instructions for proper use of the canned smoke agent.

⚠CAUTION

Canned aerosol simulated smoke (canned smoke agent) formulas will vary by manufacturer. Misuse or overuse of these products may have long term adverse effects on the smoke detector. Consult the canned smoke agent manufacturer's published instructions for any further warnings or caution statements.

A sensor that falls any of these tests may need to be cleaned as described under CLEANING, and retested.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

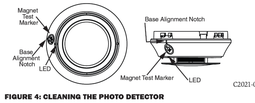
Before removing the detector, notify the proper authorities that the smoke detector system is undergoing maintenance and will be temporarily out of service. Disable the zone or system undergoing maintenance to prevent unwanted alarms.

1. Remove the sensor to be cleaned from the system.
2. Remove the sensor cover by pressing firmly on each of the four removal tabs that hold the cover in place. (See Figure 4.)
3. Vacuum the screen carefully without removing it. If further cleaning is required continue with Step 4, otherwise skip to Step 7.
4. Remove the chamber cover/screen assembly by pulling it straight out.
5. Use a vacuum cleaner or compressed air to remove dust and debris from the sensing chamber.
6. Reinstall the chamber cover/screen assembly by sliding the edge over the sensing chamber. Turn until it is firmly in place.
7. Replace the cover using the LEDs to align the cover and then gently pushing it until it locks into place.
8. Reinstall the detector.
9. Test the detector as described in TESTING.
10. Reconnect disabled circuits.
11. Notify the proper authorities that the system is back on line.

SPECIAL NOTE REGARDING SMOKE DETECTOR GUARDS

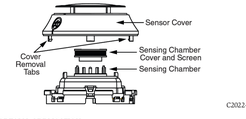
Smoke detectors are not to be used with detector guards unless the combination has been evaluated and found suitable for that purpose.

FIGURE 3: FEATURES OF THE PHOTO DETECTOR



C2021-00

FIGURE 4: CLEANING THE PHOTO DETECTOR



C2022-00

SPECIAL APPLICATION

When configured at the fire alarm control panel, this detector is capable of operating in a special application mode such that it has a higher sensitivity than is normally allowed by UL 268 for areas where early warning is important. In this mode, the detector does not comply with the Cooking Nuisance Smoke Test. Detectors (Sampling ports) set to the special application mode are not suitable for use in areas where cooking appliances may be used. If cooking appliances are used within the protected space, a normal application detector or normal application mode must be used for that area.

Special application mode is not for general use and the detector may be more prone to false alarms if used in unsuitable environments. While no list is all-inclusive, some examples of unsuitable environments for special application mode are areas with airborne particulate or aerosols including sawing, drilling, and grinding operations, textile or agricultural processing, or areas with engines that are not vented to the outside. A complete list of aerosol and particulate sources is available in the Annex of NFPA 72.

Suitable environments for special application mode could include early warning for hospitals, museums, assisted living and other areas that do not have airborne particulate or aerosols.

Refer to the fire alarm control panel documentation for information on how to configure the detector for special application mode.

Please refer to insert for the Limitations of Fire Alarm Systems

FCC STATEMENT

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

DEVICE AND SYSTEM SECURITY

Before installing this product ensure that the tamper seal on the packaging is present and unbroken and the product has not been tampered with since leaving the factory. Do not install this product if there are any indications of tampering. If there are any signs of tampering the product should be returned to the point of purchase. It is the responsibility of the system owner to ensure that all system components, i.e. devices, panels, wiring etc., are adequately protected to avoid tampering of the system that could result in information disclosure, spoofing, and integrity violation.

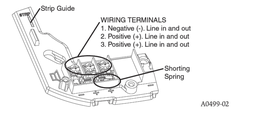
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SHORTING SPRING FEATURE

System Sensor notification appliances come with a shorting spring that is provided between terminals 2 and 3 of the mounting plate to enable system continuity checks after the system has been wired, but prior to installation of the final product. (See Figure 7.) This spring will automatically disengage when the product is installed, to enable supervision of the final system.

FIGURE 7. SHORTING SPRING



A0499-02

AVAILABLE POWER SETTINGS

System Sensor offers a wide range of power settings for your life safety needs, including ¼ , ½ , 1, and 2W.

Sound levels data per UL 1480 can be found in Table 3.

TABLE 3. SOUND LEVELS FOR EACH TRANSFORMER POWER SETTING

Setting	UL Reverberant (dBA @10 ft)	UL Anechoic (dBA @10 ft)
¼ W	77	77
½ W	80	80
1 W	83	83
2 W	86	86

⚠CAUTION

Signal levels exceeding 130% rated signal voltage can damage the speaker. Consequently, an incorrect tap connection may cause speaker damage. This means that if a 25V tap is selected when a 70.7V amplifier is being used, speaker damage may result. Therefore, be sure to select the proper taps for the amplifier voltage/input power level combination being used.

MOUNTING AND REMOVNG APPLIANCE

1. Attach mounting plate to junction box using two of the provided Philips head screws. (See Figures 8 and 9.)
2. Connect field wiring according to terminal designations. (See Figure 5.)
3. If the product is not to be installed at this point, use the protective dust cover to prevent contamination of the wiring terminals on the mounting plate.
4. To attach product to mounting plate:
   a. Remove the protective dust cover.
   b. Hook the tabs on the top of the product housing into the grooves on mounting plate.
   c. Pivot the product into position to engage the terminals on the mounting plate. Make sure that the tabs on the back of the product housing fully engage with the mounting plate.
   d. Hold product in place with one hand, and secure product by tightening the single mounting screw in the front of the product housing.

Ceiling Models only: To remove product from the mounting plate, press the locking button after loosening the captive mounting screw.

⚠CAUTION

The "hold in place" snaps are not intended to secure the product to the back box. The product must be secured to the back box using the screws provided.

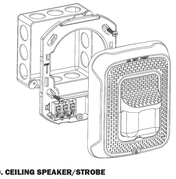
⚠CAUTION

Factory finish should not be altered: Do not paint!

⚠CAUTION

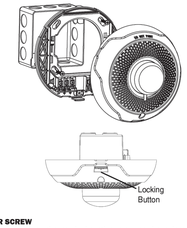
Do not over tighten mounting plate screws; this may cause mounting plate to flex.

FIGURE 8. WALL SPEAKER/STROBE



A0522-01

FIGURE 9. CEILING SPEAKER/STROBE



A0521-02

A0575-00

TAMPER SCREW

For tamper resistance, the standard captive screw may be replaced with a Torx screw (sold separately).

1. To remove the captive screw, back out the screw and apply pressure to the back of the screw until it disengages from the housing. Replace with Torx screw. (See Figure 10.)

FIGURE 10. TAMPER SCREW



A0502-01

INSTALLING A SURFACE MOUNT BACK BOX

1. The surface mount back box may be secured directly to the wall or ceiling. Use of grounding bracket with ground screw is optional. (See Figures 11 and 12.)
2. The wall mount box must be mounted with the up arrow pointing up. (See Figure 13.)

NOTE: Ceiling Surface Mount Back Box SBBCR/CWL is a common back box for ceiling horn strobes, strobes and ceiling speakers and speaker strobes. Use the top mounting holes for ceiling speaker and speaker strobe products. (See Figure 14.)

3. Threaded knockout holes are provided for the sides of the box for conduit adapter. Knockout holes in the back of the box can be used for rear entry.
4. To remove the conduit knockout, place the blade of a flat-head screwdriver along the outer edge and work your way around the knockout as you strike the screwdriver. (See Figure 15A.)

NOTE: Use caution not to strike the knockout near the top edge of the surface mount back box.

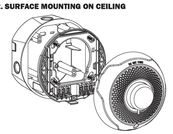
5. V500 and V700 raceway knockouts are also provided. Use V500 for low profile applications and V700 for high profile applications.
6. To remove the knockout, turn pliers up. (See Figure 15B.)

FIGURE 11. SURFACE MOUNTING ON WALL



A0523-01

FIGURE 12. SURFACE MOUNTING ON CEILING



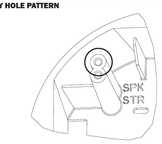
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FIGURE 13. SURFACE MOUNT BACK BOX UP ARROW



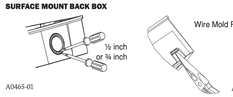
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FIGURE 14. CEILING INSTALLATION WITH A SURFACE MOUNT BACK BOX : KEY HOLE PATTERN



A0505-00

FIGURE 15A AND 15B. KNOCKOUT AND WIRE MOLD REMOVAL FOR SURFACE MOUNT BACK BOX



A0465-01 A0466-01

NOTE: Use caution not to strike the knockout near the top edge of the wall version of the surface mount back box.

⚠WARNING

THE LIMITATIONS OF SPEAKERS

Always make sure that the individual speakers are tested after installation per NFPA regulations. The speakers may not be heard. The loudness of the speaker meets (or exceeds) current Underwriters Laboratories' standards. However, the speaker may not alert a sound sleeper or one who has recently used drugs or has been drinking alcoholic beverages. The speaker may not be heard if it is placed on a different floor from the person in hazard or if placed too far away to be heard over the ambient noise such as traffic, air conditioners, machinery or music appliances that may prevent alert persons from hearing the alarm. The speaker may not be heard by persons who are hearing impaired.

FCC STATEMENT

System Sensor speakers have been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

SUPPLEMENTAL INFORMATION

For the latest Warranty information, please go to:
http://www.systemsensor.com/en-us/Documents/156-4000.pdf
For Limitations of Fire Alarm Systems, please go to:
http://www.systemsensor.com/en-us/Documents/156-1558.pdf
Speakers only: For the latest Important Assembly Information, please go to:
http://www.systemsensor.com/en-us/Documents/156-6556.pdf

Warranty | Limitations of Fire Alarm Systems | Speakers Only: Assembly Information

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INSTALLATION AND MAINTENANCE INSTRUCTIONS

SYSTEM SENSOR®

220-2000-156

Selectable Output Speaker Strobes – Wall and Ceiling Mount

3825 Ohio Avenue, St. Charles, Illinois 60174
800/736-7672, FAX: 630/377-6495
www.systemsensor.com

For use with the following models:
Wall Speakers: SPSRL, SPSWL, SPSRL-P, SPSWL-P, SPSRL-SP, SPSWL-SP, SPSWL-CLR-ALERT
Ceiling Speakers: SPSCRL, SPSCWL, SPSCWL-P, SPSCWL-SP, SPSCWL-CLR-ALERT

PRODUCT SPECIFICATIONS

Standard Operating Temperature:	32°F to 120°F (0°C to 49°C)
Humidity Range:	10 to 93% Non-condensing
Nominal Voltage (speakers):	25 Volts or 70.7 Volts
Maximum Supervisory Voltage:	50 VDC
Speaker Frequency Range:	400 – 4000 Hz
Power Settings:	¼, ½, 1, 2 Watts
Input terminal wire gauge:	12 to 18 AWG
Strobe Flash Rate:	1 flash per second
Nominal Voltage (strobes):	Regulated 12VDC, regulated 24VDC or FWR
Operating Voltage Range (includes fire alarm panels with built in sync):	8 to 17.5V (12V nominal) or 16 to 33V (24V nominal)
Operating Voltage with MDL3 Sync Module:	8.5 to 17.5V (12V nominal) or 16.5 to 33V (24V nominal)

DIMENSIONS FOR PRODUCTS AND ACCESSORIES			
WALL PRODUCTS	Length	Width	Depth
Wall Speaker Strobe	6.5" (165 mm)	5.00" (127 mm)	2.30" (58.4 mm)
CEILING PRODUCTS	Length	Width	Depth
Ceiling Speaker Strobe	6.8" (173 mm)	N/A	2.87" (73mm)
WALL SURFACE MOUNT BACK BOX	Length	Width	Depth
Speaker Strobe with SBBSPRL/WL Surface Mount Back Box	6.62" (168mm)	5.12" (130 mm)	2.30" (58.4 mm)
CEILING SURFACE MOUNT BACK BOX	Diameter		Depth
Speaker Strobe with SBBCRL/WL Surface Mount Back Box	6.92" (176 mm)		5.37" (116mm)

MOUNTING BOX OPTIONS

SPEAKER STROBES
SBBSPRL/WL (wall), SBBCRL/WL (ceiling), 4" x 4" x 2⅛"or deeper (When using 12AWG, 14 AWG, or adding extra wires in the box, a deeper box or extension ring is recommended.)

NOTICE: This manual shall be left with the owner/user of this equipment.

BEFORE INSTALLING

Please read the System Sensor Voice Evacuation Application Guide, which provides detailed information on speaker notification devices, wiring and special applications. Copies of this manual are available from System Sensor. NFPA 72 and NEMA guidelines should be observed. System Sensor also recommends installing fire alarm speakers in compliance with NFPA 72, ANSI/UL 1480 and NEC 760

Important: The notification appliance used must be tested and maintained following NFPA 72 requirements.

GENERAL DESCRIPTION

System Sensor series of notification appliances offer a wide range of audible and visible devices for life safety notification. Our indoor speaker strobes come with 7 field selectable candela setting. The strobe portion is designed to be used in 12 VDC, 24VDC, or 24V FWR (full wave rectified) systems. The speaker is designed to be used at either 25 or 70.7 volts, and operate at any one of four input power levels. Our speaker strobes are suitable for dry and damp environments. These products are electrically backwards compatible with previous generation of System Sensor speaker strobes. With its low total harmonic distortion, the System Sensor SPL series offers high fidelity sound output.

Speakers Strobes are public mode notification appliances intended to alert occupants of a life safety event. The speaker is listed to ANSI/UL 1480 (public mode) and the strobe is listed to ANSI UL 1638 (public mode).

FIRE ALARM SYSTEM CONSIDERATIONS

System Sensor also recommends installing fire alarm speakers in compliance with NFPA 72, ANSI/UL 1480 and NEC 760.

SYSTEM DESIGN

The system designer must make sure that the total current drawn by the devices on the loop does not exceed the current capability of the panel supply, and that the last device on the circuit is operated within its rated voltage. The current draw information for making these calculations can be found in the tables within this manual. For convenience and accuracy, use the voltage drop calculator on the System Sensor website (www.systemsensor.com) .

When calculating the voltage for the last device, it is necessary to consider the voltage drop due to the resistance of the wire. The thicker the wire, the smaller the voltage drop. Note that if Class A wiring is installed, the wire length may be up to twice as long as it would be circuits that are not fault tolerant. The total number of strobes on a single NAC must not exceed 69 for 24 volt applications.

AVAILABLE CANDELA SETTINGS

System Sensor offers a wide range of candela settings for your life safety needs. In order to select your candela output, adjust the slide switch on the rear of the product to the desired candela setting on the selector switch. (See Figure 1.)

The candela setting can also be verified by looking into the small window on the front of the unit. See Tables 1 and 2 for candela settings for wall and ceiling products. All products meet the light output profiles specified in the appropriate UL Standards. (See Figures 2–4.)

FIGURE 1. CANDELA SELECTOR

A0486-00

CURRENT DRAW AND AUDIBILITY RATINGS

For the strobe, the current draw for each setting is listed in Tables 1 and 2.

TABLE 1. WALL-MOUNT STROBE CURRENT DRAW (mA)

Candela	8-17.5 Volts	16-33 Volts	
	DC	DC	FWR
15	88	43	60
30	143	63	83
75	-	107	136
95	-	121	155
110	-	148	179
135	-	172	209
185	-	222	257

NOTE: Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V DC operation when set to any other candela settings.

TABLE 2. CEILING-MOUNT STROBE CURRENT DRAW (mA)

Candela	8-17.5 Volts	16-33 Volts	
	DC	DC	FWR
15	87	41	60
30	153	63	86
75	-	111	142
95	-	134	164
115	-	158	191
150	-	189	228
177	-	226	264

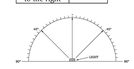
NOTE: Products set at 15 and 30 candela automatically work on either 12V or 24V power supplies. The products are not listed for 12V DC operation when set to any other candela settings.

FIGURE 2. WALL LIGHT OUTPUT – HORIZONTAL DISPERSION

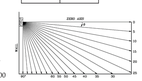
Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
55	45
60	40
65	35
70	35
75	30
80	30
85	25
90	25
Compound 45 to the left	24
Compound 45 to the right	24

FIGURE 3. VERTICAL DISPERSION, WALL TO FLOOR

Degrees*	Percent of Rating
0	100
5-30	90
35	65
40	46
45	34
50	27
55	22
60	18
65	16
70	15
75	13
80	12
85	12
90	12



A0467-00

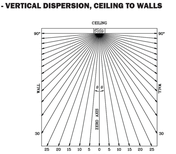


A0469-00

*Tolerance of ± 1 degree is permitted.

FIGURE 4. LIGHT OUTPUT - VERTICAL DISPERSION, CEILING TO WALLS TO FLOOR

Degrees*	Percent of Rating
0	100
5-25	90
30-45	75
50	55
60	45
65	35
70	35
75	30
80	30
85	25
90	25



A0468-00

WIRING AND MOUNTING

All wiring must be installed in compliance with the National Electric Code and the local codes as well as the authority having jurisdiction. Wiring must not be of such length or wire size which would cause the notification appliance to operate outside of its published specifications. Improper connections can prevent the system from alerting occupants in the event of an emergency.

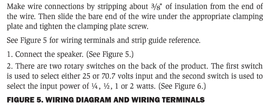
Wire sizes up to 12 AWG (2.5 mm²) may be used with the mounting plate. The mounting plate ships with the terminals set for 12 AWG wiring.

Make wire connections by stripping about ⅜" of insulation from the end of the wire. Then slide the bare end of the wire under the appropriate clamping plate and tighten the clamping plate screw.

See Figure 5 for wiring terminals and strip guide reference.

1. Connect the speaker. (See Figure 5.)
2. There are two rotary switches on the back of the product. The first switch is used to select either 25 or 70.7 volts input and the second switch is used to select the input power of ¼ , ½ , 1 or 2 watts. (See Figure 6.)

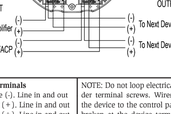
FIGURE 5. WIRING DIAGRAM AND WIRING TERMINALS



A0519-01

Wiring Terminals	NOTE: Do not loop electrical wiring under terminal screws. Wires connecting the device to the control panel must be broken at the device terminal connection in order to maintain electrical supervision.
1. Negative (-). Line in and out 2. Positive (+). Line in and out 3. Positive (+). Line in and out	

FIGURE 6. SPEAKER WATTAGE AND VOLTAGE SETTINGS



A0419-01

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KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

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SHEET TITLE: HONEYWELL CUT SHEETS
SPEAKER STROBES &
PHOTOELECTRIC SMOKE
SENSOR

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E604
OF: SHEETS:

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No. C-25839
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INSTALLATION AND MAINTENANCE INSTRUCTIONS

Farenhyt™ Series

Honeywell

156-3601-005

12 Clintonville Road, Northford, CT 06472-1610
Phone: 203-484-7161 Fax: 203-484-7118
www.Farenhyt.com

IDP-Relay

SPECIFICATIONS

Normal Operating Voltage:	15 to 32 VDC
Maximum Current Draw:	6.5 mA (LED on)
Average Operating Current:	230µA direct poll; 255µA group poll
EOL Resistance:	Not used
Temperature Range:	32°F to 120°F (0°C to 49°C)
Humidity:	10% to 93% Non-condensing
Dimensions:	4.675" H x 4.275" W x 1.4" D (Mounts to a 4" square by 2$^{1}/_{8}$" deep box.)
Accessories:	SMB500 Electrical Box

RELAY CONTACT RATINGS:

CURRENT RATING	MAXIMUM VOLTAGE	LOAD DESCRIPTION	APPLICATION
2 A	25 VAC	PF = 0.35	NON-CODED
3 A	30 VDC	RESISTIVE	NON-CODED
2 A	30 VDC	RESISTIVE	CODED
0.46 A	30 VDC	(L/R = 20MS)	NON-CODED
0.7 A	70.7 VAC	PF = 0.35	NON-CODED
0.9 A	125 VDC	RESISTIVE	NON-CODED
0.5 A	125 VAC	PF = 0.75	NON-CODED
0.3 A	125 VAC	PF = 0.35	NON-CODED

BEFORE INSTALLING

This information is included as a quick reference installation guide. Refer to the appropriate Honeywell Farenhyt series control panel installation manual for detailed system information. If the modules will be installed in an existing operational system, inform the operator and local authority that the system will be temporarily out of service. Disconnect power to the control panel before installing the modules.

NOTICE: This manual should be left with the owner/user of this equipment.

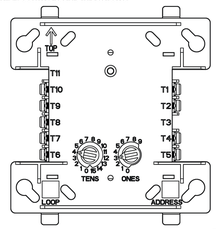
GENERAL DESCRIPTION

The IDP-Relay is intended for use in intelligent, two-wire systems where the individual address of each module is selected using the built-in rotary switches. It allows a compatible control panel to switch discreee contacts by code command. The relay contains two isolated sets of Form-C contacts, which operate as a DPDT switch and are rated in accordance with the table in the manual. Circuit connections to the relay contacts are not supervised by the module. The module also has a panel controlled LED indicator.

COMPATIBILITY REQUIREMENTS

To ensure proper operation, this module shall be connected to a compatible Honeywell Farenhyt series system control panel (list available from Honeywell).

FIGURE 1. CONTROLS AND INDICATORS:



C1071-00

MOUNTING

The IDP-Relay mounts directly to 4-inch square electrical boxes (see Figure 2A). The box must have a minimum depth of 2$^{1}/_{8}$ inches. Surface mounted electrical boxes (SMB500) are available from Honeywell. The module can also mount to the SK-DUCT or DNR(W) housing.

FIGURE 2A. MODULE MOUNTING WITH BARRIER:

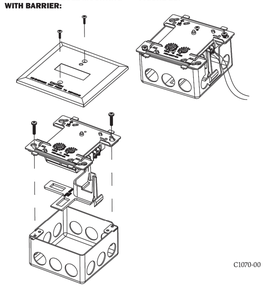


FIGURE 2B:

C1070-00

WIRING

NOTE: All wiring must conform to applicable local codes, ordinances, and regulations. When using control modules in nonpower limited applications, the CB500 Module Barrier must be used to meet UL requirements for the separation of power-limited and nonpower-limited terminals and wiring. The barrier must be inserted into a 4" × 4" × 2$^{1}/_{8}$" junction box, and the control module must be placed into the barrier and attached to the junction box (Figure 2A). The power-limited wiring must be placed into the isolated quadrant of the module barrier (Figure 2B).

1. Install module wiring in accordance with the job drawings and appropriate wiring diagrams.
2. Set the address on the module per job drawings.
3. Secure module to electrical box (supplied by installer), as shown in Figure 2A.

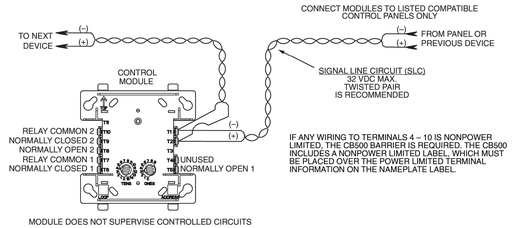
Wire should be stripped to the appropriate length (recommended strip length is $^{1}/_{4}$" to $^{3}/_{8}$"). Exposed conductor should be secured under the clamping plate and should not protrude beyond the terminal block area. Caution: Do not loop wire under terminals. Break wire run to provide supervision of connections.

NOTE: All references to power limited represent "Power Limited (Class 2)".

⚠WARNING

All relay switch contacts are shipped in the standby state (open) state, but may have transferred to the activated (closed) state during shipping. To ensure that the switch contacts are in their correct state, modules must be made to communicate with the panel before connecting circuits controlled by the module.

FIGURE 3. RELAY MODULE WIRING DIAGRAM:



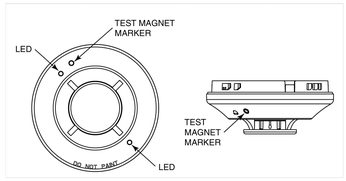
*NOTE: ANY FAULT IN THE POWER SUPPLY IS LIMITED TO THAT ZONE AND DOES NOT RESULT IN A FAULT IN A SEPARATE ZONE.

C0946-00

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Figure 3. Views showing position of test magnet.

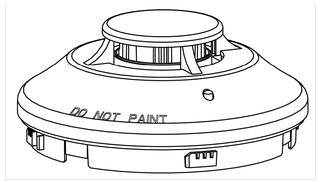


C0152-00

MAINTENANCE

NOTE: Before cleaning notify the proper authorities that the system is undergoing maintenance, and therefore the system will temporarily be out of service. Disable the loop or system undergoing maintenance to prevent unwanted alarms.

It is recommended that the sensor be removed from its mounting base for easier cleaning and that sensors be cleaned at least once a year. Use a vacuum cleaner to remove dust from the sensing chamber.



C0151-00

Figure 4.

SILENT KNIGHT
by Honeywell

7550 Meridian Circle
Maple Grove, MN 55369-4927
763-493-6455; 800-328-0103
Fax: 763-493-6475
http://www.silentknight.com
© 2005 Silent Knight 12/04

Please refer to insert for the Limitations of Fire Alarm Systems

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
– Reorient or relocate the receiving antenna.
– Increase the separation between the equipment and receiver.
– Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
– Consult the dealer or an experienced radio/TV technician for help.

SILENT KNIGHT
by Honeywell

Installation and Maintenance Instructions for IDP-Heat, IDP-Heat-ROR, and IDP-Heat-HT Intelligent Plug-In Temperature Sensors

SPECIFICATIONS

Diameter:	6.1 inches (155mm) installed in IDP-6AB
	4.1 inches (104mm) installed in B501
Height:	2.0 inches (51mm)
Weight:	4.8 ounces (137 gm)
Installation Temperature:	–4°F to 100°F (–20°C to 8°C); IDP-Heat and IDP-Heat-ROR
	–4°F to 150°F (–20°C to 66°C); IDP-Heat-HT
Operating Humidity Range:	10% to 93% Relative Humidity Non-condensing
Mounting:	IDP-6AB flanged base
	B501 flange less base
Voltage Range:	15 to 32 Volts DC Peak
Standby Current:	300 µA @ 24 VDC
LED Current:	6.5 mA @ 24 VDC
Fixed Temperature Rating:	135°F (57°C); IDP-Heat and IDP-Heat-ROR 190°F (88°C); IDP-Heat-HT
Rate-of-Rise Detection:	Responds to greater than 15°F/min.; IDP-Heat-ROR

This sensor must be installed in compliance with the control panel system installation manual. The installation must meet the requirements of the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when installed in compliance with the National Fire Protection Association (NFPA); see NFPA 72.

Before installing sensors, please read the system wiring and installation manual thoroughly. This manual provides detailed information on sensor spacing, placement, zoning, and special applications. Copies of these manuals are available from Silent Knight.

GENERAL DESCRIPTION

Models IDP-Heat, IDP-Heat-ROR and IDP-Heat-HT are intelligent sensors that utilize a state-of-the-art thermistor sensing circuit for fast response. These sensors are designed to provide open area protection with 50 foot spacing capability. Model IDP-Heat is a fixed temperature sensor with 135° F fixed temperature alarm. IDP-Heat-ROR is a rate-of-rise temperature sensor with 135° F fixed temperature alarm. Model IDP-Heat-HT is a high temperature sensor with 190° F fixed temperature alarm.

Two LEDs on each sensor light to provide a local, visible sensor indication. Remote LED annunciator capability is available as an optional accessory (Part No. RA400Z).

Models IDP-Heat, IDP-Heat-ROR, and IDP-Heat-HT require compatible addressable communications to function properly. Connect these sensors to listed-compatible control panels only.

WIRING GUIDE

All wiring must be installed in compliance with the National Electrical Code, applicable local codes and the Authority Having Jurisdiction. Proper wire gauges should be used. The installation wires should be color coded to limit wiring mistakes and ease system troubleshooting. Improper connections will prevent a system from responding properly in the event of a fire.

Remove power from the communication line before installing sensors.

1. Wire the sensor base (supplied separately) per the wiring diagram, see Figure 1.
2. Set the desired address on the sensor address switches, see Figure 2.
3. Install the sensor into the sensor base. Push the sensor into the base while turning it clockwise to secure it in place.
4. After all sensors have been installed, apply power to the control unit and activate the communication line.
5. Test the sensor(s) as described in the TESTING section of this manual.

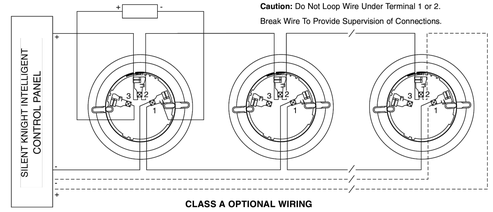
TAMPER RESISTANCE

The sensor base includes a tamper proof feature which when activated prevents removal of the sensor without the use of a tool. See the installation instruction manual for the sensor base for details in using this feature.

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All sensors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). Sensors offer maximum performance when tested and maintained in compliance with NFPA 72.



C0129-00

Figure 1

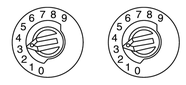
A. Test Magnet (Model No. M02-04 - optional)

1. Place the optional test magnet against the cover in the magnet test area, as shown in Figure 3, to activate the test feature (part number K200-07-00).
2. The LEDs should latch on within 10 seconds, indicating alarm and annunciating the panel.
3. Reset the detector at the system control panel.

B. Direct Heat Method (Hair dryer of 1000–1500 watts)

1. From the side of the detector, direct the heat toward the sensor. Hold the heat source about 6 inches (15 cm) away to prevent damage to the cover during testing.
2. The LEDs on the detector should light when the temperature at the detector reaches the alarm setpoint. If the LEDs fail to light, check the power to the detector and the wiring in the detector base.
3. Reset the detector at the system control panel.

Detectors that fail these tests should be cleaned as described under MAINTENANCE and retested. If the detectors still fail these tests, they should be returned for repair.



C0146-00

Figure 2

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KENNETH W. LUCCI JR.
No. E 16340
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ELECTRICAL
STATE OF CALIFORNIA

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2121 LOKEWOOD AVENUE
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SHEET TITLE: HONEYWELL CUT SHEETS TEMPERATURE SENSORS & RELAY

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E605
OF: SHEETS:

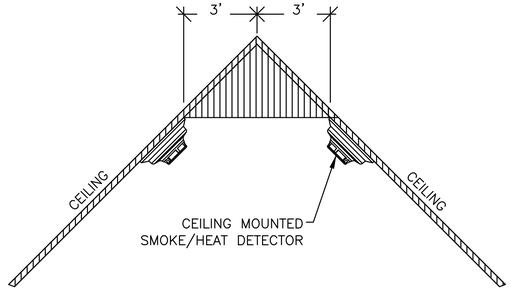
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No. C-25839
Ren. 06/30/2027
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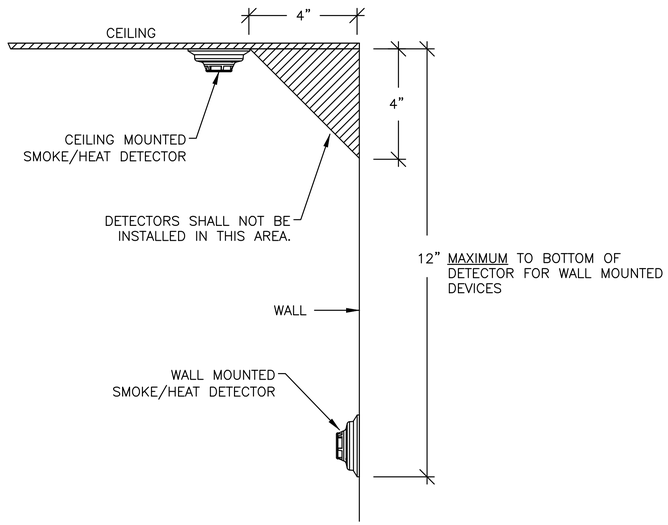
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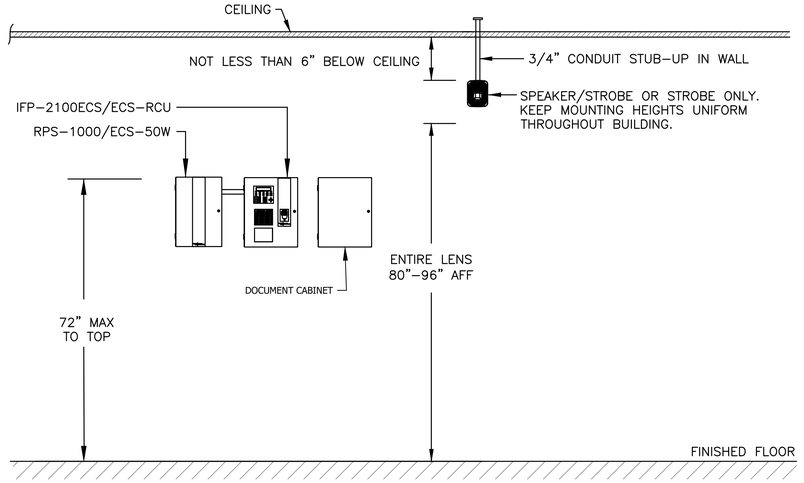
SLOPED CEILING MOUNTING DETAIL



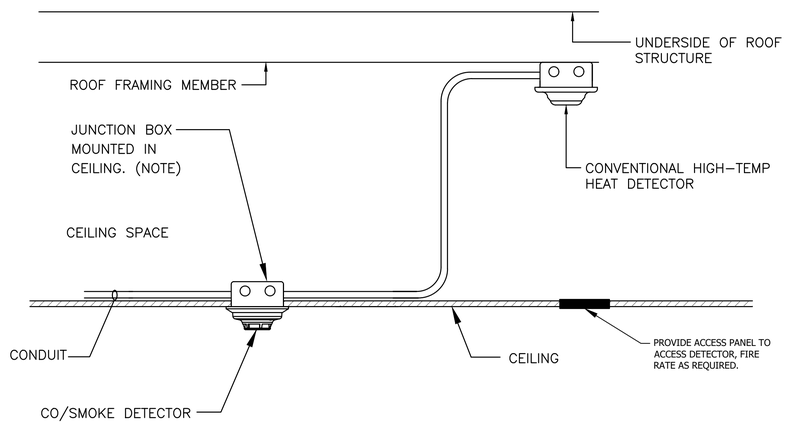
SMOKE/HEAT/CO DETECTOR MOUNTING DETAIL



COMMON MOUNTING HEIGHT DETAIL



ATTIC SPACE HI-TEMP HEAT DETECTOR DETAIL



NOTE: T-TAPPING ALLOWED ON SLC SIGNALLING CIRCUIT.

SMOKE DETECTOR MOUNTING DETAIL

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KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2651 LAURA LANE
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SHEET TITLE:
EMERGENCY VOICE/ALARM/DETECTION COMM SYSTEM - FIRE ALARM DETAILS

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN:	D.S./L.K./I.T.
CHECKED:	K. LUCCI
DATE:	04/07/2025
SCALE:	AS NOTED
JOB NO.	19-753-16
SHEET:	E606
OF:	SHEETS:

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No. C-25839
Ren. 06/30/2027
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Attach:G:\19\753\EL\Sheets\16-EEC\19753-16TB.dwg

Honeywell | Farenhyt™ Series

ECS-RVM

Remote Voice Module

Product Installation Document

1 Description

The ECS-RVM Remote Voice Module is contained within the ECS-LOC or ECS-2100LOC Local Operator Console. It provides a supervised microphone for live communication and an interface for the Emergency Communication System.

NOTE: Installation and wiring of this device must be done in accordance with NFPA 72 and local ordinances.

2 Compatibility

The ECS-RVM is compatible with the following Honeywell Farenhyt Series FACPs:

- IFP-2100ECS
- IFP-2000ECS
- IFP-1000ECS
- IFP-300ECS
- IFP-100ECS

NOTE: For programming and DIP switch settings, refer to the *FACP Manual*.

3 Specifications

- Standby Current: 60mA
- Alarm Current: 80mA

4 Board Layout and Mounting

1. Open the cabinet door and the dead front panel.
2. Remove AC power and disconnect the backup batteries from the main control panel.
3. Mount the ECS-RVM in the middle section of the dead front on the six mounting studs. See Figure 1 for hole locations and Figure 4 for board mounting location.

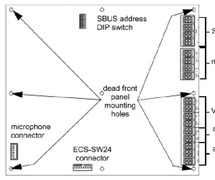


Figure 1 Back View of ECS-RVM

5 Wiring to an FACP

Figure 2 belows shows how to properly wire the ECS-RVM to the FACP SBUS.

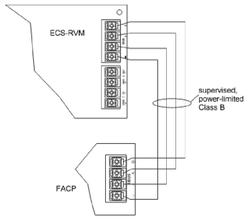


Figure 2 Wiring the ECS-RVM to the FACP

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5.1 Installing the Microphone

1. Clip the microphone onto the microphone clip.

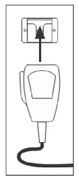


Figure 3 Hang Microphone onto Microphone Clip

2. Insert microphone cord through hole at the bottom of the dead front panel.

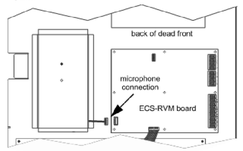


Figure 4 Microphone Cord Inserted Through Dead Front Panel Hole

3. Attach strain relief clip to microphone cord. The strain relief clip should have about 2.75" of microphone cord through it.

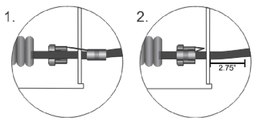
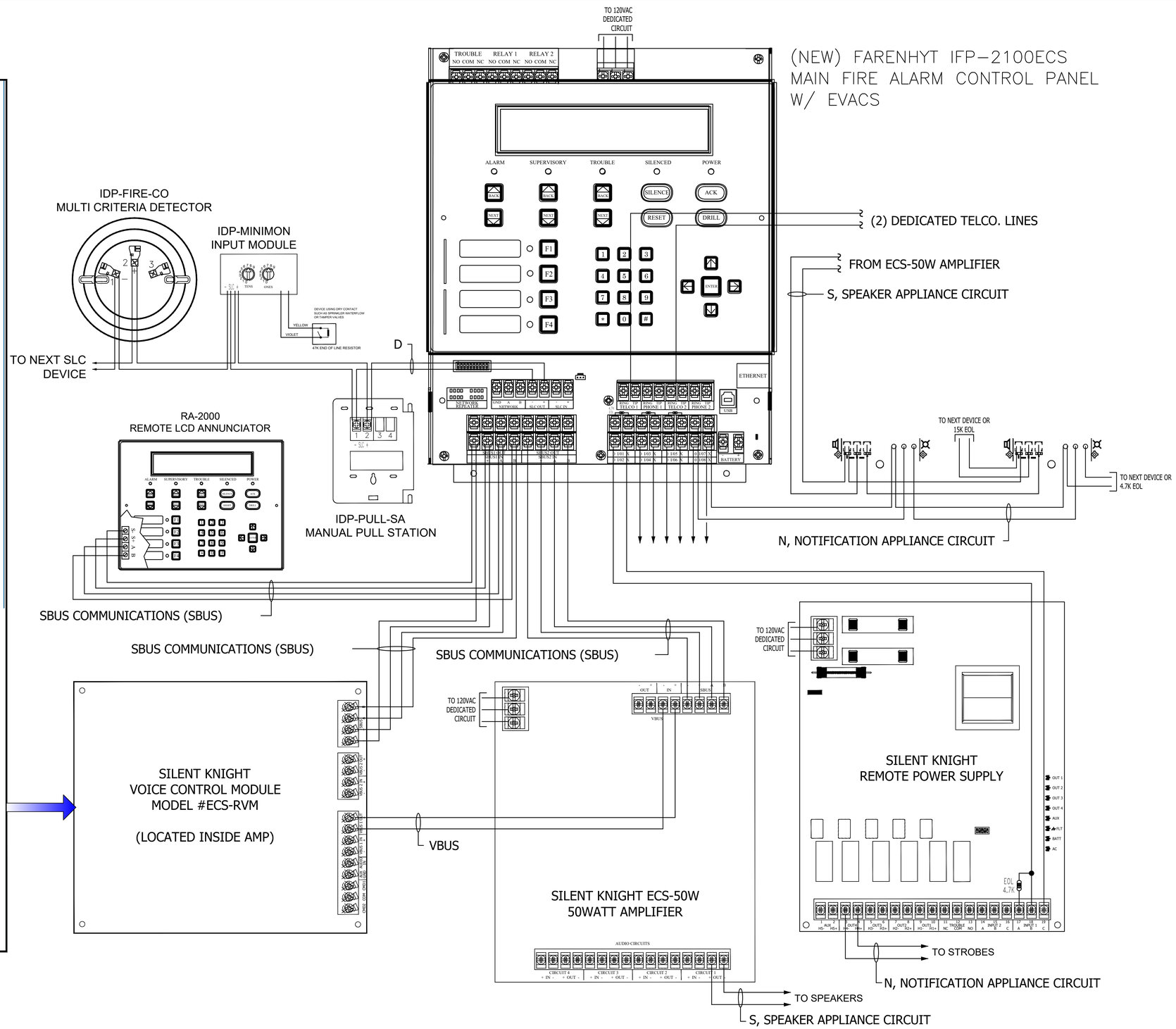


Figure 5 Installing Strain Relief Clip

4. Push the strain into the hole in the dead front panel.
5. Attach connector to the ECS-RVM board.
6. Restore AC power and reconnect the backup batteries.



POINT TO POINT FIRE ALARM/EVACS GENERIC WIRING DETAIL 1

SCALE: NOT TO SCALE

- E607 -

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LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
1000 FLYNN ROAD, SUITE 211
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: POINT TO POINT FIRE ALARM/EVACS GENERIC WIRING DETAIL

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E607
OF: SHEETS:

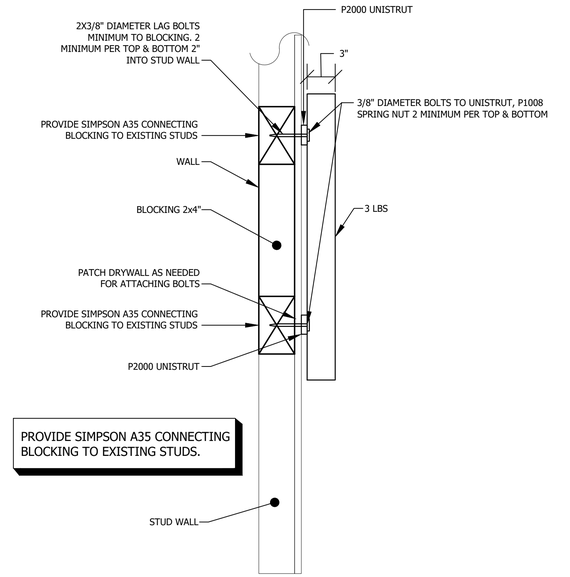
LICENSED ARCHITECT — JOHN A. JESPERSEN — No. C-25839 — Ren. 06/30/2027 — STATE OF CALIFORNIA
signed 09.18.2025

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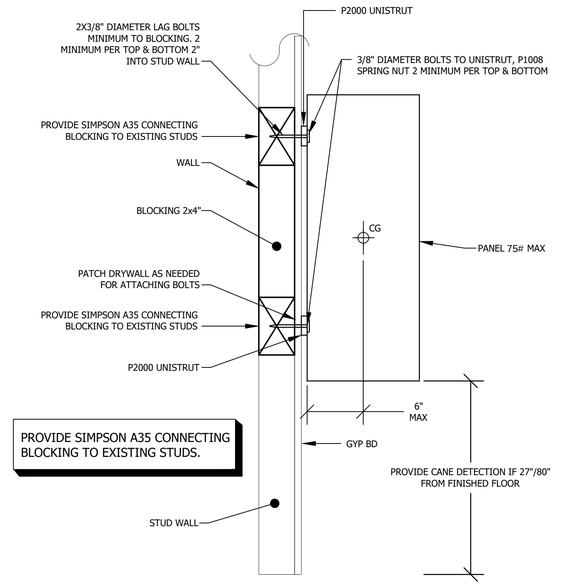
SIDE VIEW

FRONT VIEW

FA DOCUMENT CABINET (12" x 13" x 3")

SCALE: NONE

2 - E608



SIDE VIEW

FRONT VIEW

FIRE ALARM PANEL ANCHORAGE WOODEN WALL - SURFACE

SCALE: NONE

1 - E608

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KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ARCHITECT & ENGINEER
CONSULTING ELECTRICAL ENGINEERS
2631 LOKER AVENUE WEST, SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: ELECTRICAL DETAILS

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E608
OF: SHEETS:

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JOHN A. JESPERSEN
No. C-25839
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Date:9/11/2025 1:52:10 PM
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GBLP Outdoor Back Box

Applications

The Gentex GBLP Outdoor Back Box is constructed of durable plastic is ANSI/UL 464 listed for use indoor and outdoor applications when used with the WSSPK Series speaker and speaker/strobe.

Standard Features

- ANSI/UL 464 listed
- 1/2" conduit knockouts with metal washer reinforcement
- Wiremold knockouts for 500, 700 Series and pendulum mount
- Unit Dimensions: 6.20" (15.75 cm) square x 2.04" (5.18 cm) deep
- Reinforcement steel hardware
- Outdoor resistant gasket
- Available in red or off-white



WSSPK Series

Outdoor Speaker and Speaker/Strobe Series

1 unit per carton, 2 pounds per carton

Applications

The Gentex WSSPK Series is an outdoor listed, wall mount, speaker and speaker/strobe designed to meet code requirements for audio, visual and voice communications. The WSSPK Series are quality speaker products that offer both dependable evacuation signaling and visual alarms, or a combination of both.

The WSSPK24 speaker/strobe offers a fixed 15/75 candela. The WSSPK Series provides a 25 or 70.7 VRMs speaker with field selectable power taps of 1/8W, 1/4W, 1/2W, 1W, 2W or 4W.

Included with the WSSPK Series speaker and speaker/strobe is the GBLP outdoor listed back box. Using the GBLP back box with the WSSPK Series provides protection from weather related conditions and allows the necessary full candela output.

The WSSPK devices are ANSI/UL 1480, ANSI/UL 1638 and CAN/ULC S526 and/or CAN/ULC S541 listed and warranted for 3 years from the date of purchase.



Standard Features

- Speaker/strobe nominal voltage 24 VDC
- 24 VDC fixed 15/75 candela
- WSSPK speaker and WSSPK24 speaker/strobe shipped with GBLP outdoor listed back box
- WSSPK unit dimension: 6.1" (15.494 cm) square x 3.19" (8.10 cm) deep
- WSSPK24 unit dimension: 6.1" (15.494 cm) square x 4.06" (10.31) deep
- Speaker voltage 25 or 70.7 VRMs standard, field selectable
- Field selectable power taps: 1/8W, 1/4W, 1/2W, 1W, 2W, 4W
- High quality dBA output (intelligible)
- Frequency range 400-4000Hz
- Screw terminals, separate in/out wiring (12-18 gauge)
- Synchronize use the Gentex AVSM Control Module
- Tamperproof grill
- Faceplate available in red or off-white
- Wall Mount

Product Listings

SIGNALING C UL US LISTED

- ANSI/UL 1480 and ANSI/UL 1638 Listed
- CAN/ULC S526 and/or CAN/ULC S541 Listed
- CSFM: 7320-0569:0141

Product Compliance

- NFPA 72 and NFPA 720
- IBC/IFC/IRC
- City & State Ordinances/Laws/Regulations
- Quality Management System is certified to: ISO 9001:2008

WSSPK Speaker and WSSPK24 Speaker/Strobes

Model Number	Part Number	Lettering
WSSPKR - Speaker	904-1437-002	
WSSPKW - Speaker	904-1438-002	
WSSPK24-15/75WR	904-1433-002	FIRE Text
WSSPK24-15/75WW	904-1435-002	FIRE Text
WSSPK24-15/75AWR	904-1431-002	ALERT Text
WSSPK24-15/75AWW	904-1432-002	ALERT Text

R = Red Faceplate, W = White Faceplate
A = ALERT text (speaker/strobe only)
All units are available in plain (no lettering)
Plain units are not returnable

SSPK24WLP Strobe Current Ratings (mA)

	24 VDC (16-33 Volts)	
Candela	24 VDC	UL Max
15/75	63 mA	96 mA

Speaker dBA @ 10 ft.

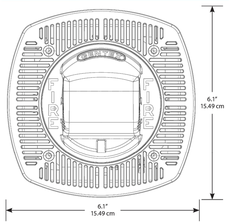
Input Watts	25 Volts	70.7 Volts
1/8	74.6 dBA	73.7 dBA
1/4	77.7 dBA	76.7 dBA
1/2	80.5 dBA	79.6 dBA
1	83.1 dBA	82.5 dBA
2	85.6 dBA	85.4 dBA
4	87.9 dBA	87.9 dBA

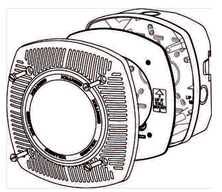
GENTEX CORPORATION

NEMA Member | Assembled in the USA

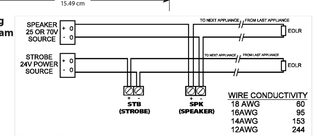
WSSPK Series

Outdoor Speaker and Speaker/Strobe Series





Wiring Diagram



WIRE CONDUCTIVITY	
18 AWG	60
16AWG	95
14AWG	153
12AWG	244

* MAX. WIRE DISTANCE (IN FEET) = PANEL VOLTAGE - DEVICE MINIMUM VOLTAGE / TOTAL CURRENT DRAW x WIRE CONDUCTIVITY (STROBE ONLY)

Notes

- Indoor operating temperature: 32° to 120°F (0° to 49°C)
- Outdoor operating temperature: -31° to 150°F (-35° to 66°C)
- The WSSPK Series is listed for outdoor use
- For nominal and peak current across ANSI/UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual
- This appliance is not recommended for use on coded or pulsing signaling circuits

Architect & Engineering Specifications

The fire alarm speaker shall be Gentex WSSPK, WSSPK24 or equivalent and shall be listed by Underwriters Laboratories, Inc. (ANSI/UL) per ANSI/UL 1638, ANSI/UL 1480 and with CAN/ULC S526 and/or CAN/ULC S541 Listed. The speaker shall be capable of producing alarm tones or voice on all 25 or 70.7 VRMs audio systems. The speaker shall provide incremental tap settings of 1/8, 1/4, 1/2, 1, 2 or 4 watts. Minimum dBA rating at 1/4 watt shall be 76.7 dBA at 70.7 volts and a minimum dBA rating at 4 watts shall be 87.9 dBA at 70.7 volts. Tap settings shall be adjustable with field selectable jumper pins. The speaker shall also have an optional visual signal capability with an operating current of 96 mA or less at 24 VDC for the 15/75 Cd strobe circuit. The strobe appliance shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24 volt models. The visual signal shall have a 1Hz flash rate regardless of input voltage. All field wiring connections shall be made via separate in-out terminal connections. The appliance has extended temperature range of -31°to 150°F (-35° to 66° C) and shall satisfy all outdoor and sever environment applications. The GBLP back box includes a gasket that must be inserted between the box and device and include drain holes in the back box to allow for drainage, the seal on the GBLP is not water tight.

GENTEX CORPORATION **Fire Protection Products Group** | 10985 Chicago Drive | Zeeland, MI 49464 **551-0072-03**
gentex.com | **Phone:** 616.392.7195 | **Toll-free:** 800.436.8391 | **Fax:** 616.392.4219

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KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES CONSULTING ELECTRICAL ENGINEERS
2211 CORTE DEL NOGAL, SUITE E
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SHEET TITLE: GENTEX CUT SHEETS
OUTDOOR SPEAKER
STROBES & BACK BOX

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E609
OF: SHEETS:

LICENSED ARCHITECT
JOHN A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA

signed 09.18.2025

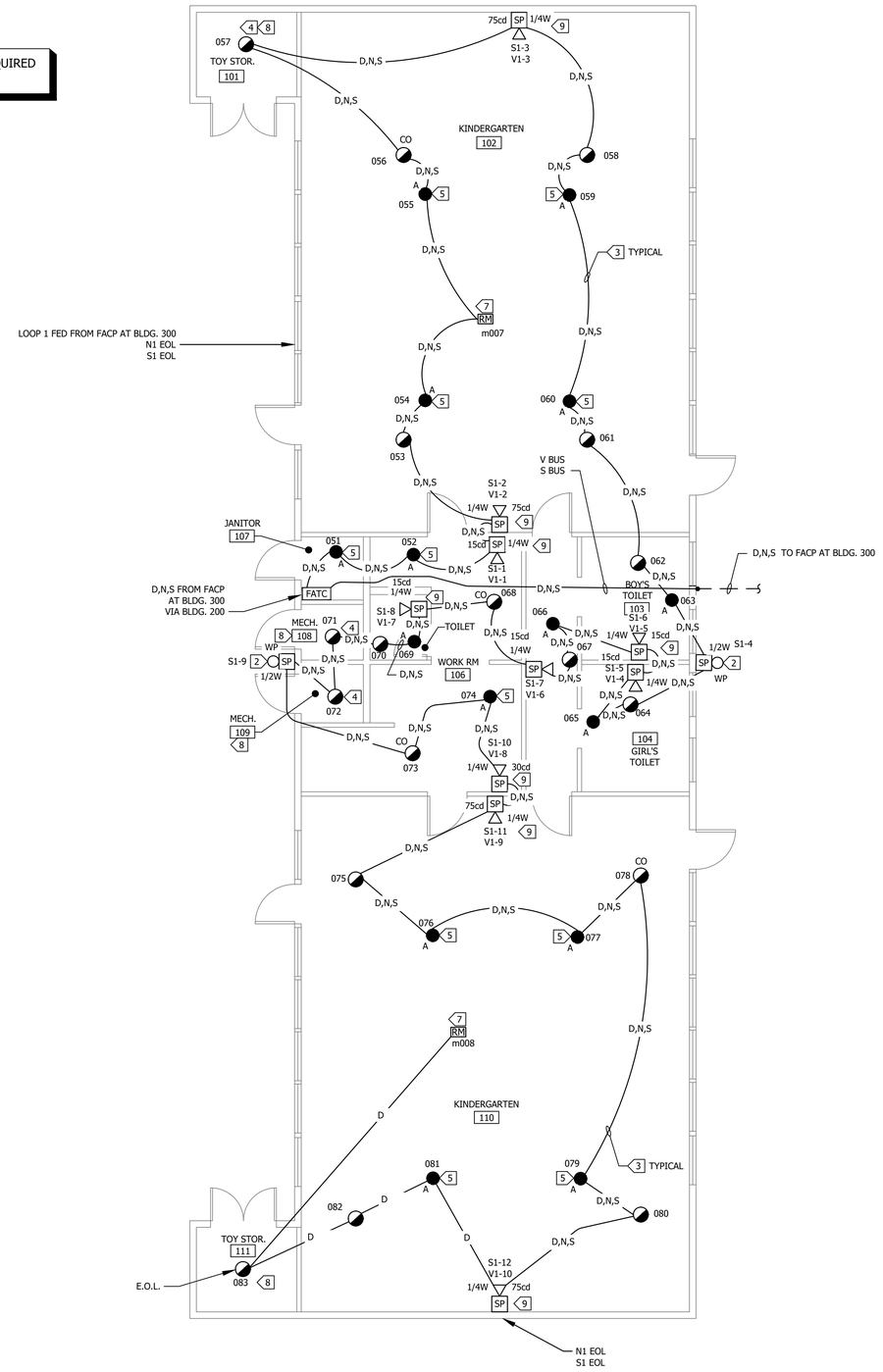
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DATE: 11 September 2025 TIME: 1:52 pm
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DRAWING FILENAME: 19753-16-E609
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PULL STATIONS NOT REQUIRED PER CFC907.2.29.1



3/16" = 1'-0"

0 1' 4' 8' 12'

BUILDING 100 KINDERGARTEN - FIRE ALARM PLAN

SCALE: 3/16"=1'-0"

NEW WORK

1 / E610

N

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR WHERE EXPOSED.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.

KEY NOTES:

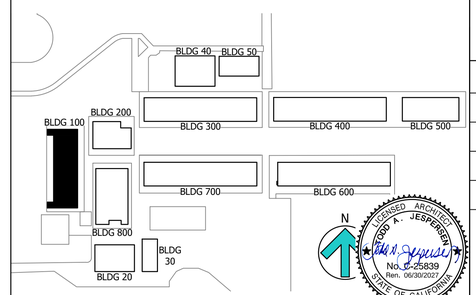
1. PROVIDE 3/4"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-1P DEDICATED CIRCUIT BREAKER PANEL A-42.
2. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL + MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL + SMOKE DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FOR HVAC UNIT SHUTDOWN.
8. NO ATTIC SPACE.
9. INSTALL SPEAKER-STROBE ON CEILING.

PROJECT DATA:

BUILDING CLASSIFICATION:
- A. OCCUPANCY TYPE: E-1
- B. CONSTRUCTION TYPE: V-N
- C. SPRINKLERED: NOT

AGENCIES:
- A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



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APP: 03-125105 INC:
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REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 6340 Exp. 09/30/2026 ELECTRICAL STATE OF CALIFORNIA

LUCCI & ASSOCIATES CONSULTING ELECTRICAL ENGINEERS
1241 CORPORATE CENTER DRIVE, SUITE 101
CAMARILLO, CA 93012-8094
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SHEET TITLE: BUILDING 100 - KINDERGARTEN FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN:	D.S./L.K./I.T.
CHECKED:	K. LUCCI
DATE:	04/07/2025
SCALE:	AS NOTED
JOB NO.	19-753-16
SHEET:	E610
OF:	SHEETS:

LICENSED ARCHITECT JOHN A. JESPERSEN No. C-25839 Ren. 06/30/2027 STATE OF CALIFORNIA

signed 09.16.2025

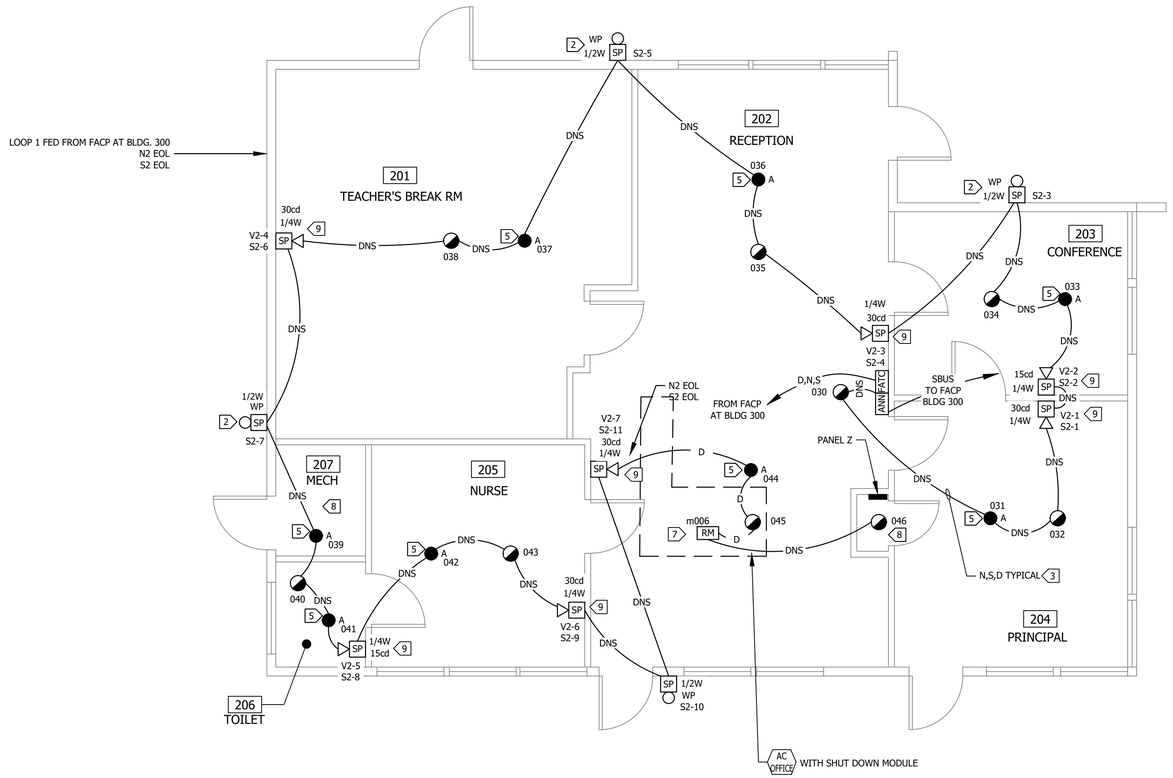
Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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DRAWING: G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E610.dwg PLOT BY: CM02 PLOT DATE: 9/11/2025 1:52:17 PM

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PULL STATIONS NOT REQUIRED
PER CFC907.2.29.1



SCALE: 1/4"=1'-0"
0 2' 4' 8'

BUILDING 200 - FIRE ALARM PLAN

SCALE: 1/4"=1'-0"

1 - E620

NEW WORK

N

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.

KEY NOTES:

1. -
2. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR) EXTERIOR BOX.
3. SEE THE FIRE ALARM RISER DIAGRAM E700 FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. CONNECT TO BUILDING 200 PER E700
7. FOR HVAC UNIT SHUTDOWN.
8. NO ATTIC SPACE.
9. INSTALL SPEAKER-STROBE ON CEILING

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
	.	.
	.	.
	.	.
	.	.
	.	.
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	.	.

STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2351 LUCIE AVENUE, #311
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

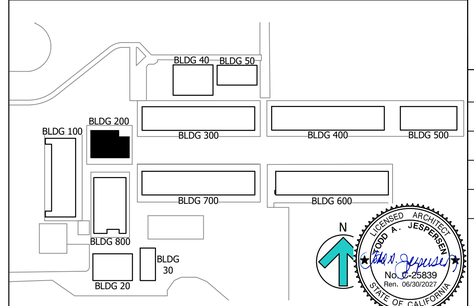
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PROJECT DATA:

BUILDING CLASSIFICATION:
A. OCCUPANCY TYPE: E-1
B. CONSTRUCTION TYPE: V-N
C. SPRINKLERED: NOT

AGENCIES:
A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Exp. 06/30/2027
STATE OF CALIFORNIA

signed 09.18.2025

SHEET TITLE: BUILDING 200 - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E620
OF: SHEETS:

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PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center DRAWING FILENAME: 19753-16-E620 DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E620.dwg
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Xrefs: Bind: Insert:
Attached XREFS:

Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E620.dwg: DATE: MAR 17, 2025 TIME: 9:34 AM

PANEL NUMBER Y | VOLTAGE 120/208 | PHASE 3 | WIRE 4

SOURCE DB | A.I.C. 10,000

PANEL LOCATION SEE PLAN | BUS AMPERE RATING 225

■ NEMA 1 ■ COPPER BUSS

■ MAIN LUGS ONLY

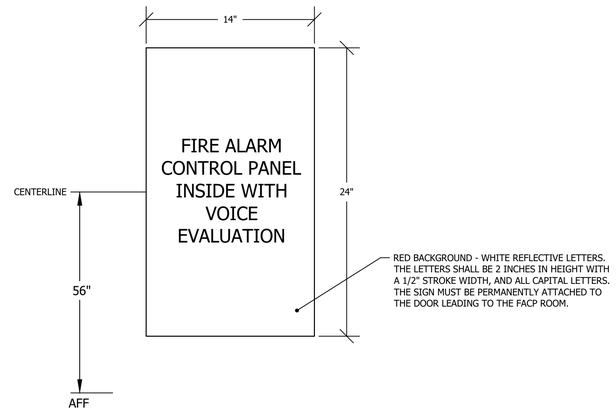
■ FLUSH MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	BRKR POLE	BRKR AMP	CKT	PHASE A B C	CKT	BRKR AMP	BRKR POLE	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				(E) LOAD LTS	·			1	20	1		2	20	1	·			(E) LOAD				
						·				3		4				·						
							·			5		6					·					
					·					7		8			·							
						·				9		10				·						
							·			11		12					3888					
					·					13		14			3888							
						·				15		16				3888						
							·			17		18					·					
					·					19		20			·							
						·				21		22	20	1		·		WIREMOLD				
1				FIRE ALARM			·	1	20	23		24	20	1			·	WIREMOLD				
				AC-2	·				30	25		26	30		·			AC-4				
						·				27		28				·						
							·	3		29		30		3			·					
				AC-3	·				30	31		32	20		·			AC-1				
						·				33		34		2		·		AC-1				
							·	3		35		36	20	1			·	WIREMOLD				
				AC-5	·				30	37		38	20	1	·							
						·				39		40	20	1		·						
							·	3		41		42	20	1			·					
				TOTALS	·	·	·								·	·	·	TOTALS				

L.C.L. VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL AMPS: . PHASE A . PHASE B . PHASE C .



DOOR SIGNAGE 2

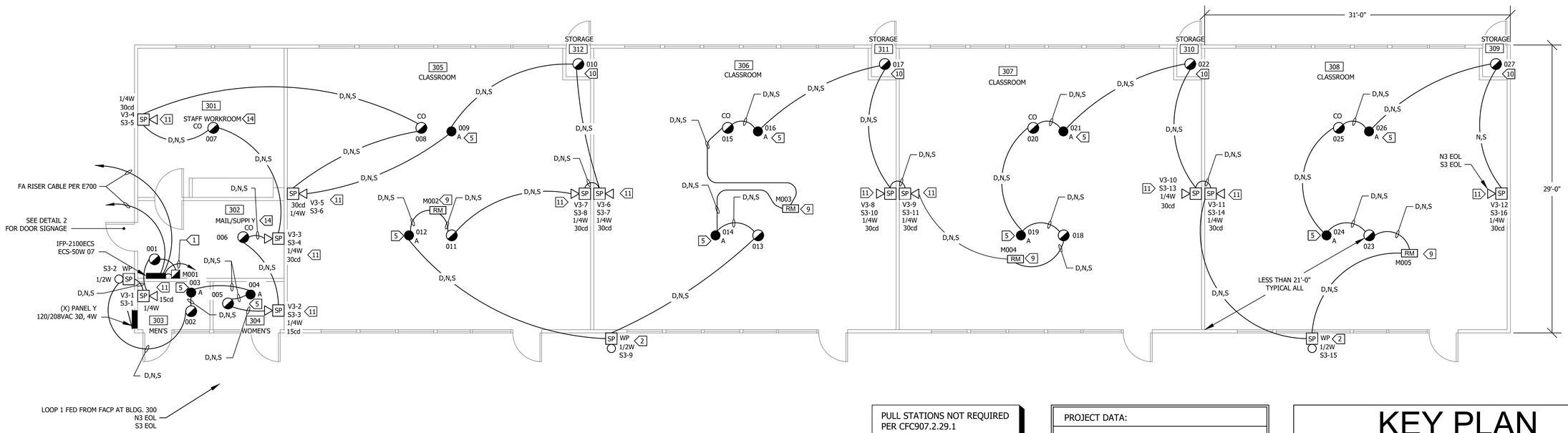
SCALE: NONE - E630 -

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.

KEY NOTES:

1. PROVIDE 3/4"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-1P DEDICATED CIRCUIT BREAKER PANEL Y-23 LABELED 'FIRE ALARM'.
2. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HIGH TEMP HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. FOR HVAC UNIT SHUTDOWN.
10. NO ATTIC SPACE.
11. INSTALL SPEAKER-STROBE ON CEILING.



PULL STATIONS NOT REQUIRED PER CFC907.2.29.1

PROJECT DATA:

BUILDING CLASSIFICATION:
A. OCCUPANCY TYPE: E-1
B. CONSTRUCTION TYPE: V-N
C. SPRINKLERED: NOT

AGENCIES: A. DIVISION OF THE STATE ARCHITECT

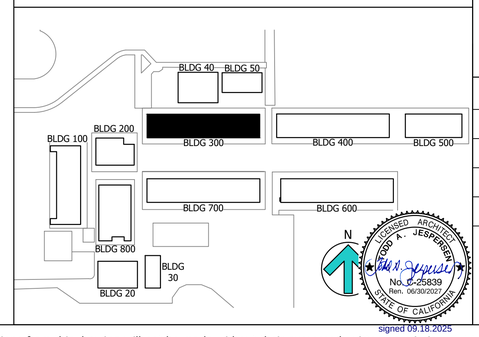
3/16" = 1'-0"
0 1' 4' 8' 12'

BUILDING 300 - FIRE ALARM PLAN 1

SCALE: 3/16"=1'-0" NEW WORK - E630 -

N

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	.	.

STAMP

REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 6340 Exp. 09/30/2026 ELECTRICAL STATE OF CALIFORNIA

RAM ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2201 LOKER AVENUE WEST, SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 300 - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E630
OF: SHEETS:

LICENSED ARCHITECT TODD A. JESPERSEN No. C-25839 Ren. 08/30/2027 STATE OF CALIFORNIA
signed 09.18.2025

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DATE: 11 September 2025 TIME: 1:52 pm
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Drawing: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E630.dwg
Date: 9/4/2025 2:41:33 PM
Attached XREFS:

Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E630.dwg: DATE: MAR 17, 2025 TIME: 9:37 AM

PANEL NUMBER	A1	VOLTAGE	120/208	PHASE	3	WIRE	4
SOURCE	A	A.I.C.	10,000				
PANEL LOCATION	SEE PLAN	BUS AMPERE RATING	225				

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 225A
■ SURFACE MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	BRKR POLE	BRKR AMP	CKT	PHASE A B C	CKT	BRKR AMP	BRKR POLE	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				(E) LOAD	·			1	20	1		2	20	1	·			(E) LOAD				
						·				3		4				·						
							·			5		6					·					
					·					7		8			·							
						·				9		10				·						
							·			11		12					·					
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							·			23		24					·					
					·					25		26			·							
						·				27		28				·						
				OVEN			·		30	29		30	40				·	RANGE				
				OVEN	·			2		31		32		2	·			RANGE				
				SPARE		·		1	20	33		34	20	1		·		SPARE				
							·			35		36					·					
					·					37		38			·							
						·				39		40				·						
							·			41		42					100	FIRE ALARM				1
				TOTALS	·	·	·								·	·	·	TOTALS				

L.C.L. VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL AMPS: . PHASE A . PHASE B . PHASE C .

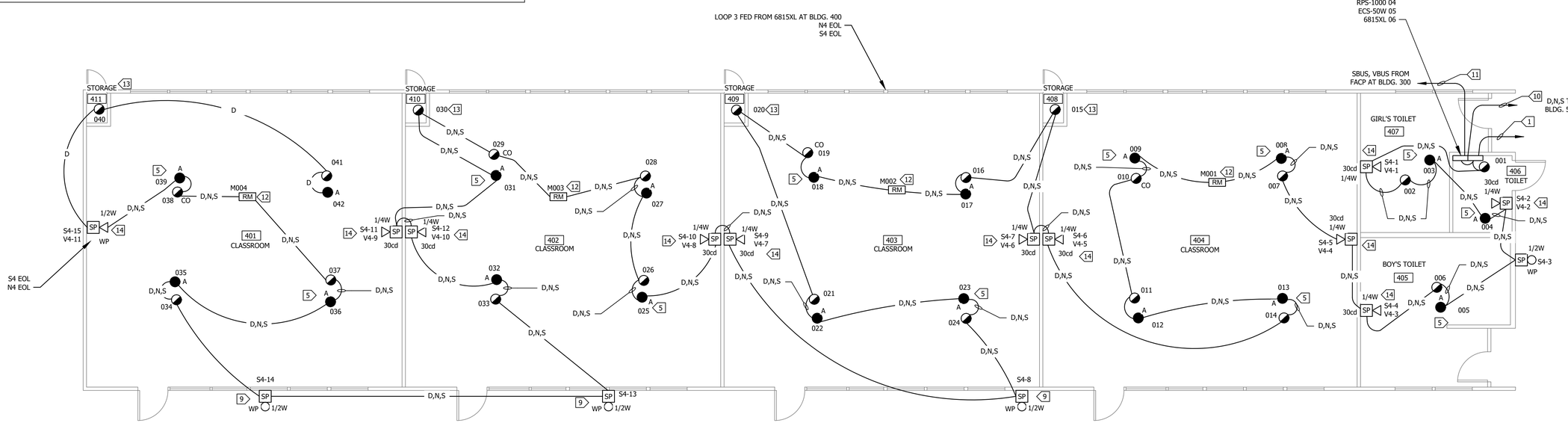
PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY NOTES:

1. PROVIDE 3/4"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-1P DEDICATED CIRCUIT BREAKER PANEL A1-42 LABELED 'FIRE ALARM'.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HIGH TEMP HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY).
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR).
10. TO BLDG 500 PER RISER DIAGRAM E700.
11. TO BLDG 300 PER RISER DIAGRAM E700.
12. FOR HVAC UNIT SHUTDOWN.
13. NO ATTIC SPACE.
14. INSTALL SPEAKER-STROBE ON CEILING.

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.



3/16" = 1'-0"
0 1' 4' 8' 12'

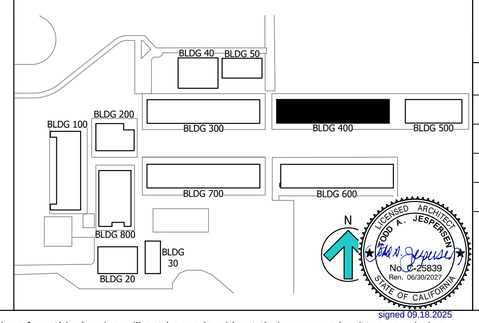
BUILDING 400 - FIRE ALARM PLAN

SCALE: 3/16"=1'-0" NEW WORK

1 / E640

N

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	·	·
	·	·
	·	·
	·	·
	·	·
	·	·

STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ARCHITECT: RRM DESIGN GROUP
CONSULTING ELECTRICAL ENGINEERS
3765 S. HIGUERA ST., SUITE 102
SAN LUIS OBISPO, CA 93401
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 400 - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN:	D.S./L.K./I.T.
CHECKED:	K. LUCCI
DATE:	04/07/2025
SCALE:	AS NOTED
JOB NO.	19-753-16
SHEET:	E640
OF:	SHEETS:

LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 08/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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DATE: 11 September 2025 TIME: 1:52 pm
PLOT DATE: 9/11/2025 1:52:24 PM
DRAFTER: CM02
PLOT BY: CM02
PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center
SAVE DATE: 9/4/2025 2:41:18 PM
DRAWING FILENAME: 19753-16-E640.dwg
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E640.dwg

DwgRef=2902 Paper Size: 12.0
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E640.dwg
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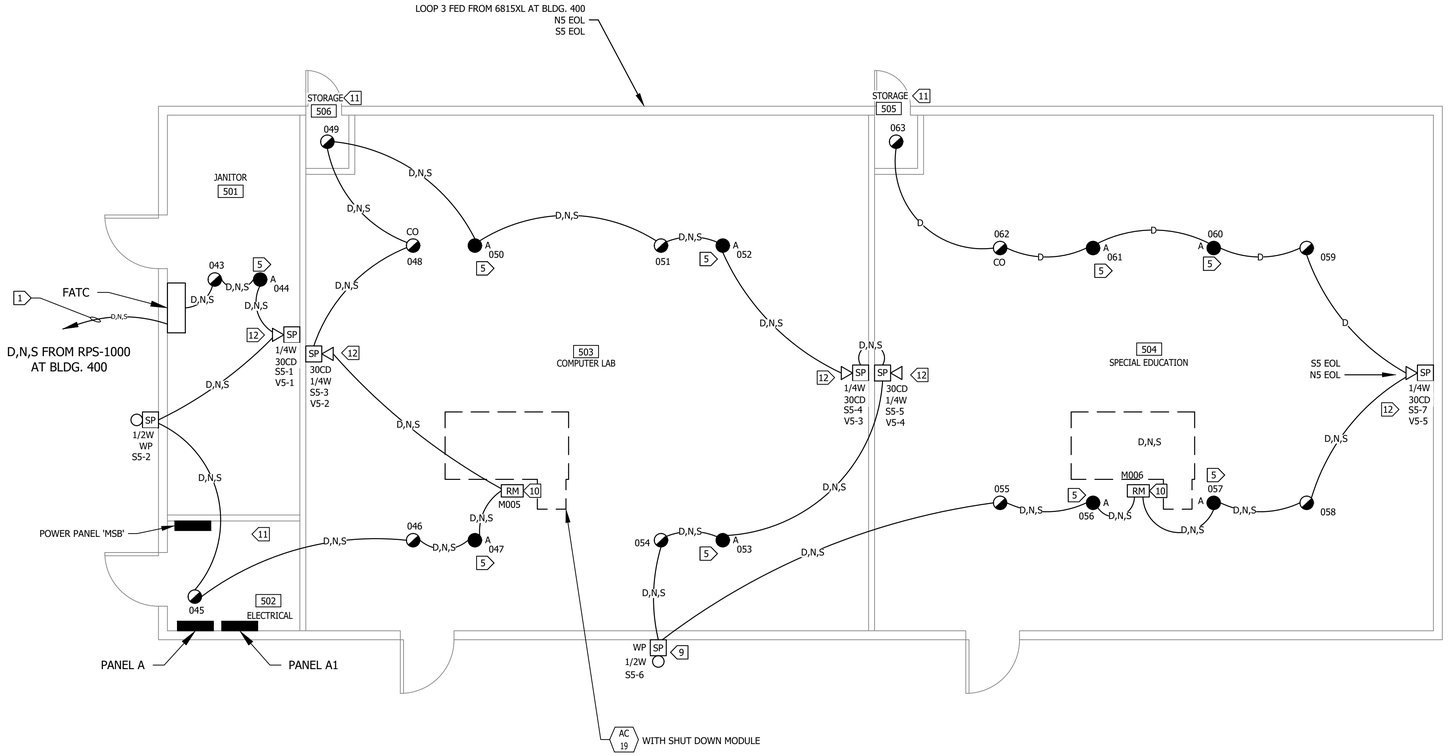
PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY NOTES:

1. SEE FA RISER E700 FOR CABLING TO RPS4
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
10. FOR HVAC UNIT SHUTDOWN.
11. NO ATTIC SPACE.
12. INSTALL SPEAKER-STROBE ON CEILING.

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.



SCALE: 1/4"=1'-0"

0 2' 4' 8'

BUILDING 500 CLASSROOM - FIRE ALARM PLAN

SCALE: 1/4"=1'-0" NEW WORK - 1 - E650

N

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
3251 LOKER AVENUE EAST, SUITE 211
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

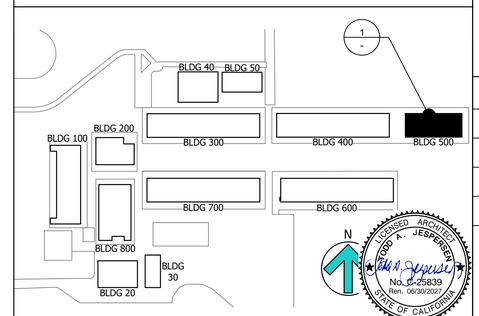
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SHEET TITLE: BUILDING 500 CLASSROOM FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E650
OF: SHEETS:

KEY PLAN



LICENSED ARCHITECT
LOUIS A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

DATE: 11 September 2025 TIME: 1:52 pm
PLOT DATE: 9/11/2025 1:52:27 PM
PLOT BY: CM02
SAVE DATE: 9/4/2025 2:40:30 PM
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DRAWING FILENAME: 19753-16-E650
DRAFTER: CM02
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Drafter:CM02 Paper Size: 12.9
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Date: 9/4/2025 2:40:30 PM
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Plotter: DWG To PDF.pc3

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PLOT DATE: 9/11/2025 1:52:30 PM
PLOT BY: CM02
SAVE DATE: 9/4/2025 2:37:50 PM
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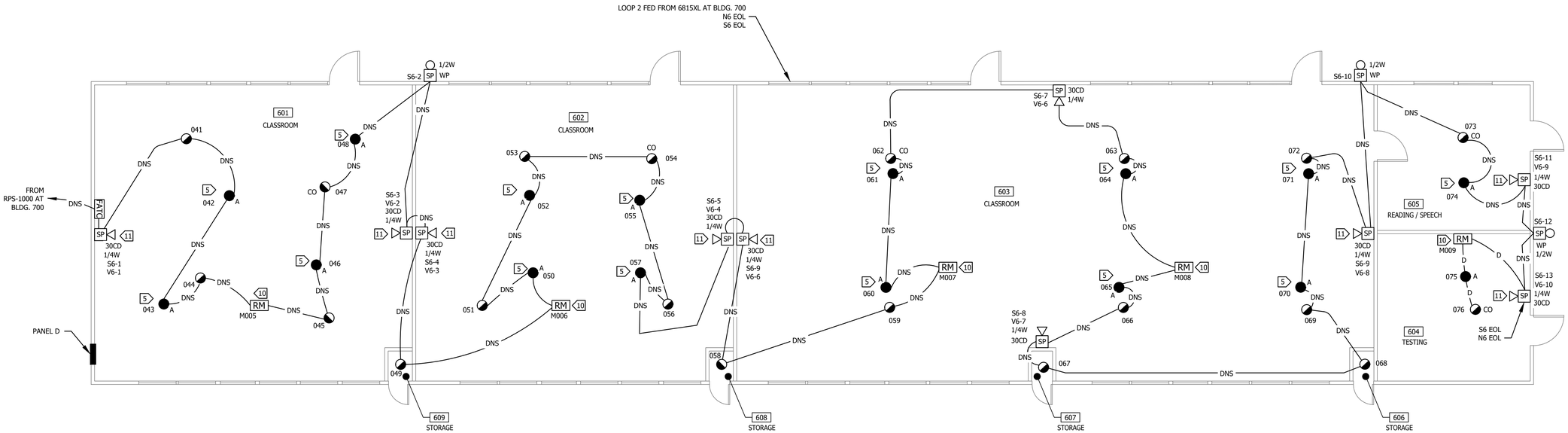
PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY NOTES:

1. CONNECT TO BUILDING 700 RPS7 PER E702.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
10. FOR HVAC UNIT SHUTDOWN.
11. INSTALL SPEAKER-STROBE ON CEILING.

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.



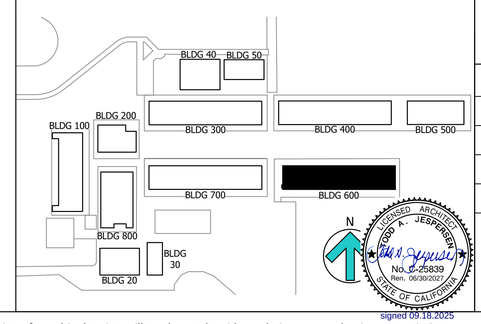
3/16" = 1'-0"
0 1' 4' 8' 12'

BUILDING 600 - FIRE ALARM PLAN

SCALE: 3/16"=1'-0" NEW WORK 1 - E660

N

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
	.	.
	.	.
	.	.
	.	.
	.	.
	.	.
	.	.

STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ENGINEER & MANAGEMENT
CONSULTING ELECTRICAL ENGINEERS
2530 LUCIENTE DRIVE, SUITE 1
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 600 CLASSROOM FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E660
OF: SHEETS:

LICENSED ARCHITECT
JOHN A. JESPERSEN
No. C-25839
Exp. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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PANEL NUMBER D1 VOLTAGE 120/208 PHASE 3 WIRE 4

SOURCE DB A.I.C. 10,000

PANEL LOCATION SEE PLAN BUS AMPERE RATING 225

■ NEMA 1 ■ COPPER BUSS

■ MAIN LUGS ONLY

■ FLUSH MOUNTING

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	BRKR POLE	BRKR AMP	CKT	PHASE A B C	CKT	BRKR AMP	BRKR POLE	LOAD(VA) A	LOAD(VA) B	LOAD(VA) C	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				AC-3	·				30	1		2	30		·			AC-3				
				↓		·				3		4				·		↓				
				↓			·	3		5		6		3			·	↓				
				AC-3	·				30	7		8	30		·			AC-3				
				↓		·				9		10				·		↓				
				↓			·	3		11		12		3			3888	↓				
				AC-3	·				30	13		14	30		3888			AC-3				
				↓		·				15		16				3888		↓				
				↓			·	3		17		18		3			·	↓				
				AC-3	·				30	19		20	30		·			AC-3				
				↓		·				21		22				·		↓				
				↓			·	3		23		24		3			·	↓				
				WIREMOLD	·			1	20	25		26			·							
				↓		·				27		28				·						
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				↓			·			35		36					·					
				↓	·					37		38	20	1	·			EF-7				
				↓		·				39		40	30			·		AC-2				
1				FIRE ALARM			100			41		42		2			·	AC-2				
				TOTALS	·	·	·								·	·	·	TOTALS				

L.C.L. VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL VOLT AMPS: . PHASE A . PHASE B . PHASE C .

TOTAL AMPS: . PHASE A . PHASE B . PHASE C .

PROJECT DATA:

BUILDING CLASSIFICATION:
A. OCCUPANCY TYPE: E-1
B. CONSTRUCTION TYPE: V-N
C. SPRINKLERED: NOT

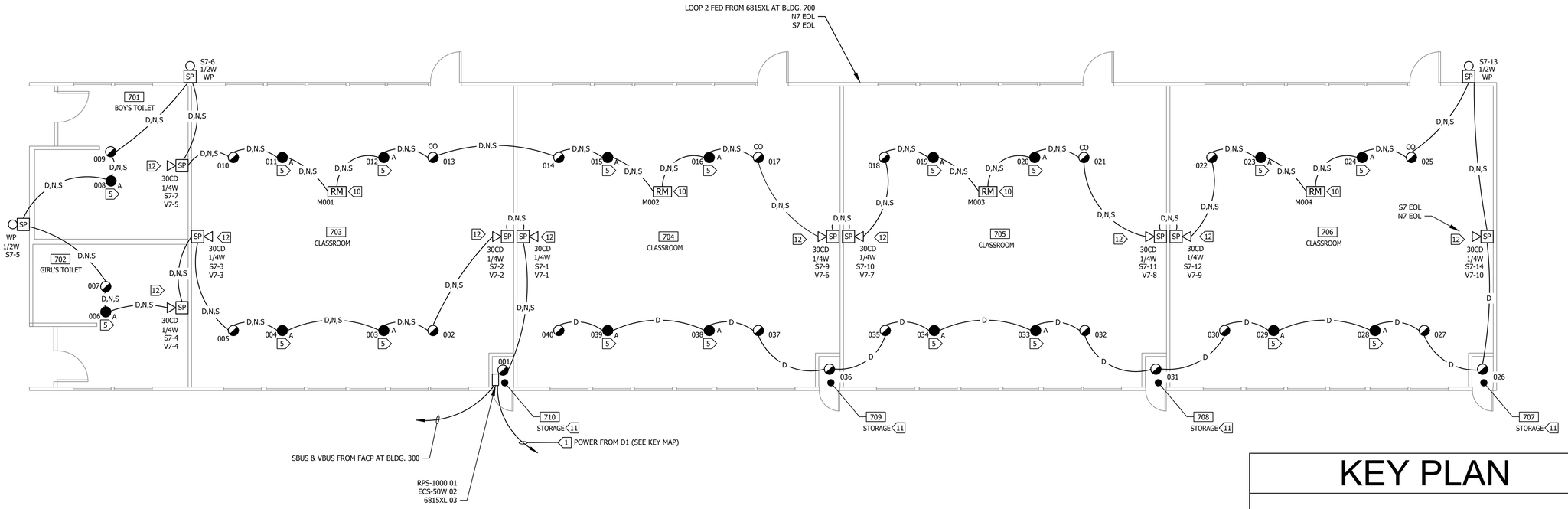
AGENCIES:
A. DIVISION OF THE STATE ARCHITECT

KEY NOTES:

1. PROVIDE 3/4"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-IP CIRCUIT BREAKER PANEL D1-41 LABELED 'FIRE ALARM'.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
10. FOR HVAC UNIT SHUTDOWN.
11. NO ATTIC SPACE.
12. INSTALL SPEAKER-STROBE ON CEILING.

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.



BUILDING 700 CLASSROOM - FIRE ALARM PLAN

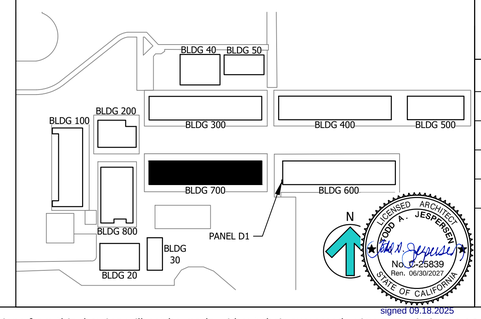
SCALE: 3/16"=1'-0"

NEW WORK

1 - E670 -

N

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	·	·
	·	·
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E-6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ken lucci, pe
CONSULTING ELECTRICAL ENGINEERS
3231 LOMA VISTA ROAD, SUITE 1
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 700 CLASSROOM - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E670
OF: SHEETS:

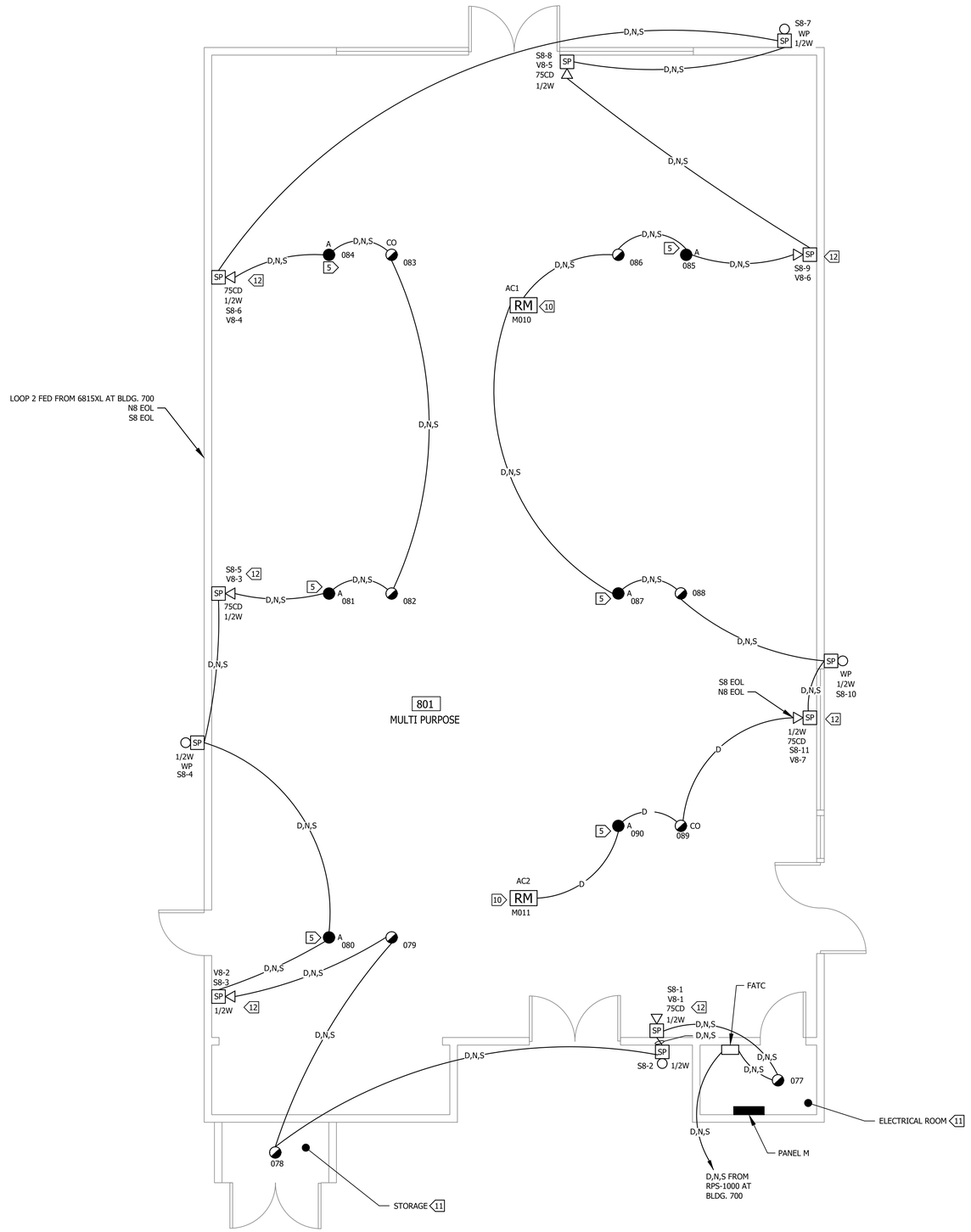
LICENSED ARCHITECT LOUIS A. JESPERSEN No. C-25839 Ren. 06/30/2027 STATE OF CALIFORNIA
signed 09.18.2025

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L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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SAVE DATE: 9/4/2025 2:43:03 PM PLOT BY: CM02 PLOT DATE: 9/11/2025 1:52:32 PM

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Date: 9/4/2025 2:43:03 PM
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SCALE: 1/4"=1'-0"

0 2' 4' 8'

BUILDING 800 - FIRE ALARM PLAN

SCALE: 1/4"=1'-0" NEW WORK

1 - E680

N

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN ALL HARD LID CEILING AREAS WHERE FA EQUIPMENT IS INSTALLED.

KEY NOTES:

1. PROVIDE 3/4"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-1P DEDICATED CIRCUIT BREAKER PANEL M-20.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
10. FOR HVAC UNIT SHUTDOWN.
11. NO ATTIC SPACE.
12. INSTALL SPEAKER-STROBE ON CEILING.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	.	.
	.	.
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

CONSULTING ELECTRICAL ENGINEERS
2201 LUCIE AVENUE, SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

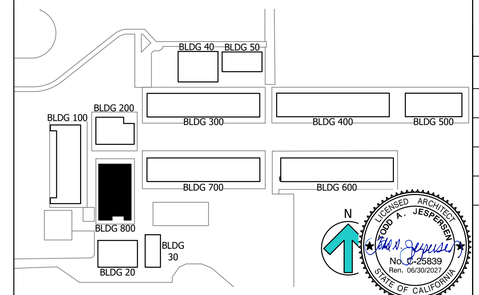
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PROJECT DATA:

BUILDING CLASSIFICATION:
A. OCCUPANCY TYPE: A-3
B. CONSTRUCTION TYPE: V-B-MS ONE STORY
C. SPRINKLERED: NOT

AGENCIES:
A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



SHEET TITLE: BUILDING 800 MULTIPURPOSE
FIRE ALARM PLAN -
NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E680
OF: SHEETS:

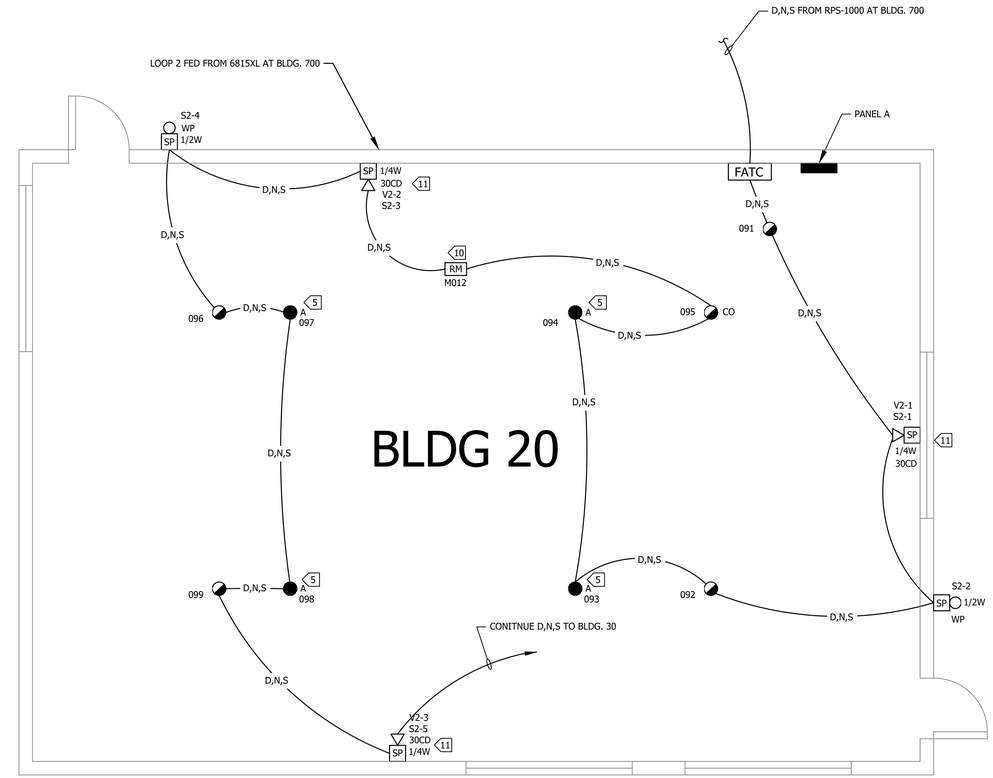
LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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SAVE DATE: 9/4/2025 2:59:33 PM PLOT BY: CM02 PLOT DATE: 9/11/2025 1:52:35 PM
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Drafter:CM02 Paper Size: 12.5
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E680.dwg
Plot By: Lucci & Associates
Attached XREFS:

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PLOT DATE: 9/11/2025 1:52:37 PM
DRAFTER: CM02
PLOT BY: CM02
DATE: 11 September 2025
TIME: 1:52 pm
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E682.dwg
Drafter:CM02 Paper Size: 12.0
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E682.dwg
Date:9/4/2025 3:03:11 PM
Attached XREFS:



SCALE: 1/4"=1'-0"
0 2' 4' 8'

BUILDING 20 KITCHEN FIRE ALARM PLAN

SCALE: 1/4"=1'-0"

NEW WORK - 1 - E682

N

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS IN CEILING FOR ACCESS TO HEAT DETECTORS.

KEY NOTES:

1. PROVIDE 1/2"C - 2#12, 1#12 GROUND THWN COPPER TO RED LOCK ON 20A-1P DEDICATED CIRCUIT BREAKER PANEL A-21.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL +MULTI CRITERIA DETECTOR ON CEILING NEAR PANEL "FACP" (36" HORIZONTALLY)
7. FLUSH MOUNTED 4" SQUARE DEEP OUTLET BOX FOR INTERCOM STATION WITH 3/4" CONDUIT FISHED INTO WALL CAVITY FROM ACCESSIBLE CEILING.
8. PROVIDE 3/4" CONDUIT AND PULLWIRE BETWEEN 4.5 DEEP OUTLET BOX AND CEILING CAVITY JUNCTION BOX ON EXTERIOR OF MODULAR BUILDING.
9. PROVIDE 4" SQUARE DEEP FLUSH BACK BOX FOR SPEAKER AND OR SPEAKER/STROBE (WP WHEN OUTDOOR)
10. FOR HVAC UNIT SHUTDOWN.
11. INSTALL SPEAKER-STROBE ON CEILING

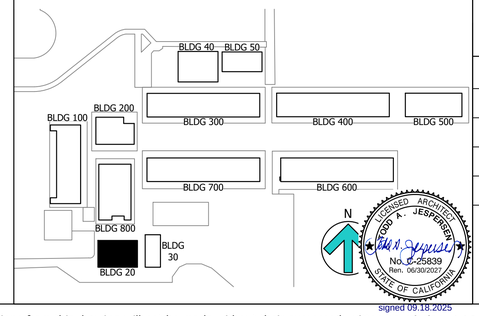
NO COOKING IN THIS BUILDING.
NO ANSUL SYSTEM.

PROJECT DATA:

BUILDING CLASSIFICATION:
A. OCCUPANCY TYPE: E-1
B. CONSTRUCTION TYPE: V-N
C. SPRINKLERED: NOT

AGENCIES:
A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E-6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2231 TARGET DR.
SUITE 101
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520
FAX (805) 389-6519
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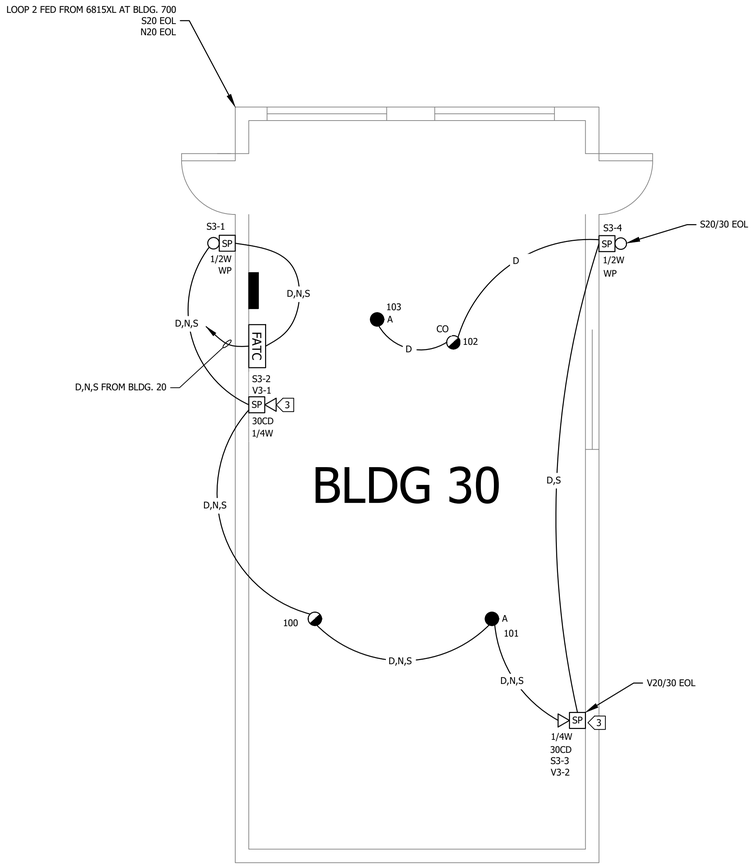
SHEET TITLE: BUILDING 20 FOOD FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E682
OF: SHEETS:

LICENSED ARCHITECT
LOUIS A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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BUILDING 30 STORAGE FIRE ALARM PLAN 1

SCALE: 1/4" = 1'-0" NEW WORK - E683 -

SCALE: 1/4"=1'-0"

0 2' 4' 8'

N

SHEET NOTES:

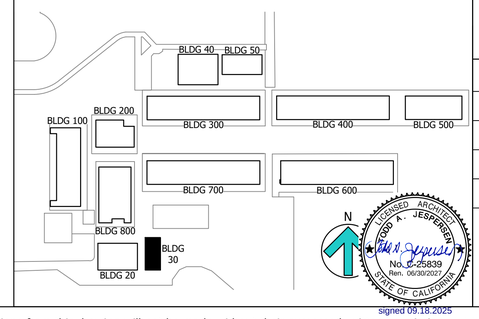
1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
3. CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.
7. PROVIDE ACCESS PANELS FOR HEAT DETECTORS ABOVE CEILING.

KEY NOTES:

1. FOR HVAC UNIT SHUTDOWN.
2. PROVIDE HEAT DETECTORS ABOVE CEILING IN ATTIC.
3. INSTALL SPEAKER-STROBE ON CEILING

PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

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REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2351 LOKER AVENUE WEST, SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 30 STORAGE FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E683
OF: SHEETS:

REGISTERED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center DATE: 11 September 2025 TIME: 1:52 pm
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Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E683.dwg
Last Saved By: CM02
Attached XREFS:
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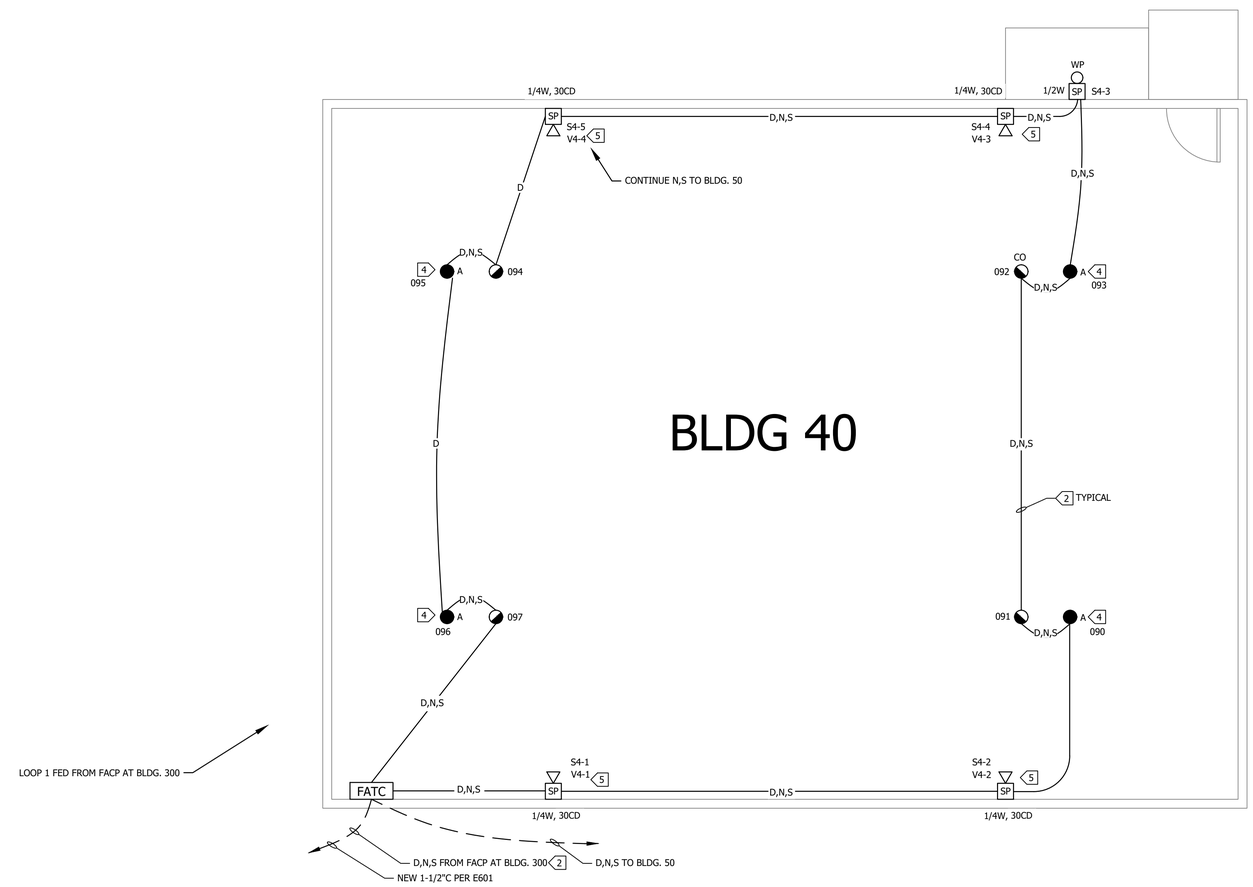
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DRAFTER: CM02
PLOT BY: CM02
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SAVE DATE: 9/4/2025 3:09:08 PM
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E684.dwg

KEY NOTES:

1. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
2. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
3. INSTALL +MULTI CRITERIA DETECTOR ON UNDERSIDE OF LAY-IN.
4. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
5. INSTALL SPEAKER-STROBE ON CEILING

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
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4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.



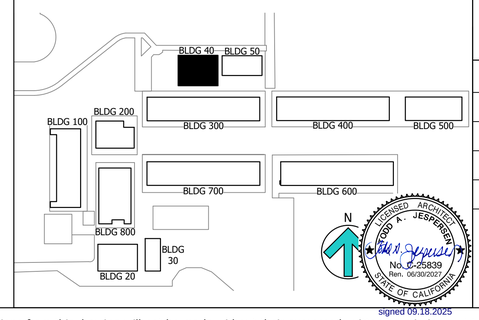
SCALE: 1/4"=1'-0"
0 2' 4' 8'

BUILDING 40 - FIRE ALARM PLAN — 1 / E684
SCALE: 1/4"=1'-0" NEW WORK

N

PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

CONSULTING ELECTRICAL ENGINEERS
2331 LOKEY AVENUE
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 40 - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E684
OF: SHEETS:

LICENSED ARCHITECT
LOUIS A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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Drafter:CM01 Paper Size: 12.3
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E684.dwg
Plot Date:9/11/2025 1:52:41 PM
Attached XREFS:

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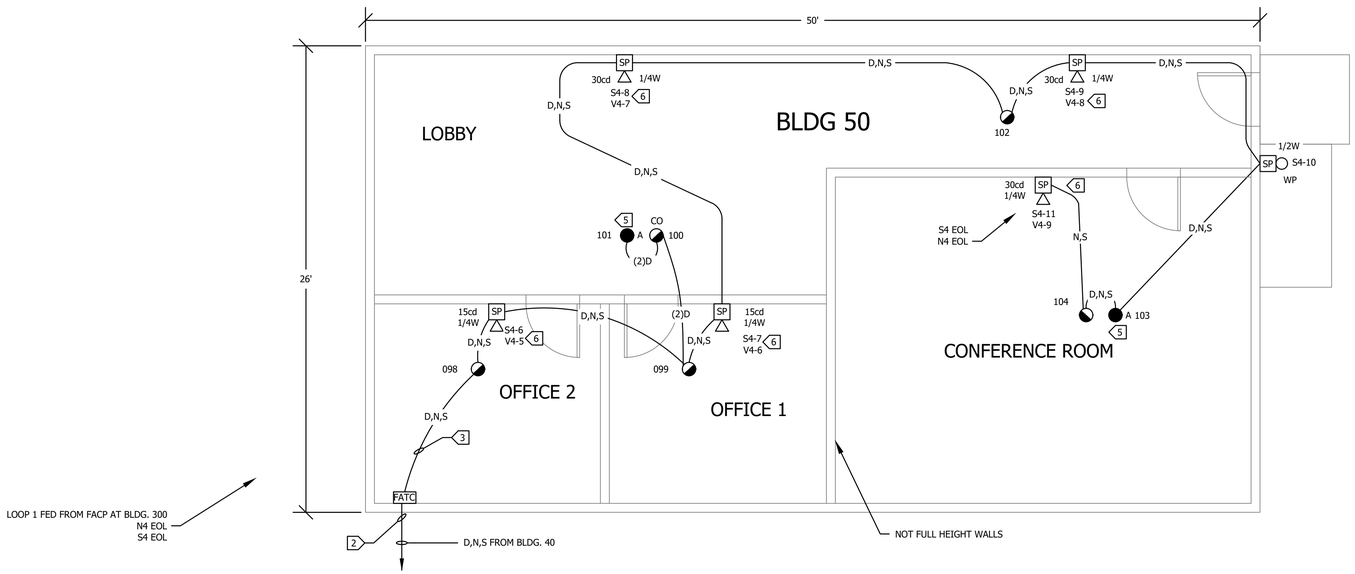
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PLOT BY: CM02
DRAFTER: CM02
DRAWING FILENAME: 19753-16-E685
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E685.dwg

KEY NOTES:

1. NOT USED.
2. PROVIDE 1-1/4"C FROM EXTERIOR BOX INTO CEILING CAVITY.
3. SEE THE FIRE ALARM RISER DIAGRAM FOR WIRING INFORMATION (TYPICAL FOR EACH PORTION OF CIRCUIT).
4. NOT USED.
5. INSTALL HEAT DETECTOR ABOVE LAY-IN CEILING IN ATTIC PLENUM SPACE.
6. INSTALL SPEAKER-STROBE ON CEILING

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
2. COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON ELECTRICAL DRAWINGS OR NOT.
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4. 3/4" CONDUIT MINIMUM U.O.N. ALL CONDUIT SHALL BE RED IN COLOR.
5. VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
6. PROVIDE NO EXPOSED CONDUIT FOR INSTALLATION.



SCALE: 1/4"=1'-0"
0 2' 4' 8'

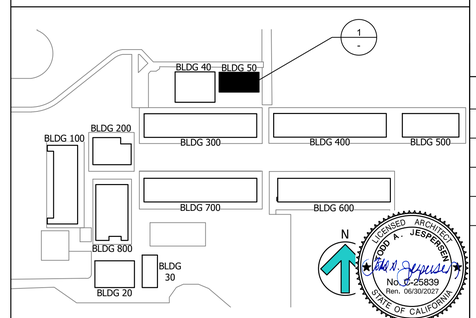
BUILDING 50 CLASSROOM - FIRE ALARM PLAN

SCALE: 1/4"=1'-0" NEW WORK 1 - E685

N

PROJECT DATA:	
BUILDING CLASSIFICATION:	A. OCCUPANCY TYPE: E-1 B. CONSTRUCTION TYPE: V-N C. SPRINKLERED: NOT
AGENCIES:	A. DIVISION OF THE STATE ARCHITECT

KEY PLAN



signed 09.18.2025

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES CONSULTING ELECTRICAL ENGINEERS
2331 LORIS AVENUE
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 50 CLASSROOM - FIRE ALARM PLAN - NEW WORK

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E685
OF: SHEETS:

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Drafter:CM02 Paper Size: 11.0
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E685.dwg
Date: 11 September 2025
Attached XREFs:

Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E685.dwg: DATE: OCT 10, 2024 TIME: 12:44 PM

MONITORING COMPANY

LOW VOLTAGE SOLUTIONS

Certificate of Central Station Monitoring

Location:

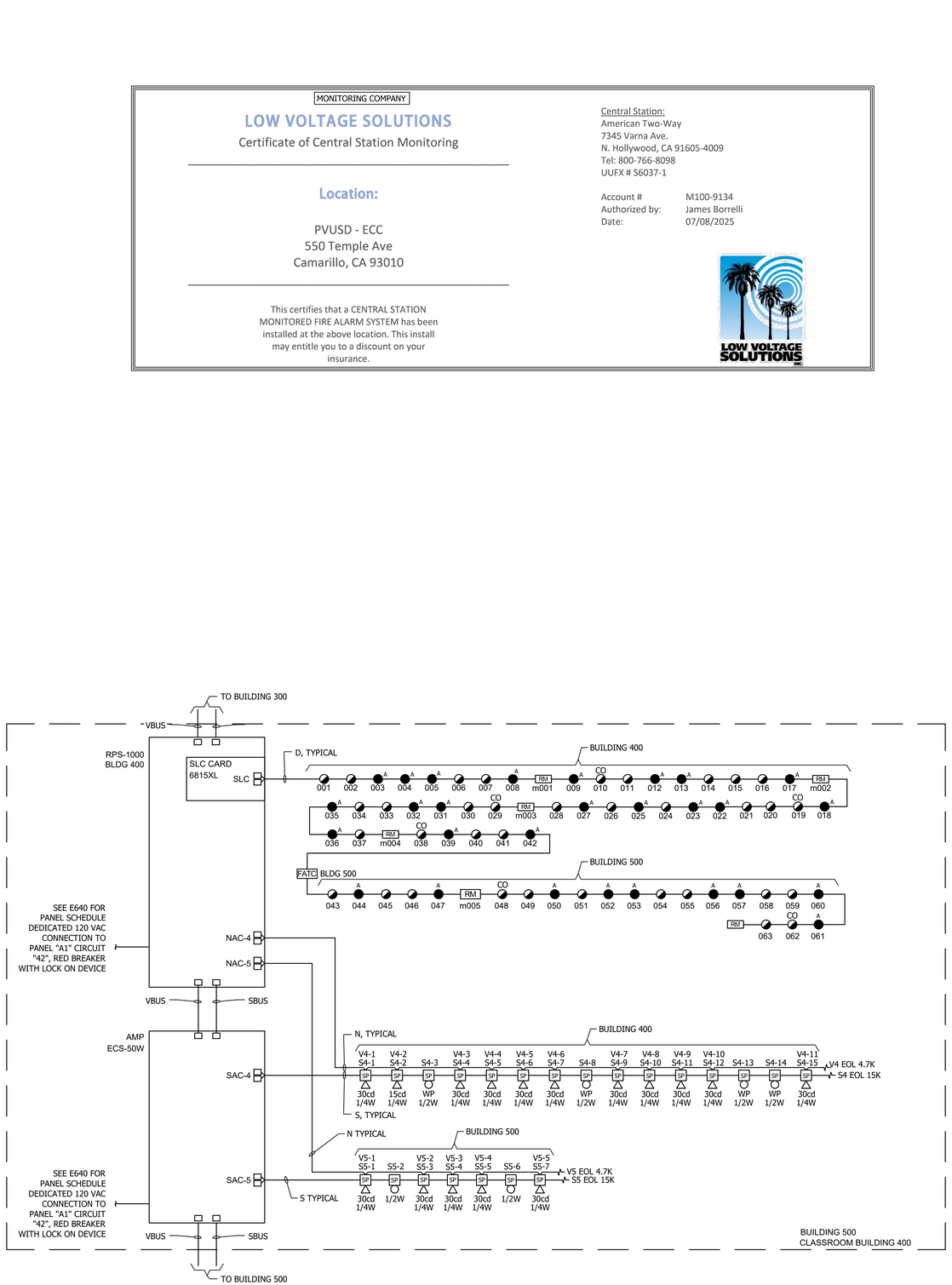
PVUSD - ECC
550 Temple Ave
Camarillo, CA 93010

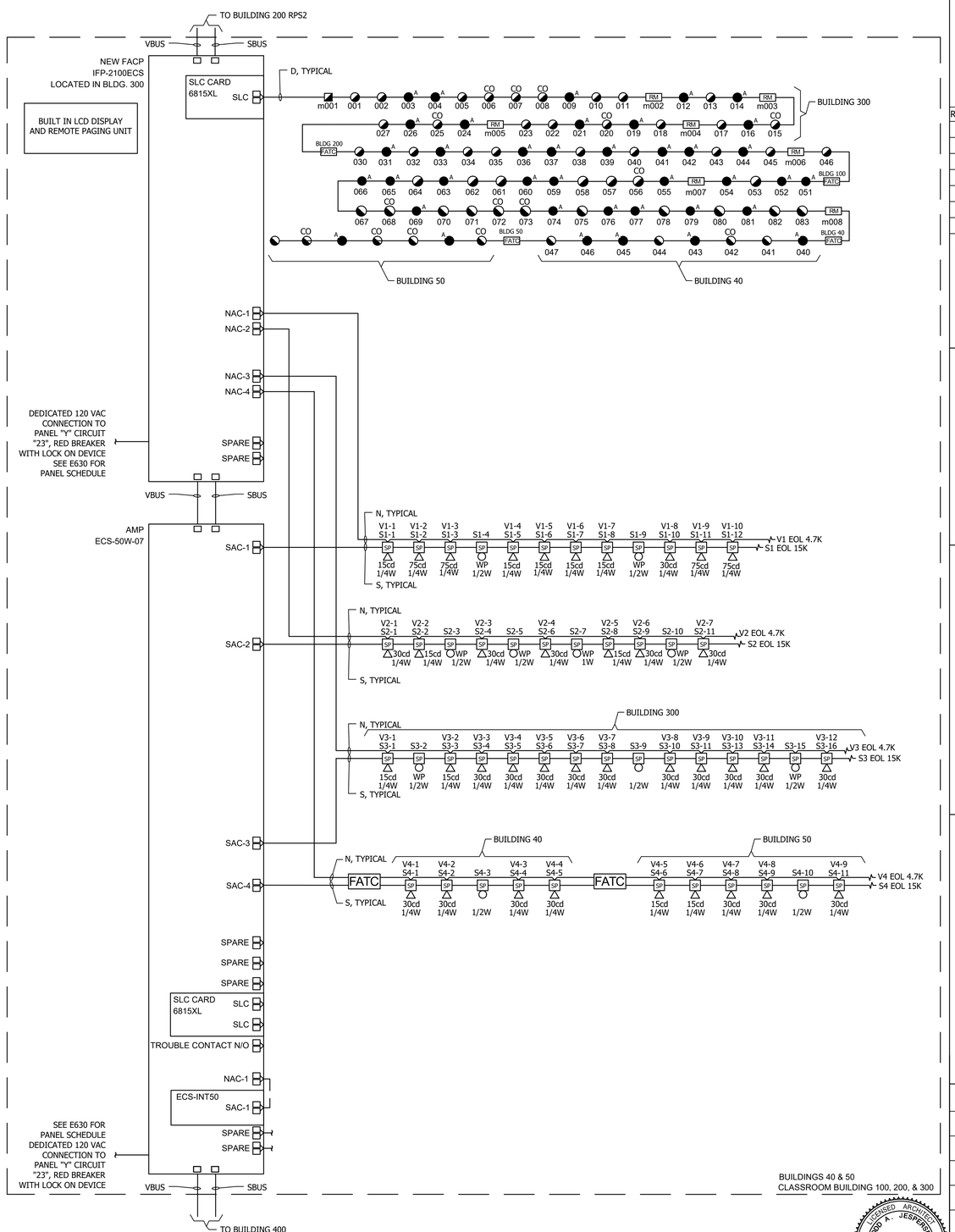
This certifies that a CENTRAL STATION MONITORED FIRE ALARM SYSTEM has been installed at the above location. This install may entitle you to a discount on your insurance.

Central Station:
American Two-Way
7345 Varna Ave.
N. Hollywood, CA 91605-4009
Tel: 800-766-8098
UUFX # S6037-1

Account # M100-9134
Authorized by: James Borrelli
Date: 07/08/2025

LOW VOLTAGE SOLUTIONS INC.





IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ARCHITECT & ENGINEER
LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2031 LOKEY AVENUE, SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: FIRE RISER DIAGRAM

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E700
OF: SHEETS:

LICENSED ARCHITECT
LOUIS A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

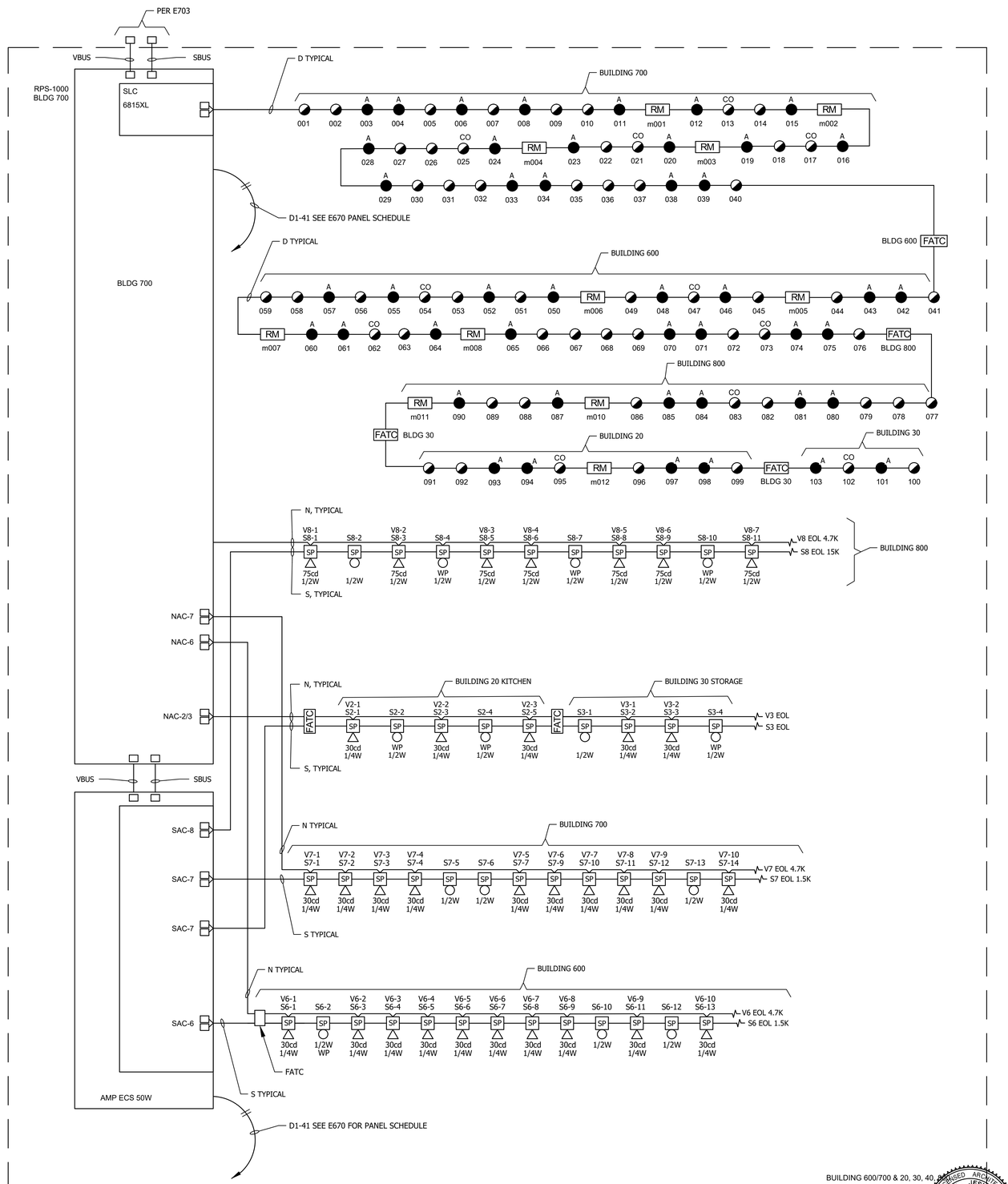
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L.A.I.# 19-753-16 PAPER SIZE 36"x24"

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IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2201 LAURELWOOD RD., SUITE 111
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: FIRE ALARM RISER DIAGRAMS FOR BLDGS AND 600/700

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E702
OF: SHEETS:

REGISTERED ARCHITECT
JAMES A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

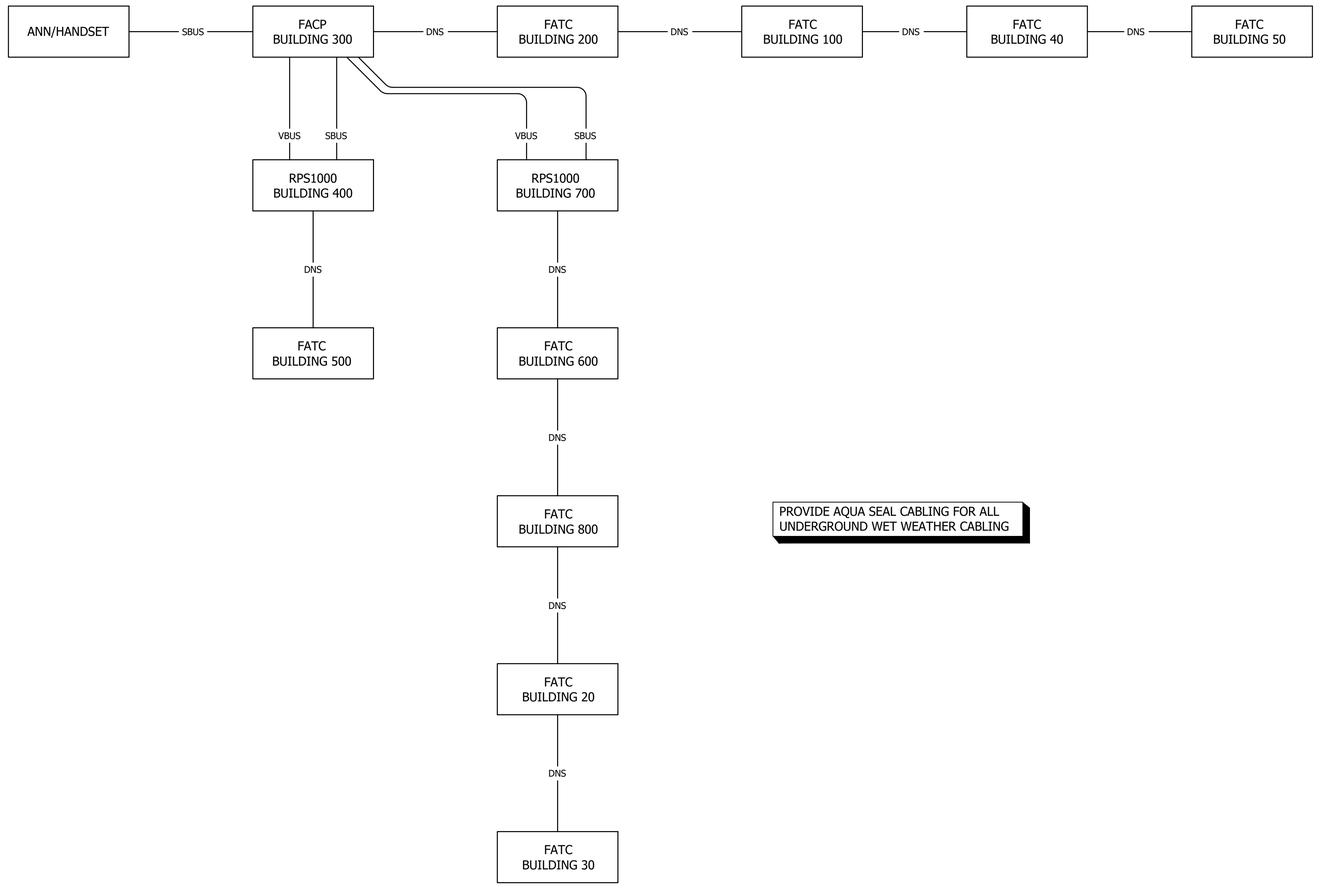
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L.A.I.# 19-753-16 PAPER SIZE 36"x24"

DATE: 11 September 2025 TIME: 1:52 pm
PLOT DATE: 9/11/2025 1:52:50 PM
PLOT BY: CM02
PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center
SAVE DATE: 9/8/2025 11:43:16 AM
DRAFTER: CM02
DRAWING FILENAME: 19753-16-E702
DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E702.dwg

Drafter:CM01 Paper Size: 123
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E702.dwg
Date:Mar 17, 2025 Time:9:57 AM
Attached XREFS:
Attached Files:G:\19\753\EL\Sheets\16-EEC\19753-16TB.dwg

Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E702.dwg; DATE: MAR 17, 2025 TIME: 9:57 AM



PROVIDE AQUA SEAL CABLING FOR ALL UNDERGROUND WET WEATHER CABLING

BUILDING FA RISER

SCALE: NONE

1 - E703

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	.	.
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2651 LAURA LANE, SUITE 211
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING INTERCONNECTION RISER

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E703
OF: SHEETS:

LICENSED ARCHITECT
JOHN A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

DRAFTER: CM02 DRAWING FILENAME: 19753-16-E703 DATE: 11 September 2025 TIME: 1:52 pm
PATHNAME: G:\19\753\ELSheets\16-Early Education Center SAVE DATE: 9/4/2025 3:54:42 PM PLOT BY: CM02 PLOT DATE: 9/11/2025 1:52:53 PM
DRAWING: G:\19\753\ELSheets\16-Early Education Center\19753-16-E703.dwg

Drafter:CM02 Paper Size: 12.9
Drawing:G:\19\753\ELSheets\16-Early Education Center\19753-16-E703.dwg
Date/Time: 09/11/2025 1:52:53 PM
Material: 19753
Xref:G:\19\753\ELSheets\16-EED\19753-16TB.dwg

Drafter: CM01: G:\19\753\ELSheets\16-Early Education Center\19753-16-E702.dwg: DATE: OCT 11, 2024 TIME: 11:50 AM

PATHNAME: G:\19\753\EL\Sheets\16-Early Education Center DRAWING FILENAME: 19753-16-E730 DRAWING: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E730.dwg
DRAFTER: CM02 DATE: 11 September 2025 TIME: 1:52 pm
SAVE DATE: 9/5/2025 8:57:01 AM PLOT BY: CM02 PLOT DATE: 9/11/2025 1:52:57 PM

NOTE:
EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM POWER SOURCE IS CALCULATED FOR 24-HOUR STANDBY AND 2-HOUR LOAD DURATION PER CFC SECTIONS: 604.1.4; 604.2.4; 907.5.2.2.5

Honeywell THE POWER OF CONNECTED | Farenhyt™ Series

IFP-2100/ECS Calculations-IDP
Version 04.16.18

Global Project Values:
Project Name: EES
Project ID:
Prepared By: LAI
Date: 1/4/2024
Standby Hours: 24
Alarm Mins: 120
Derating Factor: 1.2
Voltage Drop Warning Threshold % : 10

Panel ID: FACP
Location: BUILDING 300
Model: RA-2000 Add. Fire Alarm Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 9.0 Amps

Part.#	Description	Qty	Current Draw Standby	Current Draw Alarm	Wire AWG & Type	Ohms Per 1000 Ft.	Length(ft) One-Way	Actual Ohms	Volts @ EOL	%Drop
IFP-2100	IFP-2100	1	0.230	0.415						
IDP-Photo, Photo-T,PhotoR	Smoke detector	63	0.0189	0.0189						
IDP-Fire-CO	Fire-CO detector	12	0.0036	0.0000						
IDP-Heat, Heat-HT, ROR	Heat detector		0.0000	0.0000						
IDP-Beam, Beam-T	Beam detector		0.0000	0.0000						
DNR	Duct housing		0.0000	0.0000						
IDP-IDP Acclimate	IDP Acclimate		0.0000	0.0000						
IDP-Photo W	Photo W		0.0000	0.0000						
IDP-Photo-R-W	Photo-R-W		0.0000	0.0000						
IDP-Photo-T-W	Photo-T-W		0.0000	0.0000						
IDP-Heat-W	Heat-W		0.0000	0.0000						
IDP-Heat-ROR-W	Heat-ROR-W		0.0000	0.0000						
IDP-Heat-HT-W	Heat-HT-W	45	0.0090	0.2025						
IDP-Control	Control		0.0000	0.0000						
IDP-Control-6	Control-6		0.0000	0.0000						
IDP-Monitor, Minimon	Monitor, Minimon		0.0000	0.0000						
IDP-Monitor-2	Monitor-2		0.0000	0.0000						
IDP-Monitor-10	Monitor-10		0.0000	0.0000						
IDP-Pull-SA, Pull-DA	Pull-SA, Pull-DA	1	0.0004	0.0004						
IDP-Relay	Relay	2	0.0005	0.0005						
IDP-Relay-6	Relay-6		0.0000	0.0000						
IDP-RelayMon-2	RelayMon-2		0.0000	0.0000						
IDP-Zone	Zone		0.0000	0.0000						
IDP-Zone-6	Zone-6		0.0000	0.0000						
IDP-Iso (Isolator Module)	Iso (Isolator Module)		0.0000	0.0000						
IDP-ISO-6	ISO-6		0.0000	0.0000						
B224BI	Isolator Base		0.0000	0.0000						
B200S	Sounder Base		0.0000	0.0000						
B200SR	Sounder Base		0.0000	0.0000						
B200S-LF	Sounder Base LF		0.0000	0.0000						
B200SR-LF	Sounder Base LF		0.0000	0.0000						
B224RB	Relay Base		0.0000	0.0000						
RTS151	Magnetic Remote Test		0.000	0.0000						
RTS151KEY	Key Activated Test		0.000	0.0000						
RA100Z	Remote LED		0.000	0.000						
6815	SLC Expander		0.000	0.000						
RA-2000	LCD Remote Annunc	1	0.020	0.025						
RA-1000	LCD Remote Annunc		0.000	0.000						
RA-100	LCD Remote Annunc		0.000	0.000						
5824	Serial/Parallel Module		0.000	0.000						
5496	Power Expander		0.000	0.000						
RPS-1000	Power Expander		0.000	0.000						
5865-4	LED Annunciator (4G)		0.000	0.000						
5865-3	LED Annunciator (3G)		0.000	0.000						
5880	LED Driver Module		0.000	0.000						
5883	Relay Module	11	0.000	2.420						
CELL-MOD	Communicator		0.000	0.100						
SK-NIC	Network Interface Card	1	0.021	0.021						
SK-FML	Fiber Module		0.000	0.000						
SK-FSL	Fiber Module	1	0.021	0.021						
WIDP-WG1	Wireless Gateway		0.000	0.000						
ECS-NVCM	Voice control		0.000	0.000						
ECS-SW24	Zone Expander		0.000	0.000						
ECS-RPU	Remote Paging Unit	1	0.070	0.250						
ECS-LOC	Local Operating Console		0.000	0.000						
ECS-LOC2100	Local Operating Console		0.000	0.000						
ECS-iNT50W	50 Watt Internal Amp 25 volts		0.000	0.000						
ECS-iNT50W	50 Watt Internal Amp 70 volts		0.000	0.000						
ECS-50W	50 Watt Amplifier	1	0.010	0.010						
ECS-125W	125 Watt Amplifier		0.000	0.000						
ECS-DUAL50W	50/100 Watt Amp		0.000	0.000						
ECS-50WBU	50 Watt Backup Amplifier		0.000	0.000						
NAC-1	Notification Appl Circuit	cfg.	0.000	0.716	#12 Solid	1.59	260	0.83	19.81	2.14%
NAC-2	Notification Appl Circuit	cfg.	0.000	0.252	#12 Solid	1.59	360	1.14		
NAC-3	Notification Appl Circuit	cfg.	0.000	1.001	#12 Solid	1.59	400	1.27		
SPARE	Notification Appl Circuit	cfg.	0.000	0.278	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
	Total Standby Current (Amps)		0.404	5.731	Total Alarm Current (Amps)					
	Standby Time In Hours		24	2.000	Alarm Time In Minutes / 60	(120 Mins)				
	Total Standby AH Required		9.705	11.463	Total Alarm AH Required					
	Total Combined AH Required			21.17						
	Multiply By The Derating Factor			1.20						
	Minimum Battery AmpHours Required			**25.40**						

BATTERY SIZE = 42AH

PROVIDE SPD 120KA AT POWER SOURCE FEEDING FACP PANEL (WITHIN 10 FEET)

SILENT KNIGHT
ECS-50W Calculations
Version 06.11.12

Global Project Values:
Project Name: EEC
Project ID:
Prepared By: LAI
Date: 1/29/2024
Standby Hours: 24
Alarm Mins: 120
Derating: 1.2

Panel ID: ECS-50
Location: BUILDING 300
Model: ECS-50W Audio Amplifier

Ckt.#	Circuit Name	Qty	Current Draw Standby	Current Draw Alarm
ECS-50W-25	ECS-50W Amplifier 25 Volts*	1	0.085	0.525
ECS-50W-70.7	ECS-50W Amplifier 70.7 Volts*		0.000	0.000
ECS-CE4	4 Zone Expander		0.000	0.000
Watts	Enter Number of Watts @ 25Vrms**	15	N/A	0.000
Watts	Enter Number of Watts @ 70.7Vrms**		N/A	0.000
	Total Standby Current (AMPS)		0.085	0.525
	Standby Time In Hours		24	2.000
	Total Standby AH Required		2.040	1.050
	Total Combined AH Required			3.09
	Multiply By The Derating Factor			1.20
	Minimum Battery AmpHours Required			**3.71**

38 SPEAKER AT .25W
& 11 SPEAKERS AT 1/2 WATT

BATTERY SIZE = 14AH

VOLTAGE DROP CALCULATIONS - SPEAKER APPLIANCE CIRCUITS

PANEL ID	CKT #	1/4 WATT 0.017 QTY.	1/4 WATT 0.017 AMP	1/2 WATT 0.034 QTY.	1/2 WATT 0.034 AMP	1 WATT 0.068 QTY.	1 WATT 0.068 AMP	2 WATT 0.132 QTY.	2 WATT 0.132 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	LENGTH FT.	CIR MILS 14awg	VOLTS DROPPED	% VOLTAGE DROP
AMP	S1	12	0.204	3	0.102		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.306	260	6530	0.666	**2.8**
	S2	4	0.068	1	0.034		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.102	360	6530	0.307	**1.3**
	S3	5	0.085	1	0.034		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.119	400	6530	0.399	**1.7**
	S4	7	0.119	4	0.136		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.255	260	6530	0.555	**2.3**
	S5	10	0.170	2	0.068		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.238	260	6530	0.518	**2.2**

BUILDING 300
BUILDING 40
BUILDING 50
BUILDING 200
BUILDING 100

I x FEET x 21.6 = VOLTAGE DROPPED
C.M.

I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

VOLTAGE DROP CALCULATIONS - NOTIFICATION APPLIANCE CIRCUITS

PANEL ID	CKT #	15cd STROBE 0.043 QTY.	15cd STROBE 0.043 AMP	30cd STROBE 0.063 QTY.	30cd STROBE 0.063 AMP	75cd STROBE 0.107 QTY.	75cd STROBE 0.107 AMP	110cd STROBE 0.148 QTY.	110cd STROBE 0.148 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	LENGTH FT.	CIR MILS 14awg	VOLTS DROPPED	% VOLTAGE DROP
FACP	N1	2	0.086	10	0.630		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.716	260	6530	0.616	**2.6**
	N2		0.000	4	0.252		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.252	360	6530	0.300	**1.3**
	N3	2	0.086	3	0.189		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.275	400	6530	0.364	**1.5**
	N4	6	0.258	5	0.315	4	0.428		0.000		0.000		0.000		0.000		0.000		0.000	1.001	260	6530	0.861	**3.6**
	N5	5	0.215	1	0.063		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.278	260	6530	0.239	**1.0**

I x FEET x 21.6 = VOLTAGE DROPPED
C.M.

I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI JR.
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

ELECTRICAL ENGINEERS
CONSULTING
LUCCI & ASSOCIATES
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE:
BUILDING 300, 40, & 50
EMERGENCY
VOICE/ALARM COMM
SYSTEM - CALCULATIONS

PROJECT:
PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E730
OF: SHEETS:

LICENSED ARCHITECT
TODD A. JESPERSEN
No. C-25839
Exp. 06/30/2027
STATE OF CALIFORNIA
signed 09.18.2025

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Drafter:CM02 Paper Size: 12.0
Drawing:G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E730.dwg
Attached XREFs:
Attached Images:
Attached ESTILES:G:\revit\14-ESC\19753-16-ETB.dwg

Drafter: CM01: G:\19\753\EL\Sheets\16-Early Education Center\19753-16-E710.dwg: DATE: JAN 29, 2024 TIME: 4:04 PM

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DRAFTER: CM02 DRAWING FILENAME: 19753-16-E740 PATHNAME: G:\19\753\ELI\Sheets\16-Early Education Center
DATE: 11 September 2025 TIME: 1:53 pm
PLOT BY: CM02 PLOT DATE: 9/11/2025 1:53:00 PM
SAVE DATE: 9/11/2025 1:47:44 PM

NOTE:
EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM POWER SOURCE IS CALCULATED FOR 24-HOUR STANDBY AND 2-HOUR LOAD DURATION PER CFC SECTIONS: 604.1.4; 604.2.4; 907.5.2.2.5

Honeywell — THE POWER OF CONNECTED | Farenhyt™ Series

IFP-2100/ECS Calculations-IDP
Version 04.16.18

Global Project Values:
Project Name: EES
Project ID:
Prepared By: LAI
Date: 1/4/2024
Standby Hours: 24
Alarm Mins: 120
Derating Factor: 1.2
Voltage Drop Warning Threshold % : 10

Panel ID: RPS4
Location: BUILDING 400
Model: RA-2000 Add. Fire Alarm Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 9.0 Amps

Part.#	Description	Qty	Current Draw Standby	Current Draw Alarm	Wire AWG & Type	Ohms Per 1000 Ft.	Length(ft) One-Way	Actual Ohms	Volts @ EOL	%Drop
IFP-2100	IFP-2100		0.230	0.415						
IDP-Photo, Photo-T,PhotoR	Smoke detector	38	0.0114	0.0114						
IDP-Fire-CO	Fire-CO detector	20	0.0060	0.0000						
IDP-Heat, Heat-HT, ROR	Heat detector		0.0000	0.0000						
IDP-Beam, Beam-T	Beam detector		0.0000	0.0000						
DNR	Duct housing		0.0000	0.0000						
IDP-IDP Acclimate	IDP Acclimate		0.0000	0.0000						
IDP-Photo W	Photo W		0.0000	0.0000						
IDP-Photo-R-W	Photo-R-W		0.0000	0.0000						
IDP-Photo-T-W	Photo-T-W		0.0000	0.0000						
IDP-Heat-W	Heat-W		0.0000	0.0000						
IDP-Heat-ROR-W	Heat-ROR-W		0.0000	0.0000						
IDP-Heat-HT-W	Heat-HT-W	31	0.0062	0.1395						
IDP-Control	Control		0.0000	0.0000						
IDP-Control-6	Control-6		0.0000	0.0000						
IDP-Monitor, Minimon	Monitor, Minimon		0.0000	0.0000						
IDP-Monitor-2	Monitor-2		0.0000	0.0000						
IDP-Monitor-10	Monitor-10		0.0000	0.0000						
IDP-Pull-SA, Pull-DA	Pull-SA, Pull-DA		0.0000	0.0000						
IDP-Relay	Relay		0.0000	0.0000						
IDP-Relay-6	Relay-6		0.0000	0.0000						
IDP-RelayMon-2	RelayMon-2		0.0000	0.0000						
IDP-Zone	Zone		0.0000	0.0000						
IDP-Zone-6	Zone-6		0.0000	0.0000						
IDP-Iso (Isolator Module)	Iso (Isolator Module)		0.0000	0.0000						
IDP-ISO-6	ISO-6		0.0000	0.0000						
B224BI	Isolator Base		0.0000	0.0000						
B200S	Sounder Base		0.0000	0.0000						
B200SR	Sounder Base		0.0000	0.0000						
B200S-LF	Sounder Base LF		0.0000	0.0000						
B200SR-LF	Sounder Base LF		0.0000	0.0000						
B224RB	Relay Base		0.0000	0.0000						
RTS151	Magnetic Remote Test		0.000	0.0000						
RTS151KEY	Key Activated Test		0.000	0.0000						
RA100Z	Remote LED		0.000	0.000						
6815	SLC Expander		0.000	0.000						
RA-2000	LCD Remote Annunc		0.000	0.000						
RA-1000	LCD Remote Annunc		0.000	0.000						
RA-100	LCD Remote Annunc		0.000	0.000						
5824	Serial/Parallel Module		0.000	0.000						
5496	Power Expander		0.000	0.000						
RPS-1000	Power Expander		0.000	0.000						
5865-4	LED Annunciator (4G)		0.000	0.000						
5865-3	LED Annunciator (3G)		0.000	0.000						
5880	LED Driver Module		0.000	0.000						
5883	Relay Module	2	0.000	0.440						
CELL-MOD	Communicator		0.000	0.100						
SK-NIC	Network Interface Card	1	0.021	0.021						
SK-FML	Fiber Module		0.000	0.000						
SK-FSL	Fiber Module	1	0.021	0.021						
WIDP-WG1	Wireless Gateway		0.000	0.000						
ECS-NVCM	Voice control		0.000	0.000						
ECS-SW24	Zone Expander		0.000	0.000						
ECS-RPU	Remote Paging Unit	1	0.070	0.250						
ECS-LOC	Local Operating Console		0.000	0.000						
ECS-LOC2100	Local Operating Console		0.000	0.000						
ECS-INT50W	50 Watt Internal Amp 25 volts		0.000	0.000						
ECS-INT50W	50 Watt Internal Amp 70 volts		0.000	0.000						
ECS-50W	50 Watt Amplifier	1	0.010	0.010						
ECS-125W	125 Watt Amplifier		0.000	0.000						
ECS-DUAL50W	50/100 Watt Amp		0.000	0.000						
ECS-50WBU	50 Watt Backup Amplifier		0.000	0.000						
NAC-1	Notification Appl Circuit	cfg.	0.000	0.736	#12 Solid	1.59	320	1.02	19.65	2.14%
NAC-2	Notification Appl Circuit	cfg.	0.000	0.315	#12 Solid	1.59	330	1.05		
NAC-3	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
SPARE	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00		100.00%
Total Standby Current (Amps)			0.376	2.459	Total Alarm Current (Amps)					
Standby Time In Hours			24	2.000	Alarm Time In Minutes / 60			(120 Mins)		
Total Standby AH Required			9.014	4.918	Total Alarm AH Required					
Total Combined AH Required			13.93							
Multiply By The Derating Factor			1.20							
Minimum Battery AmpHours Required			**16.72**							

BATTERY SIZE = 28AH

SILENT KNIGHT

ECS-50W Calculations
Version 06.11.12

Global Project Values:
Project Name: EEC
Project ID:
Prepared By: LAI
Date: 1/29/2024
Standby Hours: 24
Alarm Mins: 120
Derating 1.2

Panel ID: ECS-50
Location: BUILDING 100
Model: ECS-50W Audio Amplifier

Ckt.#	Circuit Name	Qty	Current Draw Standby	Current Draw Alarm	
ECS-50W-25	ECS-50W Amplifier 25 Volts*	1	0.085	0.525	
ECS-50W-70.7	ECS-50W Amplifier 70.7 Volts*		0.000	0.000	
ECS-CE4	4 Zone Expander		0.000	0.000	
Watts	Enter Number of Watts @ 25Vrms**	7	N/A	0.475	16 SPEAKER AT .25W, 6 @ 1/2 WATT
Watts	Enter Number of Watts @ 70.7Vrms**		N/A	0.000	& 3 SPEAKERS AT 1 WATT
Total Standby Current (AMPS)			0.085	1.000	
Standby Time In Hours			24	2.000	
Total Standby AH Required			2.040	2.001	
Total Combined AH Required			4.04		
Multiply By The Derating Factor			1.20		
Minimum Battery AmpHours Required			**4.85**		

BATTERY SIZE = 14AH

PROVIDE SPD 120KA AT POWER SOURCE FEEDING FACP PANEL (WITHIN 10 FEET)

VOLTAGE DROP CALCULATIONS - SPEAKER APPLIANCE CIRCUITS

PANEL ID	CKT #	1/4 WATT 0.017 QTY.	1/4 WATT 0.017 AMP	1/2 WATT 0.034 QTY.	1/2 WATT 0.034 AMP	1 WATT 0.068 QTY.	1 WATT 0.068 AMP	2 WATT 0.132 QTY.	2 WATT 0.132 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	x	LENGTH FT.	x	21.6	÷	CIR MILS 14awg	=	VOLTS DROPPED	÷	24(V)	x	100	% VOLTAGE DROP
AMP	S1	11	0.187	4	0.136		0.000		0.000		0.000		0.000		0.000		0.000	0.323	x	260	x	21.6	÷	2580	=	0.703	÷	24	x	100	**2.9**
ECS-50	S2	5	0.085	2	0.068		0.000		0.000		0.000		0.000		0.000		0.000	0.153	x	330	x	21.6	x	2580	=	0.423	÷	24	x	100	**1.8**

I x FEET x 21.6 = VOLTAGE DROPPED
C.M.
I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

VOLTAGE DROP CALCULATIONS - NOTIFICATION APPLIANCE CIRCUITS

PANEL ID	CKT #	15cd STROBE 0.043 QTY.	15cd STROBE 0.043 AMP	30cd STROBE 0.063 QTY.	30cd STROBE 0.063 AMP	75cd STROBE 0.107 QTY.	75cd STROBE 0.107 AMP	110cd STROBE 0.148 QTY.	110cd STROBE 0.148 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	x	LENGTH FT.	x	21.6	÷	CIR MILS 14awg	=	VOLTS DROPPED	÷	24(V)	x	100	% VOLTAGE DROP
BLDG 400	RPS4	N1	1	0.043	11	0.693		0.000		0.000		0.000		0.000		0.000		0.000	0.736	x	320	x	21.6	÷	6530	=	0.779	÷	24	x	100	**3.2**
BLDG 500	RPS4	N2		0.000	5	0.315		0.000		0.000		0.000		0.000		0.000		0.000	0.315	x	330	x	21.6	x	6530	=	0.344	÷	24	x	100	**1.4**

I x FEET x 21.6 = VOLTAGE DROPPED
C.M.
I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 08/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2351 SUNRISE BLVD., SUITE 220
GOLD RIVER, CA 95670
PHONE (916) 853-8020 FAX (916) 853-8021
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519

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SHEET TITLE: BUILDING 400 & 500 EMERGENCY VOICE/ALARM COMM SYSTEM - CALCULATIONS

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT - ELEMENTARY SCHOOL EARLY EDUCATION CENTER FIRE ALARM UPGRADE 550 TEMPLE AVENUE CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E740
OF: SHEETS:

LICENSED ARCHITECT
JOHN A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.16.2025

Copyright Lucci and Associates Consulting Electrical Engineers. Deviations from this drawing will not be made without their expressed written permission. L.A.I.# 19-753-16 PAPER SIZE 36"x24"

Drafter: CM01: G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E710.dwg; DATE: JAN 29, 2024 TIME: 4:04 PM

DATE: 11 September 2025 TIME: 1:53 pm
PLOT DATE: 9/11/2025 1:53:04 PM
PLOT BY: CM02
DRAFTER: CM02
PATHNAME: G:\19\753\ELI\Sheets\16-Early Education Center
DRAWING FILENAME: 19753-16-E780
SAVE DATE: 9/11/2025 1:49:00 PM
DRAWING: G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E780.dwg

NOTE:
EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM POWER SOURCE IS CALCULATED FOR 24-HOUR STANDBY AND 2-HOUR LOAD DURATION PER CFC SECTIONS: 604.1.4; 604.2.4; 907.5.2.2.5

Honeywell THE POWER OF CONNECTED | Farenhyt™ Series

IFP-2100/ECS Calculations-IDP
Version 04.16.18

Global Project Values:
Project Name: EES
Project ID:
Prepared By: LAI
Date: 1/4/2024
Standby Hours: 24
Alarm Mins: 120
Derating Factor: 1.2
Voltage Drop Warning Threshold % : 10

Panel ID: RPS8
Location: BUILDING 800
Model: RA-2000 Add. Fire Alarm Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 9.0 Amps

Part.#	Description	Qty	Current Draw Standby	Current Draw Alarm	Wire AWG & Type	Ohms Per 1000 Ft.	Length(ft) One-Way	Actual Ohms	Volts @ EOL	%Drop
IFP-2100	IFP-2100	62	0.230	0.415						
IDP-Photo, Photo-T,PhotoR	Smoke detector	2	0.0006	0.0006						
IDP-Fire-CO	Fire-CO detector	35	0.0105	0.0000						
IDP-Heat, Heat-HT, ROR	Heat detector		0.0000	0.0000						
IDP-Beam, Beam-T	Beam detector		0.0000	0.0000						
DNR	Duct housing		0.0000	0.0000						
IDP-IDP Acclimate	IDP Acclimate		0.0000	0.0000						
IDP-Photo W	Photo W		0.0000	0.0000						
IDP-Photo-R-W	Photo-R-W		0.0000	0.0000						
IDP-Photo-T-W	Photo-T-W		0.0000	0.0000						
IDP-Heat-W	Heat-W		0.0000	0.0000						
IDP-Heat-ROR-W	Heat-ROR-W		0.0000	0.0000						
IDP-Heat-HT-W	Heat-HT-W	14	0.0028	0.0630						
IDP-Control	Control		0.0000	0.0000						
IDP-Control-6	Control-6		0.0000	0.0000						
IDP-Monitor, Minimon	Monitor, Minimon		0.0000	0.0000						
IDP-Monitor-2	Monitor-2		0.0000	0.0000						
IDP-Monitor-10	Monitor-10		0.0000	0.0000						
IDP-Pull-SA, Pull-DA	Pull-SA, Pull-DA		0.0000	0.0000						
IDP-Relay	Relay	4	0.0010	0.0010						
IDP-Relay-6	Relay-6		0.0000	0.0000						
IDP-RelayMon-2	RelayMon-2		0.0000	0.0000						
IDP-Zone	Zone		0.0000	0.0000						
IDP-Zone-6	Zone-6		0.0000	0.0000						
IDP-Iso (Isolator Module)	Iso (Isolator Module)		0.0000	0.0000						
IDP-ISO-6	ISO-6		0.0000	0.0000						
B224BI	Isolator Base		0.0000	0.0000						
B200S	Sounder Base		0.0000	0.0000						
B200SR	Sounder Base		0.0000	0.0000						
B200S-LF	Sounder Base LF		0.0000	0.0000						
B200SR-LF	Sounder Base LF		0.0000	0.0000						
B224RB	Relay Base		0.0000	0.0000						
RTS151	Magnetic Remote Test		0.000	0.0000						
RTS151KEY	Key Activated Test		0.000	0.0000						
RA100Z	Remote LED		0.000	0.000						
6815	SLC Expander		0.000	0.000						
RA-2000	LCD Remote Annunc		0.000	0.000						
RA-1000	LCD Remote Annunc		0.000	0.000						
RA-100	LCD Remote Annunc		0.000	0.000						
5824	Serial/Parallel Module		0.000	0.000						
5496	Power Expander		0.000	0.000						
RPS-1000	Power Expander		0.000	0.000						
5865-4	LED Annunciator (4G)		0.000	0.000						
5865-3	LED Annunciator (3G)		0.000	0.000						
5880	LED Driver Module		0.000	0.000						
5883	Relay Module	2	0.000	0.440						
CELL-MOD	Communicator		0.000	0.100						
SK-NIC	Network Interface Card	1	0.021	0.021						
SK-FML	Fiber Module		0.000	0.000						
SK-FSL	Fiber Module	1	0.021	0.021						
WIDP-WG1	Wireless Gateway		0.000	0.000						
ECS-NVCM	Voice control		0.000	0.000						
ECS-SW24	Zone Expander		0.000	0.000						
ECS-RPU	Remote Paging Unit	1	0.070	0.250						
ECS-LOC	Local Operating Console		0.000	0.000						
ECS-LOC2100	Local Operating Console		0.000	0.000						
ECS-INT50W	50 Watt Internal Amp 25 volts		0.000	0.000						
ECS-INT50W	50 Watt Internal Amp 70 volts		0.000	0.000						
ECS-50W	50 Watt Amplifier	1	0.010	0.010						
ECS-125W	125 Watt Amplifier		0.000	0.000						
ECS-DUAL50W	50/100 Watt Amp		0.000	0.000						
ECS-50WBU	50 Watt Backup Amplifier		0.000	0.000						
NAC-1	Notification Appl Circuit	cfg	0.000	0.535	#12 Solid	1.59	150	0.48	20.14	2.14%
NAC-2	Notification Appl Circuit	cfg	0.000	0.189	#12 Solid	1.59	200	0.64		
NAC-3	Notification Appl Circuit	cfg	0.000	0.126	#12 Solid	1.59	240	0.76		
SPARE	Notification Appl Circuit	cfg	0.000	0.630	#12 Solid	1.59	260	0.83		
SPARE	Notification Appl Circuit	cfg	0.000	0.630	#12 Solid	1.59	260	0.83		
SPARE	Notification Appl Circuit	cfg	0.000	0.000	#12 Solid	1.59		0.00		
SPARE	Notification Appl Circuit	cfg	0.000	0.000	#12 Solid	1.59		0.00		
SPARE	Notification Appl Circuit	cfg	0.000	0.000	#12 Solid	1.59		0.00		
Total Standby Current (Amps)			0.367	3.432	Total Alarm Current (Amps)					
Standby Time In Hours			24	2.000	Alarm Time In Minutes / 60		(120 Mins)			
Total Standby AH Required			8.806	6.863	Total Alarm AH Required					
Total Combined AH Required			15.67							
Multiply By The Derating Factor			1.20							
Minimum Battery AmpHours Required			**18.80**							

N/A

BATTERY SIZE = 28AH

PROVIDE SPD 120KA AT POWER SOURCE FEEDING FACP PANEL (WITHIN 10 FEET)

SILENT KNIGHT

ECS-50W Calculations
Version 06.11.12

Global Project Values:
Project Name: EEC
Project ID:
Prepared By: LAI
Date: 1/29/2024
Standby Hours: 24
Alarm Mins: 120
Derating: 1.2

Panel ID: ECS-50
Location: BUILDING 800
Model: ECS-50W Audio Amplifier

Ckt.#	Circuit Name	Qty	Current Draw Standby	Current Draw Alarm
ECS-50W-25	ECS-50W Amplifier 25 Volts*	1	0.085	0.525
ECS-50W-70.7	ECS-50W Amplifier 70.7 Volts*		0.000	0.000
ECS-CE4	4 Zone Expander		0.000	0.000
Watts	Enter Number of Watts @ 25Vrms**	11.5	N/A	0.781
Watts	Enter Number of Watts @ 70.7Vrms**		N/A	0.000
Total Standby Current (AMPS)			0.085	1.306
Standby Time In Hours			24	2.000
Total Standby AH Required			2.040	2.612
Total Combined AH Required			4.65	
Multiply By The Derating Factor			1.20	
Minimum Battery AmpHours Required			**5.58**	

25 SPEAKER AT .25W
& 21 SPEAKERS AT 1/2 WATT

BATTERY SIZE = 14AH

VOLTAGE DROP CALCULATIONS - SPEAKER APPLIANCE CIRCUITS

PANEL ID	CKT #	1/4 WATT 0.017 QTY.	1/4 WATT 0.017 AMP	1/2 WATT 0.034 QTY.	1/2 WATT 0.034 AMP	1 WATT 0.068 QTY.	1 WATT 0.068 AMP	2 WATT 0.132 QTY.	2 WATT 0.132 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	LENGTH FT.	CIR MILS 14awg	VOLTS DROPPED	% VOLTAGE DROP	
AMP	S1		0.000	9	0.306		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.306	150	6530	0.384	**1.6**	BLDG 800
	S2	3	0.051	2	0.068		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.119	200	6530	0.199	**0.8**	BLDG 20
	S3	2	0.034	2	0.068		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.102	240	6530	0.205	**0.9**	BLDG 30
	S4	10	0.170	4	0.136		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.306	260	6530	0.666	**2.8**	BLDG 700
	S5	10	0.170	4	0.136		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.306	260	6530	0.666	**2.8**	BLDG 600

I x FEET x 21.6 / C.M. = VOLTAGE DROPPED

I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

VOLTAGE DROP CALCULATIONS - NOTIFICATION APPLIANCE CIRCUITS

PANEL ID	CKT #	15cd STROBE 0.043 QTY.	15cd STROBE 0.043 AMP	30cd STROBE 0.063 QTY.	30cd STROBE 0.063 AMP	75cd STROBE 0.107 QTY.	75cd STROBE 0.107 AMP	110cd STROBE 0.148 QTY.	110cd STROBE 0.148 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	- 0.000 QTY.	- 0.000 AMP	(I) TOTAL CURRENT	LENGTH FT.	CIR MILS 14awg	VOLTS DROPPED	% VOLTAGE DROP	
RPS8	N1		0.000		0.000	5	0.535		0.000		0.000		0.000		0.000		0.000		0.000	0.535	150	6530	0.265	**1.1**	BLDG 800
RPS8	N2		0.000	3	0.189		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.189	200	6530	0.125	**0.5**	BLDG 20
RPS8	N3		0.000	2	0.126		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.126	240	6530	0.100	**0.4**	BLDG 30
RPS8	N4		0.000	10	0.630		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.630	260	6530	0.542	**2.3**	BLDG 700
RPS8	N5		0.000	10	0.630		0.000		0.000		0.000		0.000		0.000		0.000		0.000	0.630	260	6530	0.542	**2.3**	BLDG 600

I x FEET x 21.6 / C.M. = VOLTAGE DROPPED

I = TOTAL CIRCUIT CURRENT
FEET = ONE WAY DISTANCE IN FEET MEASURED FROM SOURCE TO THE LAST DEVICE
21.6 = FORMULA CONSTANT
C.M. = CROSS SECTIONAL AREA OF CONDUCTOR IN CIRCULAR MILS. SEE CHART BELOW

WIRE SIZE	WIRE RESISTANCE	CIR. MILS
AWG 12	1.59 PER 1000'	6530
AWG 14	2.52 PER 1000'	4110
AWG 16	4.02 PER 1000'	2580
AWG 18	6.39 PER 1000'	1620

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

DSA STAMP

REV#	DESCRIPTION	DATE
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	.	.
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STAMP

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 6340
Exp. 09/30/2026
ELECTRICAL
STATE OF CALIFORNIA

LUCCI & ASSOCIATES
CONSULTING ELECTRICAL ENGINEERS
2030 LAS POSAS ROAD, SUITE 8
CAMARILLO, CA 93012-8094
PHONE (805) 389-6520 FAX (805) 389-6519
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SHEET TITLE: BUILDING 800, 20, & 30
EMERGENCY
VOICE/ALARM COMM
SYSTEM - CALCULATIONS

PROJECT: PLEASANT VALLEY SCHOOL DISTRICT
- ELEMENTARY SCHOOL
EARLY EDUCATION CENTER
FIRE ALARM UPGRADE
550 TEMPLE AVENUE
CAMARILLO, CA 93010

DRAWN: D.S./L.K./I.T.
CHECKED: K. LUCCI
DATE: 04/07/2025
SCALE: AS NOTED
JOB NO. 19-753-16
SHEET: E780
OF: SHEETS:

LICENSED ARCHITECT
JOHN A. JESPERSEN
No. C-25839
Ren. 06/30/2027
STATE OF CALIFORNIA
signed 09.16.2025

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Drafter: CM01 Date: 12.9
Drawing:G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E780.dwg
Xref:G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E780.dwg
Xref:G:\19\753\ELI\Sheets\16-E01\19753-16TB.dwg

Drafter: CM01: G:\19\753\ELI\Sheets\16-Early Education Center\19753-16-E710.dwg: DATE: JAN 29, 2024 TIME: 4:04 PM

EL RANCHO (EEC)
CAMPUS FIRE ALARM UPGRADE

for PLEASANT VALLEY SCHOOL DISTRICT
550 TEMPLE AVE · CAMARILLO, CALIFORNIA 93010

PROJECT MANUAL

20 MARCH 2025 · KBZ JOB NO. 24045 · TRACKING NO. 72553-63
A#03-125105 · FILE 56-24

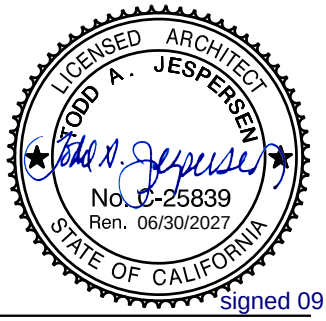
Owner: PLEASANT VALLEY SCHOOL DISTRICT
600 Temple Ave · Camarillo, CA 93010 · Phone (805) 389-2100

Architect: KRUGER BENSEN ZIEMER ARCHITECTS, INC.
199 Figueroa St · Ste 100A · Ventura, CA 93001
Phone (805) 963-1726 · www.kbzarch.com

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SPECIFICATION MANUAL
for the construction of:
Pleasant Valley School District
Campus Fire Alarm Upgrade
El Rancho (EEC)

KRUGER BENSEN ZIEMER ARCHITECTS, INC.
199 Figueroa St, Ste 100A, Ventura, CA 93001



Todd Jespersen	C-25839	signed 09.18.2025
Principal Architect	License No.	Stamp

ELECTRICAL ENGINEER
LUCCI & ASSOCIATES
3251 Corte Malpaso #511, Camarillo, CA 93012



Ken Lucci	8340	
Project Engineer	License No.	Stamp

STATE OF CALIFORNIA - DEPARTMENT OF GENERAL SERVICES
DIVISION OF THE STATE ARCHITECT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-125105 INC:
REVIEWED FOR
SS ☐ FLS ☑ ACS ☐
DATE: 02/26/2026

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PROJECT MANUAL
for
EL RANCHO (EEC)
CAMPUS FIRE ALARM UPGRADE
550 Temple Ave
Camarillo, CA 93010

OWNER: **BOARD OF EDUCATION**
Pleasant Valley School District
600 Temple Ave
Camarillo, CA 93010
(805) 389-2100

ARCHITECT: **KRUGER BENSEN ZIEMER ARCHITECTS, INC.**
199 Figueroa St, Ste 100A
Ventura, CA 93001
(805) 963-1726

ELECTRICAL ENGINEER: **LUCCI & ASSOCIATES**
3251 Corte Malpaso #511
Camarillo, CA 93012
(805) 389-6520

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SCHEDULE OF DRAWINGS

GENERAL

1. G-001 TITLE SHEET

ARCHITECTURAL

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ELECTRICAL

3. E100 GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST
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5. E200 ELECTRICAL DETAILS
6. E600 NEW FIRE ALARM MASTER LEGEND
7. E601 ENLARGED FIRE ALARM PLAN - WEST
8. E602 ENLARGED FIRE ALARM PLAN - EAST
9. E603 HONEYWELL CUT SHEETS MULTI-CRITERIA CO & SMOKE SENSOR & MONITOR MOD.
10. E604 HONEYWELL CUT SHEETS SPEAKER STROBES & PHOTOELECTRIC SMOKE SENSOR
11. E605 HONEYWELL CUT SHEETS TEMPERATURE SENSORS & RELAY
12. E606 EMERGENCY VOICE/ALARM/DETECTIO COMM SYSTEM -FIRE ALARM DETAILS
13. E607 POINT TO POINT FIRE ALARM/EVACS GENERIC WIRING DETAIL
14. E608 ELECTRICAL DETAILS
15. E610 BUILDING 100 -KINDERGARTENFIRE ALARM PLAN -NEW WORK
16. E620 BUILDING 200 -FIRE ALARM PLAN -NEW WORK
17. E630 BUILDING 300 -FIRE ALARM PLAN -NEW WORK
18. E640 BUILDING 400 -FIRE ALARM PLAN -NEW WORK
19. E650 BUILDING 500 CLASSROOM FIRE ALARM PLAN -NEW WORK
20. E660 BUILDING 600 CLASSROOM FIRE ALARM PLAN -NEW WORK
21. E670 BUILDING 700 CLASSROOM FIRE ALARM PLAN -NEW WORK
22. E680 BUILDING 800 MULTIPURPO FIRE ALARM PLAN -NEW WORK
23. E682 BUILDING 20 FOOD KITCHE FIRE ALARM PLAN -NEW WORK
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27. E700 FIRE RISER DIAGRAM
28. E701 EMERGENCY VOICE/ALARM/DETECTION COMM SYSTEM RISER DIAGRAM FOR BLDGS 800/20 AND 30
29. E702 FIRE ALARM RISER DIAGRAMS FOR BLDGS AND 600/700
30. E703 BUILDING INTERCONNECTION RISE
31. E710 BUILDING 100 EMERGENCY VOICE/ALARM COMM SYSTEM CALCULATIONS
32. E720 BUILDING 200 EMERGENCY VOICE/ALARM COMM SYSTEM CALCULATIONS
33. E730 BUILDING 300, 40, & 50 EMERGENCY VOICE/ALARM COMM SYSTEM CALCS
34. E740 BUILDING 400 & 500 EMERGENCY VOICE/ALARM COMM SYSTEM CALCS
35. E760 BUILDING 600 & 700 EMERGENCY VOICE/ALARM COMM SYSTEM CALCS
36. E780 BUILDING 800, 20, & 30 EMERGENCY VOICE/ALARM COMM SYSTEM CALCS

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01 3200 Construction Progress Documentation
01 3300 Submittal Procedures
01 4000 Quality Requirements
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01 5000 Temporary Facilities and Controls
01 6000 Product Requirements
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PART 1 - GENERAL

1.1 All work shall be compliant with California Building Code Title 24, for Parts 1-6 and 9.

1.2 California Building Code Title 24, Parts1-5 must be kept on site during construction.

1.3 If any conflicts or inconsistencies exist between the specifications and the drawings (including the general notes), more stringent requirements shall take precedence.

1.4 All DSA addenda must be signed by Architect and approved by DSA (Section 4-338, Part 1).

1.5 All substitutions affecting DSA-regulated items shall be considered as a Construction Change Document (CCD) or Addenda and shall be approved by DSA prior to fabrication and installation. (IR A-6 and Section 4-338(c), Part 1).

A. DSA-regulated items are those which affect structural, life-safety, and/or accessibility components.

B. Construction Change Documents must be signed by all the following:

1. A/E of Record
2. Structural Engineer (when applicable)
3. Delegated professional engineer (when applicable)
4. DSA

1.6 The Project Inspector and testing lab must be employed by the owner and approved by all of the following:

A. A/E of Record

B. Structural Engineer (when applicable)

C. DSA

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 0001

SECTION 01 1000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Contractor's use of site and premises.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and Drawing conventions.

B. Related Requirements:

1. Section 01 5000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Section 01 7300 "Execution" for coordination of Owner-installed products.

1.2 DEFINITIONS

A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.3 PROJECT INFORMATION

A. Project Identification: PVSD El Rancho (EEC) Campus Fire Alarm Upgrade.

1. Project Location: 550 Temple Ave, Camarillo, CA 93010.

B. Owner: Pleasant Valley School District.

1. Owner's Representative: Sandra Lovaas.

C. Architect: Kruger Bensen Ziemer Architects Inc.

1. Architect's Representative: Todd Jespersen.

D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Electrical Engineering: Lucci & Associates.

a. Electrical Engineering Representative: Ken Lucci.

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Installation of new fully automatic fire alarm and voice evacuation system, removal of existing fire alarm system, and other Work indicated in the Contract Documents.

B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.5 CONTRACTOR'S USE OF SITE AND PREMISES

A. Restricted Use of Site: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Limits on Use of Site: Limit use of Project site to Work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or for storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Condition of Existing Grounds: Maintain portions of existing grounds, landscaping, and hardscaping affected by construction operations throughout construction period. Repair damage caused by construction operations.

1.6 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.7 WORK RESTRICTIONS

A. Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.

B. On-Site Work Hours: Limit work to between 7:00 a.m. to 7:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.

1. Weekend Hours: subject to prior approval only.
2. Early Morning Hours: subject to prior approval only.
3. Hours for Utility Shutdowns: subject to prior approval only.
4. Hours for Core Drilling or other noisy activity: subject to prior approval only.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging for temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, Dust, and Odors: Coordinate operations that may result in high levels of noise and vibration, dust, odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than two days in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.

F. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

G. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.

1. Maintain list of approved screened personnel with Owner's representative.

1.8 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Text Color: Text used in the Specifications, including units of measure, manufacturer and product names, and other text may appear in multiple colors or underlined as part of a hyperlink; no emphasis is implied by text with these characteristics.
3. Hypertext: Text used in the Specifications may contain hyperlinks. Hyperlinks may allow for access to linked information that is not residing in the Specifications. Unless otherwise indicated, linked information is not part of the Contract Documents.
4. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.

C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.

2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings and published as part of the U.S. National CAD Standard.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 1000

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SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

B. Related Requirements:

1. Section 01 6000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use facsimile of form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.

b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

    a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
    b. Substitution request is fully documented and properly submitted.
    c. Requested substitution will not adversely affect Contractor's construction schedule.
    d. Requested substitution has received necessary approvals of authorities having jurisdiction.
    e. Requested substitution is compatible with other portions of the Work.
    f. Requested substitution has been coordinated with other portions of the Work.
    g. Requested substitution provides specified warranty.
    h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

    a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation

to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500

SECTION 01 2600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

B. Related Requirements:

1. Section 01 2500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710.

1.4 PROPOSAL REQUESTS

A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 20 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
c. Include costs of labor and supervision directly attributable to the change.

d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 01 2500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 ADMINISTRATIVE CHANGE ORDERS

A. Allowance Adjustment: See Section 01 2100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.6 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.7 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

2. Time & Material records shall be submitted to the Inspector of Record on a daily basis as they are accrued and are subject to verification and approval by the Inspector.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2600

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SECTION 01 2900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.

B. Related Requirements:

1. Section 01 2600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
2. Section 01 3200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.

1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
2. Submit the schedule of values to Architect at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values coordinated with each phase of payment.
4. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.

B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.

1. Identification: Include the following Project identification on the schedule of values:

    a. Project name and location.
    b. Name of Architect.
    c. Architect's Project number.
    d. Contractor's name and address.
    e. Date of submittal.

2. Arrange schedule of values consistent with format of AIA Document G703.
3. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:

    a. Related Specification Section or Division.
    b. Description of the Work.
    c. Name of subcontractor.
    d. Name of manufacturer or fabricator.
    e. Name of supplier.
    f. Change Orders (numbers) that affect value.
    g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.

        1) Labor.
        2) Materials.
        3) Equipment.

4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

    a. Differentiate between items stored on-site and items stored off-site.

6. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
7. Overhead Costs: Include total cost and proportionate share of general overhead and profit for each line item.
8. Overhead Costs: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.

9. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
10. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect. Draft copy to be reviewed and approved by Inspector of Record prior to submission to Architect.

C. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.

1. Other Application for Payment forms proposed by the Contractor shall be acceptable to Architect and Owner. Submit forms for approval with initial submittal of schedule of values.

D. Application Preparation: Complete every entry on form. Execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.

E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.

1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.

2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
3. Provide summary documentation for stored materials indicating the following:

    a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
    b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
    c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.

F. Transmittal: Submit three signed original copies of each Application for Payment to Architect by a method ensuring receipt. One copy shall include waivers of lien and similar attachments if required.

1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.

G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
2. When an application shows completion of an item, submit conditional final or full waivers.
3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.

H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:

1. List of subcontractors.
2. Schedule of values.
3. Contractor's construction schedule (preliminary if not final).
4. Products list (preliminary if not final).
5. Sustainable design action plans, including preliminary project materials cost data.
6. Submittal schedule (preliminary if not final).
7. List of Contractor's staff assignments.
8. List of Contractor's principal consultants.
9. Initial progress report.
10. Report of preconstruction conference.
11. Certificates of insurance and insurance policies.

12. Performance and payment bonds.

I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.

1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706.
5. AIA Document G706A.
6. AIA Document G707.
7. Evidence that claims have been settled.
8. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2900

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SECTION 01 3100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General coordination procedures.
2. Coordination drawings.
3. RFIs.
4. Digital project management procedures.
5. Project meetings.

B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.

C. Related Requirements:

1. Section 01 3200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
2. Section 01 7300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
3. Section 01 7700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

A. RFI: Request for Information. Request from Owner, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:

1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.
2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1. Post copies of list in project meeting room, in temporary field office, and in prominent location in built facility. Keep list current at all times.

1.5 GENERAL COORDINATION PROCEDURES

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.

1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
3. Make adequate provisions to accommodate items scheduled for later installation.

B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.

C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's construction schedule.
2. Preparation of the schedule of values.
3. Installation and removal of temporary facilities and controls.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Pre-installation conferences.
7. Project closeout activities.
8. Startup and adjustment of systems.

1.6 REQUEST FOR INFORMATION (RFI)

A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

    a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

1. Attachments shall be electronic files in PDF format.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.

1. The following Contractor-generated RFIs will be returned without action:

    a. Requests for approval of submittals.
    b. Requests for approval of substitutions.
    c. Requests for approval of Contractor's means and methods.

d. Requests for coordination information already indicated in the Contract Documents.
e. Requests for adjustments in the Contract Time or the Contract Sum.
f. Requests for interpretation of Architect's actions on submittals.
g. Incomplete RFIs or inaccurately prepared RFIs.

2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 01 2600 "Contract Modification Procedures."

a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.

E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Include the following:

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.

1.7 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of 10 working days prior to meeting.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.

B. Preconstruction Conference: Architect will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.

1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:

    a. Responsibilities and personnel assignments.
    b. Tentative construction schedule.
    c. Phasing.
    d. Critical work sequencing and long lead items.
    e. Designation of key personnel and their duties.
    f. Lines of communications.
    g. Procedures for processing field decisions and Change Orders.
    h. Procedures for RFIs.
    i. Procedures for testing and inspecting.
    j. Procedures for processing Applications for Payment.
    k. Distribution of the Contract Documents.
    l. Submittal procedures.
    m. Preparation of Record Documents.
    n. Use of the premises and existing buildings.
    o. Work restrictions.
    p. Working hours.
    q. Owner's occupancy requirements.
    r. Responsibility for temporary facilities and controls.
    s. Procedures for moisture and mold control.
    t. Procedures for disruptions and shutdowns.
    u. Construction waste management and recycling.
    v. Parking availability.
    w. Office, work, and storage areas.
    x. Equipment deliveries and priorities.
    y. First aid.
    z. Security.
    aa. Progress cleaning.

3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity when required by other sections and when required for coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and

installations that have preceded or will follow, shall attend the meeting. Advise Architect of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Options.
    c. Related RFIs.
    d. Related Change Orders.
    e. Purchases.
    f. Deliveries.
    g. Submittals.
    h. Sustainable design requirements.
    i. Review of mockups.
    j. Possible conflicts.
    k. Compatibility requirements.
    l. Time schedules.
    m. Weather limitations.
    n. Manufacturer's written instructions.
    o. Warranty requirements.
    p. Compatibility of materials.
    q. Acceptability of substrates.
    r. Temporary facilities and controls.
    s. Space and access limitations.
    t. Regulations of authorities having jurisdiction.
    u. Testing and inspecting requirements.
    v. Installation procedures.
    w. Coordination with other work.
    x. Required performance results.
    y. Protection of adjacent work.
    z. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at weekly intervals.

1. Coordinate dates of meetings with preparation of payment requests.
2. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these

meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

        1) Review schedule for next period.

    b. Review present and future needs of each entity present, including the following:

        1) Interface requirements.
        2) Sequence of operations.
        3) Status of submittals.
        4) Deliveries.
        5) Off-site fabrication.
        6) Access.
        7) Site use.
        8) Temporary facilities and controls.
        9) Progress cleaning.
        10) Quality and work standards.
        11) Status of correction of deficient items.
        12) Field observations.
        13) Status of RFIs.
        14) Status of Proposal Requests.
        15) Pending changes.
        16) Status of Change Orders.
        17) Pending claims and disputes.
        18) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

    a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3100

SECTION 01 3200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:

1. Startup construction schedule.
2. Contractor's Construction Schedule.
3. Construction schedule updating reports.
4. Daily construction reports.
5. Material location reports.
6. Site condition reports.
7. Unusual event reports.

1.3 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.

1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
2. Predecessor Activity: An activity that precedes another activity in the network.
3. Successor Activity: An activity that follows another activity in the network.

B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.

C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.

D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

E. Event: The starting or ending point of an activity.

F. Float: The measure of leeway in starting and completing an activity.

1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.

G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:

1. Working electronic copy of schedule file, where indicated.
2. PDF file.
3. Two paper copies, of sufficient size to display entire period or schedule, as required.

B. Startup construction schedule.

C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

1. Submit a working digital copy of schedule, using software indicated, and labeled to comply with requirements for submittals.

D. Construction Schedule Updating Reports: Submit with Applications for Payment.

E. Daily Construction Reports: Submit at weekly intervals.

F. Material Location Reports: Submit at weekly intervals.

G. Site Condition Reports: Submit at time of discovery of differing conditions.

H. Unusual Event Reports: Submit at time of unusual event.

I. Qualification Data: For scheduling consultant.

1.5 COORDINATION

A. Coordinate Contractor's Construction Schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.

1. Secure time commitments for performing critical elements of the Work from entities involved.
2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.6 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

1. Use Microsoft Project, Primavera, or Meridian Prolog, for current Windows operating system.

B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:

1. Activity Duration: Define activities so no activity is longer than 14 days, unless specifically allowed by Architect.
2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.

    a. Windows.

3. Submittal Review Time: Include review and resubmittal times indicated in Section 01 3300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
4. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
5. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.

1. Phasing: Arrange list of activities on schedule by phase.
2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 01 1000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.

3. Work Restrictions: Show the effect of the following items on the schedule:

    a. Coordination with existing construction.
    b. Limitations of continued occupancies.
    c. Uninterruptible services.
    d. Partial occupancy before Substantial Completion.
    e. Use-of-premises restrictions.
    f. Seasonal variations.
    g. Environmental control.

4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:

    a. Subcontract awards.
    b. Submittals.
    c. Purchases.
    d. Mockups.
    e. Fabrication.
    f. Deliveries.
    g. Installation.
    h. Tests and inspections.
    i. Adjusting.

E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and the Contract Time.

G. Contractor's Construction Overall Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before regularly scheduled progress meeting.

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

H. Contractor's 3-Week “Look-Ahead” Schedule Updating: At each regularly scheduled construction meeting, issue a short term schedule that shows the prior week’s activities and the activities for the upcoming two weeks (3 weeks in total).

1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
3. As the Work progresses, indicate final completion percentage for each activity.

I. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.

J. Distribution: Distribute copies of approved schedule to Architect Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.

1. Post copies in Project meeting rooms and temporary field offices.
2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.7 GANTT-CHART SCHEDULE REQUIREMENTS

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal, Gantt-chart-type, Contractor's Construction Schedule within 30 days of date established for the Notice to Proceed.

1. Base schedule on the startup construction schedule and additional information received since the start of Project.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.

1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

1.8 REPORTS

A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:

1. List of subcontractors at Project site.
2. List of separate contractors at Project site.
3. Approximate count of personnel at Project site.
4. Equipment at Project site.
5. Material deliveries.
6. High and low temperatures and general weather conditions, including presence of rain.
7. Testing and inspection.
8. Accidents.
9. Meetings and significant decisions.
10. Unusual events.
11. Stoppages, delays, shortages, and losses.
12. Emergency procedures.
13. Orders and requests of authorities having jurisdiction.
14. Change Orders received and implemented.
15. Construction Change Directives received and implemented.
16. Partial completions and occupancies.
17. Substantial Completions authorized.

B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:

1. Material stored prior to previous report and remaining in storage.
2. Material stored prior to previous report and since removed from storage and installed.
3. Material stored following previous report and remaining in storage.

C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

D. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3200

SECTION 01 3300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 01 2900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 01 3100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 01 3200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 01 3233 "Photographic Documentation" for submitting preconstruction photographs, periodic construction photographs, and final completion construction photographs.
5. Section 01 4000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
6. Section 01 7700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
7. Section 01 7823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
8. Section 01 7839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with

requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Contractor.
5. Name of firm or entity that prepared submittal.
6. Names of subcontractor, manufacturer, and supplier.
7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier; and alphanumeric suffix for resubmittals.
8. Category and type of submittal.
9. Submittal purpose and description.

10. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
11. Drawing number and detail references, as appropriate.
12. Indication of full or partial submittal.
13. Location(s) where product is to be installed, as appropriate.
14. Other necessary identification.
15. Remarks.
16. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. PDF Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package, and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.

    a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

    b. For file attachments over 30mb, Architect will provide web link for uploading PDF attachments.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review submittals concurrently for coordination.

a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow 15 days for review of each resubmittal.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.

h. Availability and delivery time information.

4. Submit Product Data before Shop Drawings, and before or concurrent with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

a. Identification of products.
b. Schedules.
c. Compliance with specified standards.
d. Notation of coordination requirements.
e. Notation of dimensions established by field measurement.
f. Relationship and attachment to adjoining construction clearly indicated.
g. Seal and signature of professional engineer if specified.

2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.

a. Three opaque copies of each submittal. Architect will retain two copies; remainder will be returned.

C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

a. Project name and submittal number.
b. Generic description of Sample.
c. Product name and name of manufacturer.
d. Sample source.
e. Number and title of applicable Specification Section.
f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics, and identification information for record.
4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.

b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.

   a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

   a. Number of Samples: Submit three sets of Samples. Architect will retain one Sample set; remainder will be returned. Mark up and retain one returned Sample set as a project record Sample.

      1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
      2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
3. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
4. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.
    g. Limitations of use.

1.8 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.9 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return it.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

2. Paper Submittals: Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will discard submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 3300

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

1. Laboratory Mockups: Full-size physical assemblies constructed and tested at testing facility to verify performance characteristics.

2. Integrated Exterior Mockups: Mockups of the exterior envelope constructed on-site as freestanding temporary built elements or as part of permanent construction, consisting of multiple products, assemblies, and subassemblies.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.4 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 CONTRACTOR'S QUALITY-CONTROL PLAN

A. Quality-Control Plan, General: Submit quality-control plan within 10 days of Notice to Proceed, and not less than five days prior to preconstruction conference. Submit in format acceptable to Architect. Identify personnel, procedures, controls, instructions, tests, records, and forms to be used to carry out Contractor's quality-assurance and quality-control responsibilities. Coordinate with Contractor's Construction Schedule.

B. Quality-Control Personnel Qualifications: Engage qualified personnel trained and experienced in managing and executing quality-assurance and quality-control procedures similar in nature and extent to those required for Project.

1. Project quality-control manager may also serve as Project superintendent.

C. Submittal Procedure: Describe procedures for ensuring compliance with requirements through review and management of submittal process. Indicate qualifications of personnel responsible for submittal review.

D. Testing and Inspection: In quality-control plan, include a comprehensive schedule of Work requiring testing or inspection, including the following:

1. Contractor-performed tests and inspections including Subcontractor-performed tests and inspections. Include required tests and inspections and Contractor-elected tests and inspections. Distinguish source quality-control tests and inspections from field quality-control tests and inspections.
2. Owner-performed tests and inspections indicated in the Contract Documents.

E. Continuous Inspection of Workmanship: Describe process for continuous inspection during construction to identify and correct deficiencies in workmanship in addition to testing and inspection specified. Indicate types of corrective actions to be required to bring work into compliance with standards of workmanship established by Contract requirements and approved mockups.

F. Monitoring and Documentation: Maintain testing and inspection reports including log of approved and rejected results. Include work Architect has indicated as nonconforming or defective. Indicate corrective actions taken to bring nonconforming work into compliance with requirements. Comply with requirements of authorities having jurisdiction.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.

5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

1.7 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

F. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

G. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.

    a. Allow seven days for initial review and each re-review of each mockup.

7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed unless otherwise indicated.

H. Integrated Exterior Mockups: Construct integrated exterior mockup as indicated on Drawings. Coordinate installation of exterior envelope materials and products for which mockups are required in individual Specification Sections, along with supporting materials. Comply with requirements in "Mockups" Paragraph.

1.8 QUALITY CONTROL

A. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are the Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

3. Testing and inspection requested by Contractor and not required by the Contract Documents are the Contractor's responsibility.
4. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 01 3300 "Submittal Procedures."

D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

E. Associated Contractor Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 01 7300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 01 4000

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SECTION 01 4200 - REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the Conditions of the Contract.

B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract.

C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."

D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."

E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

H. "Provide": Furnish and install, complete and ready for the intended use.

I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied

directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.

C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."

B. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. AAMA - American Architectural Manufacturers Association; www.aamanet.org.
2. AHRI - Air-Conditioning, Heating, and Refrigeration Institute (The); www.ahrinet.org.
3. AIA - American Institute of Architects (The); www.aia.org.
4. AISC - American Institute of Steel Construction; www.aisc.org.
5. AMCA - Air Movement and Control Association International, Inc.; www.amca.org.
6. ANSI - American National Standards Institute; www.ansi.org.
7. APA - APA - The Engineered Wood Association; www.apawood.org.
8. ASCE - American Society of Civil Engineers; www.asce.org.
9. ASHRAE - American Society of Heating, Refrigerating and Air-Conditioning Engineers; www.ashrae.org.
10. ASME - ASME International; (American Society of Mechanical Engineers); www.asme.org.
11. ASTM - ASTM International; www.astm.org.
12. AWI - Architectural Woodwork Institute; www.awinet.org.
13. AWPA - American Wood Protection Association; www.awpa.com.
14. BICSI - BICSI, Inc.; www.bicsi.org.
15. CSI - Construction Specifications Institute (The); www.csinet.org.
16. DHI - Door and Hardware Institute; www.dhi.org.
17. FM Approvals - FM Approvals LLC; www.fmglobal.com.
18. FM Global - FM Global; (Formerly: FMG - FM Global); www.fmglobal.com.
19. FSA - Fluid Sealing Association; www.fluidsealing.com.
20. FSC - Forest Stewardship Council U.S.; www.fscus.org.
21. GA - Gypsum Association; www.gypsum.org.

22. GANA - Glass Association of North America; www.glasswebsite.com.
23. GS - Green Seal; www.greenseal.org.
24. ICBO - International Conference of Building Officials; (See ICC).
25. ICC - International Code Council; www.iccsafe.org.
26. IGMA - Insulating Glass Manufacturers Alliance; www.igmaonline.org.
27. ISO - International Organization for Standardization; www.iso.org.
28. NFPA - National Fire Protection Association; www.nfpa.org.
29. NFPA - NFPA International; (See NFPA).
30. NFRC - National Fenestration Rating Council; www.nfrc.org.
31. NRCA - National Roofing Contractors Association; www.nrca.net.
32. SMACNA - Sheet Metal and Air Conditioning Contractors' National Association; www.smacna.org.
33. SPFA - Spray Polyurethane Foam Alliance; www.sprayfoam.org.
34. TCNA - Tile Council of North America, Inc.; www.tileusa.com.
35. WCLIB - West Coast Lumber Inspection Bureau; www.wclib.org.
36. WCMA - Window Covering Manufacturers Association; www.wcmanet.org.
37. WDMA - Window & Door Manufacturers Association; www.wdma.com.
38. WI - Woodwork Institute; www.wicnet.org.
39. WSRCA - Western States Roofing Contractors Association; www.wsrca.com.
40. WWPA - Western Wood Products Association; www.wwpa.org.

C. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.

1. ICC - International Code Council; www.iccsafe.org.
2. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.

D. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
1. DOE - Department of Energy; www.energy.gov.
2. EPA - Environmental Protection Agency; www.epa.gov.
3. GSA - General Services Administration; www.gsa.gov.
4. OSHA - Occupational Safety & Health Administration; www.osha.gov.
5. USDOJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.

E. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. FED-STD - Federal Standard; (See FS).

F. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
2. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
3. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 4200

SECTION 01 5000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Requirements:

1. Section 01 1000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 INFORMATIONAL SUBMITTALS

A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.

B. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

C. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold.

D. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:

1. Locations of dust-control partitions at each phase of work.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Waste-handling procedures.
5. Other dust-control measures.

1.4 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

C. Accessible Temporary Egress: Comply with applicable provisions in [the United States Access Board's ADA-ABA Accessibility Guidelines] [and] [ICC/ANSI A117.1].

1.5 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch-thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch-OD line posts and 2-7/8-inch-OD corner and pull posts, with 1-5/8-inch-OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

B. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.

C. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY FACILITIES

A. Field Offices, General: Owner will provide conditioned interior space for field offices for duration of Project.

B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.

1. Store combustible materials apart from building.

2.3 EQUIPMENT

A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

3.2 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

1. Locate facilities to limit site disturbance as specified in Section 01 1000 "Summary."

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.

B. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.

C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

D. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

3.4 SUPPORT FACILITIES INSTALLATION

A. General: Comply with the following:

1. Provide construction for temporary offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible according to ASTM E 136. Comply with NFPA 241.
2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.

1. Protect existing site improvements to remain including curbs, pavement, and utilities.
2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Use designated areas of Owner's existing parking areas for construction personnel.

D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 01 7300 "Execution."

E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.

1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.5 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.

B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

1. Comply with work restrictions specified in Section 01 1000 "Summary."

C. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.

D. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

E. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.

F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.

1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.

H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.

1. Prohibit smoking on construction site. Comply with additional limits on smoking specified in other Sections.
2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.6 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture-Protection Plan: Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.

1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and replacing water-damaged Work.
2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
3. Indicate methods to be used to avoid trapping water in finished work.

B. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:

1. Protect porous materials from water damage.
2. Protect stored and installed material from flowing or standing water.
3. Keep porous and organic materials from coming into prolonged contact with concrete.
4. Remove standing water from decks.
5. Keep deck openings covered or dammed.

C. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Periodically collect and remove waste containing cellulose or other organic matter.
4. Discard or replace water-damaged material.
5. Do not install material that is wet.
6. Discard and replace stored or installed material that begins to grow mold.
7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.

3.7 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 01 7700 "Closeout Procedures."

END OF SECTION 01 5000

SECTION 01 6000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 01 2100 "Allowances" for products selected under an allowance.
2. Section 01 2300 "Alternates" for products selected under an alternate.
3. Section 01 2500 "Substitution Procedures" for requests for substitutions.
4. Section 01 4200 "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual

characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Form of Architect's Approval of Submittal: As specified in Section 01 3300 "Submittal Procedures."
    b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Section 01 3300 "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

    a. Name of product and manufacturer.
    b. Model and serial number.
    c. Capacity.
    d. Speed.
    e. Ratings.

3. See individual identification sections in Divisions 21, 22, 23, and 26 for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.

5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Section 01 7700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.

5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Architect through Construction Manager in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …"

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

    a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …"

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered unless otherwise indicated.

    a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …"

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.

    a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …"

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered unless otherwise indicated.

a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …"

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.

a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …"

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

a. For approval of products by unnamed manufacturers, comply with requirements in Section 01 2500 "Substitution Procedures" for substitutions for convenience.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 01 2500 "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties,

weight, dimension, durability, visual characteristics, and other specific features and requirements.

2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
4. Samples, if requested.

B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 6000

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SECTION 01 7300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Construction layout.
2. Installation of the Work.
3. Cutting and patching.
4. Coordination of Owner-installed products.
5. Progress cleaning.
6. Starting and adjusting.
7. Protection of installed construction.

B. Related Requirements:

1. Section 01 1000 "Summary" for limits on use of Project site.
2. Section 01 7700 "Closeout Procedures" for final cleaning.
3. Section 02 4119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and

verify the existence and location of underground utilities, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services; and other utilities.
2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 01 3100 "Project Management and Coordination."

3.3 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
3. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.

1. Comply with Section 01 7700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.4 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 01 1000 "Summary."

F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Proceed with patching after construction operations requiring cutting are complete.

G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

    a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

    a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 01 5000 "Temporary Facilities and Controls."

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

A. Manufacturer's Field Service: Comply with qualification requirements in Section 01 4000 "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 01 7300

SECTION 01 7419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for the following:

1. Recycling nonhazardous demolition and construction waste.
2. Disposing of nonhazardous demolition and construction waste.

B. Related Requirements:

1. Section 31 1000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.2 DEFINITIONS

A. Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

C. Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner’s property.

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

1.3 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly return to Owner.

1.4 ACTION SUBMITTALS

A. Waste Management Plan: Submit plan within 7 days of date established for commencement of the Work.

1.5 INFORMATIONAL SUBMITTALS

A. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

B. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.

1.6 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

B. Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Use Form CWM-1 for construction waste and Form CWM-2 for demolition waste. Include estimated quantities and assumptions for estimates.

C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Use Form CWM-3 for construction waste and Form CWM-4 for demolition waste. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
2. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
3. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

PART 2 - PRODUCTS

2.1 RECYCLING RECEIVERS AND PROCESSORS

A. Subject to compliance with requirements, available recycling receivers and processors include, but are not limited to, the following:

1. Del Norte Recycling Center, 111 S Del Norte Blvd, Oxnard, CA 93030.

2.2 PERFORMANCE REQUIREMENTS

A. General: Achieve end-of-Project rates for salvage/recycling of 75 percent by weight of total nonhazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

1. Construction Waste:

a. Lumber.
b. Wood sheet materials.
c. Wood trim.
d. Metals.
e. Roofing.
f. Insulation.
g. Gypsum board.
h. Piping.
i. Electrical conduit.
j. Packaging: Regardless of salvage/recycle goal indicated in "General" Paragraph above, salvage or recycle 100 percent of the following uncontaminated packaging materials:

1) Paper.
2) Cardboard.
3) Boxes.
4) Plastic sheet and film.
5) Polystyrene packaging.
6) Wood crates.
7) Wood pallets.
8) Plastic pails.

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1. Comply with operation, termination, and removal requirements in Section 01 5000 "Temporary Facilities and Controls."

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1. Distribute waste management plan to everyone concerned within three days of submittal return.
2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged and recycled.
2. Comply with Section 01 5000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

A. General: Recycle paper and beverage containers used by on-site workers.

B. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

C. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.

1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor as often as required to prevent overfilling bins.

3.3 RECYCLING DEMOLITION WASTE

A. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

1. Pulverize concrete to maximum 4-inch size.

B. Piping: Reduce piping to straight lengths and store by material and size. Separate supports, hangers, valves, sprinklers, and other components by material and size.

C. Conduit: Reduce conduit to straight lengths and store by material and size.

3.4 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.

C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

D. Paint: Seal containers and store by type.

3.5 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged or recycled, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner's property.

C. Burning: Do not burn waste materials.

3.6 ATTACHMENTS

A. Form CWM-1 for construction waste identification.

B. Form CWM-2 for demolition waste identification.

C. Form CWM-3 for construction waste reduction work plan.

D. Form CWM-4 for demolition waste reduction work plan.

E. Form CWM-7 for construction waste reduction progress report.

F. Form CWM-8 for demolition waste reduction progress report.

END OF SECTION 01 7419

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FORM CWM-1: CONSTRUCTION WASTE IDENTIFICATION							
MATERIAL CATEGORY	**GENERATION POINT**	**EST. QUANTITY OF MATERIALS RECEIVED* (A)**	**EST. WASTE - % (B)**	**TOTAL EST. QUANTITY OF WASTE* (C = A x B)**	**EST. VOLUME CY (CM)**	**EST. WEIGHT TONS (TONNES)**	**REMARKS AND ASSUMPTIONS**
Packaging: Cardboard							
Packaging: Boxes							
Packaging: Plastic Sheet or Film							
Packaging: Polystyrene							
Packaging: Pallets or Skids							
Packaging: Crates							
Packaging: Paint Cans							
Packaging: Plastic Pails							
Site-Clearing Waste							
Masonry or CMU							
Lumber: Cut-Offs							
Lumber: Warped Pieces							
Plywood or OSB (scraps)							
Wood Forms							
Wood Waste Chutes							
Wood Trim (cut-offs)							
Metals							
Insulation							
Roofing							
Joint Sealant Tubes							
Gypsum Board (scraps)							
Carpet and Pad (scraps)							
Piping							
Electrical Conduit							
Other:							

* Insert units of measure.

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FORM CWM-2: DEMOLITION WASTE IDENTIFICATION				
MATERIAL DESCRIPTION	**EST. QUANTITY**	**EST. VOLUME CY (CM)**	**EST. WEIGHT TONS (TONNES)**	**REMARKS AND ASSUMPTIONS**
Asphaltic Concrete Paving				
Concrete				
Brick				
CMU				
Lumber				
Plywood and OSB				
Wood Paneling				
Wood Trim				
Miscellaneous Metals				
Structural Steel				
Rough Hardware				
Insulation				
Roofing				
Doors and Frames				
Door Hardware				
Windows				
Glazing				
Acoustical Tile				
Carpet				
Carpet Pad				
Demountable Partitions				
Equipment				
Cabinets				
Plumbing Fixtures				
Piping				
Piping Supports and Hangers				
Valves				
Sprinklers				
Mechanical Equipment				
Electrical Conduit				
Copper Wiring				
Light Fixtures				
Lamps				
Lighting Ballasts				
Electrical Devices				
Switchgear and Panelboards				
Transformers				
Other:				

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FORM CWM-3: CONSTRUCTION WASTE REDUCTION WORK PLAN						
MATERIAL CATEGORY	GENERATION POINT	TOTAL EST. QUANTITY OF WASTE TONS (TONNES)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTION PROCEDURES
			EST. AMOUNT SALVAGED TONS (TONNES)	EST. AMOUNT RECYCLED TONS (TONNES)	EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)	
Packaging: Cardboard						
Packaging: Boxes						
Packaging: Plastic Sheet or Film						
Packaging: Polystyrene						
Packaging: Pallets or Skids						
Packaging: Crates						
Packaging: Paint Cans						
Packaging: Plastic Pails						
Site-Clearing Waste						
Masonry or CMU						
Lumber: Cut-Offs						
Lumber: Warped Pieces						
Plywood or OSB (scraps)						
Wood Forms						
Wood Waste Chutes						
Wood Trim (cut-offs)						
Metals						
Insulation						
Roofing						
Joint Sealant Tubes						
Gypsum Board (scraps)						
Carpet and Pad (scraps)						
Piping						
Electrical Conduit						
Other:						

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FORM CWM-4: DEMOLITION WASTE REDUCTION WORK PLAN

MATERIAL CATEGORY	GENERATION POINT	TOTAL EST. QUANTITY OF WASTE TONS (TONNES)	DISPOSAL METHOD AND QUANTITY			HANDLING AND TRANSPORTION PROCEDURES
			EST. AMOUNT SALVAGED TONS (TONNES)	EST. AMOUNT RECYCLED TONS (TONNES)	EST. AMOUNT DISPOSED TO LANDFILL TONS (TONNES)	
Asphaltic Concrete Paving						
Concrete						
Brick						
CMU						
Lumber						
Plywood and OSB						
Wood Paneling						
Wood Trim						
Miscellaneous Metals						
Structural Steel						
Rough Hardware						
Insulation						
Roofing						
Doors and Frames						
Door Hardware						
Windows						
Glazing						
Acoustical Tile						
Carpet						
Carpet Pad						
Demountable Partitions						
Equipment						
Cabinets						
Plumbing Fixtures						
Piping						
Supports and Hangers						
Valves						
Sprinklers						
Mechanical Equipment						
Electrical Conduit						
Copper Wiring						
Light Fixtures						
Lamps						
Lighting Ballasts						
Electrical Devices						
Switchgear and Panelboards						
Transformers						
Other:						

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FORM CWM-7: CONSTRUCTION WASTE REDUCTION PROGRESS REPORT

MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Packaging: Cardboard								
Packaging: Boxes								
Packaging: Plastic Sheet or Film								
Packaging: Polystyrene								
Packaging: Pallets or Skids								
Packaging: Crates								
Packaging: Paint Cans								
Packaging: Plastic Pails								
Site-Clearing Waste								
Masonry or CMU								
Lumber: Cut-Offs								
Lumber: Warped Pieces								
Plywood or OSB (scraps)								
Wood Forms								
Wood Waste Chutes								
Wood Trim (cut-offs)								
Metals								
Insulation								
Roofing								
Joint Sealant Tubes								
Gypsum Board (scraps)								
Carpet and Pad (scraps)								
Piping								
Electrical Conduit								
Other:								

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FORM CWM-8: DEMOLITION WASTE REDUCTION PROGRESS REPORT

MATERIAL CATEGORY	GENERATION POINT	TOTAL QUANTITY OF WASTE TONS (TONNES) (A)	QUANTITY OF WASTE SALVAGED		QUANTITY OF WASTE RECYCLED		TOTAL QUANTITY OF WASTE RECOVERED TONS (TONNES) (D = B + C)	TOTAL QUANTITY OF WASTE RECOVERED % (D / A x 100)
			ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (B)	ESTIMATED TONS (TONNES)	ACTUAL TONS (TONNES) (C)		
Asphaltic Concrete Paving								
Concrete								
Brick								
CMU								
Lumber								
Plywood and OSB								
Wood Paneling								
Wood Trim								
Miscellaneous Metals								
Structural Steel								
Rough Hardware								
Insulation								
Roofing								
Doors and Frames								
Door Hardware								
Windows								
Glazing								
Acoustical Tile								
Carpet								
Carpet Pad								
Demountable Partitions								
Equipment								
Cabinets								
Plumbing Fixtures								
Piping								
Supports and Hangers								
Valves								
Sprinklers								
Mechanical Equipment								
Electrical Conduit								
Copper Wiring								
Light Fixtures								
Lamps								
Lighting Ballasts								
Electrical Devices								
Switchgear and Panelboards								
Transformers								

Other:								

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:

1. Substantial Completion procedures.
2. Final completion procedures.
3. Warranties.
4. Final cleaning.
5. Repair of the Work.

B. Related Requirements:

1. Section 01 7823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
2. Section 01 7839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
3. Section 01 7900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.

B. Certified List of Incomplete Items: Final submittal at final completion.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.

B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
2. Complete and upload the Division of the State Architect's form DSA-6C Final Verified Report.
3. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
4. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
5. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.

C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.

1. Advise Owner of pending insurance changeover requirements.
2. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 01 7900 "Demonstration and Training."
3. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
4. Complete final cleaning requirements.
5. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.

D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

A. Submittals Prior to Final Completion: Before requesting final inspection for determining final completion, complete the following:

1. Submit a final Application for Payment according to Section 01 2900 "Payment Procedures."
2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Submit final completion photographic documentation.

B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.

1. Organize list of spaces in sequential order, starting with exterior areas first.
2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
3. Include the following information at the top of each page:

    a. Project name.
    b. Date.
    c. Name of Architect.
    d. Name of Contractor.
    e. Page number.

4. Submit list of incomplete items in the following format:

a. MS Excel electronic file. Architect will return annotated file.

1.8 SUBMITTAL OF PROJECT WARRANTIES

A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.

B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.

D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.

1. Submit on digital media acceptable to Architect.

E. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.

1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

    a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
    b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
    c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
    d. Remove tools, construction equipment, machinery, and surplus material from Project site.
    e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
    f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
    g. Sweep concrete floors broom clean in unoccupied spaces.
    h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
    i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
    j. Remove labels that are not permanent.
    k. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
    l. Leave Project clean and ready for occupancy.

C. Pest Control: Comply with pest control requirements in Section 01 5000 "Temporary Facilities and Controls." Prepare written report.

D. Construction Waste Disposal: Comply with waste disposal requirements in Section 01 5000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.

B. Repair, or remove and replace, defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.

1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that that already show evidence of repair or restoration.

    a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.

3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION 01 7700

SECTION 01 7823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:

1. Operation and maintenance documentation directory manuals.
2. Product maintenance manuals.

1.3 CLOSEOUT SUBMITTALS

A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.

1. Architect will comment on whether content of operation and maintenance submittals is acceptable.
2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.

B. Format: Submit operation and maintenance manuals in the following format:

1. Submit on digital media acceptable to Architect. Enable reviewer comments on draft submittals.
2. Submit one paper copy.

C. Initial Manual Submittal: Submit draft copy of each manual at least 30 days before commencing demonstration and training. Architect will comment on whether general scope and content of manual are acceptable.

D. Final Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.

1. Correct or revise each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

E. Comply with Section 01 7700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.4 FORMAT OF OPERATION AND MAINTENANCE MANUALS

A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.

1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.

B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.

1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

    a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
    b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.

2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.

    a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.

b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.5 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:

1. Title page.
2. Table of contents.
3. Manual contents.

B. Title Page: Include the following information:

1. Subject matter included in manual.
2. Name and address of Project.
3. Name and address of Owner.
4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Architect.
7. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

1.6 PRODUCT MAINTENANCE MANUALS

A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.

D. Product Information: Include the following, as applicable:

1. Product name and model number.
2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

E. Maintenance Procedures: Include manufacturer's written recommendations and the following:

1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 7823

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.
4. Miscellaneous record submittals.

B. Related Requirements:

1. Section 01 7700 "Closeout Procedures" for general closeout procedures.
2. Section 01 7823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit one set(s) of marked-up record prints.
2. Number of Copies: Submit copies of record Drawings as follows:

a. Initial Submittal:

1) Submit one paper-copy set(s) of marked-up record prints.
2) Architect will indicate whether general scope of changes, additional information recorded, and quality of drafting are acceptable.

b. Final Submittal:

1) Submit PDF electronic files of scanned record prints and one set of prints.
2) Print each drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit annotated PDF electronic files and directories of each submittal.

1. Where record Product Data are required as part of operation and maintenance manuals, submit duplicate marked-up Product Data as a component of manual.

D. Miscellaneous Record Submittals: See other Specification Sections for miscellaneous record-keeping requirements and submittals in connection with various construction activities. Submit annotated PDF electronic files and directories of each submittal.

1.4 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
b. Accurately record information in an acceptable drawing technique.
c. Record data as soon as possible after obtaining it.
d. Record and check the markup before enclosing concealed installations.
e. Cross-reference record prints to corresponding photographic documentation.

2. Content: Types of items requiring marking include, but are not limited to, the following:

a. Dimensional changes to Drawings.
b. Revisions to details shown on Drawings.
c. Revisions to routing of piping and conduits.
d. Revisions to electrical circuitry.
e. Actual equipment locations.
f. Locations of concealed internal utilities.
g. Changes made by Change Order or Construction Change Directive.
h. Changes made following Architect's written orders.
i. Details not on the original Contract Drawings.
j. Field records for variable and concealed conditions.
k. Record information on the Work that is shown only schematically.

3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.

4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
5. Mark important additional information that was either shown schematically or omitted from original Drawings.
6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

1.5 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
5. Note related Change Orders and record Drawings where applicable.

B. Format: Submit record Specifications as annotated PDF electronic file.

1.6 RECORD PRODUCT DATA

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

B. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders and record Drawings where applicable.

C. Format: Submit record Product Data as annotated PDF electronic file.

1. Include record Product Data directory organized by Specification Section number and title, electronically linked to each item of record Product Data.

1.7 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as PDF electronic file.

1. Include miscellaneous record submittals directory organized by Specification Section number and title, electronically linked to each item of miscellaneous record submittals.

1.8 MAINTENANCE OF RECORD DOCUMENTS

A. Maintenance of Record Documents: Store record documents in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 01 7839

SECTION 26 0000

GENERAL PROVISIONS

PART 1 - GENERAL

A. The general contract provisions apply to this section and take precedent over this section in case of conflict.

1.01 GENERAL PROVISIONS

A. This division supplements the applicable requirements of other divisions.

1.02 DEFINITIONS

A. For the purposes of Division 260000, the following definitions apply:

1. Provide: Furnish and install.

2. Indicated: As shown on the drawings or specified herein.

3. Circuit Designation: Panel designation and circuit number, i.e., LA-13.

4. Approved equal: Approved by the engineer of record as equal in his sole determination.

1.03 SCOPE OF WORK

A. The Specifications for Work of Division 260000 include, but are not limited to the following sections:

26 0000–General Provisions
26 0050–Basic Electrical Materials and Methods
26 0111–Conduits
26 0120–Conductors
26 0130–Electrical Boxes
26 4721–Fire Alarm and Detection System

B. Work Included: All labor, materials, appliances, tools, equipment, facilities, transportation and services necessary for and incidental to performing all operations in connection with furnishing, delivery and installation of the work of this division, complete, as shown on the drawings and/or specified herein. Work includes, but is not necessarily limited to the following:

1. Examine all divisions for related work required to be included as work under this division.

2. General provisions for electrical work.

3. Site observation including existing conditions.

C. Related Work Specified Elsewhere but included in the scope of work:

1. Fire alarm devices and equipment

2. Fire Alarm wiring and conduit for fire alarm equipment

D. Work Not In Contract (N.I.C.):

1. Telephone instruments.

E. Coordination

1. The following supplements are additional General Requirements pertaining to work of this Division. Provisions of Division 1 - General Requirements shall remain in effect.

a. Coordinate work of this Division 26 with work of Divisions 2 through 25.

1.04 REFERENCE STANDARDS

A. American National Standards Institute (ANSI).

B. Association of Edison Illuminating Companies (AEIC).

C. Electrical Testing Laboratories (ETL).

D. Illuminating Engineering Society (IES).

E. Institute of Electrical and Electronic Engineers (IEEE).

F. Insulated Cable Engineers Association (ICEA).

G. National Electrical Manufacturers Association (NEMA).

H. National Fire Protection Association (NFPA).

I. Underwriters Laboratories, Inc. (UL).

J. California State Fire Marshal (CSFM).

K. California Energy Commission (CEC) Title 24.

1.05 QUALITY ASSURANCE

A. Regulations: All the electrical equipment and materials, including their installations, shall conform to the following applicable latest codes and standards:

1. California Electric Code, Latest Adopted Edition (NEC)
2. Local and State Fire Marshal.
3. Occupational Safety and Health Act (OSHA).
4. California Fire Code 2022
5. Local Codes and Ordinances.
6. Requirements of the Office of the Division of California State Architect
7. California Administrative Code, Title 8, Chapter 4, Industrial Safety Orders.
8. California Administrative Code, Title 24.
9. County of Ventura Codes and Regulations.

B. Variances: In instances where two or more codes are at variance, the most restrictive requirement shall apply. In instances where plans and specifications are at variance or conflict the most restrictive requirement shall apply. Contractor shall be responsible for all his associated work and materials and also the work and materials of related or affected trades.

C. Contractor's Expense: Obtain and pay for all required bonds, insurance, licenses, and pay for all taxes, fees and utility charges required for the electrical work.

D. Testing and Adjustment:

1. Perform all necessary tests required to ascertain that the electrical system has been properly installed, that the power supply to each item of equipment is correct, and that the system is free of grounds, ground faults, and open circuits, that all motors are rotating in the proper directions, and such other tests and adjustments as may be required for the proper completion and operation of the electrical system. Contractor shall provide a copy of all test reports to prove these tests have been performed.

1.06 SUBMITTALS

A. Procedure: In accord with the Submittal Section.

B. Shop drawings: Detailed shop drawings for the following equipment:

1. Fire alarm system/equipment

2. Fire alarm cabling

C. Product data: Detailed manufacturer's data for:

1. Fire alarm system/equipment

2. Fire alarm cabling

D. Test results for the following:

1. Fire alarm system.

2. FA Cables.

E. Include sufficient information to indicate complete compliance with Contract Documents. Include illustrations, catalog cuts, installation instructions, drawings, and certifications. On each sheet show manufacturer's name or trademark.

F. Operating, maintenance, and instruction data for:

1. Fire Alarm and detection.

G. Instruction materials:

1. Provide at the time of personnel instruction period three bound copies of instruction manuals for the systems as listed in Subparagraph 1.04.A.4.f.

2. Include the following (minimum) information in each copy of instruction manual:

a. Manufacturers' names and addresses including phone numbers.

b. Serial numbers of items furnished.

c. Catalog cuts, exploded views and brochures, complete with technical and performance data for all equipment, marked to indicate actual items furnished and intended use.

d. Recommended spare parts.

1.07 OWNER'S PERSONNEL INSTRUCTIONS

A. Prior to completion of the contract, and at the Owner's convenience, instruct verbally and demonstrate to the Owner's personnel, the operation of the systems as listed under operating, maintenance, and instructional data and/or emergency generator, automatic transfer switch and fire alarm annunciator panel.

1.08 CLEANING

A. Clean exterior surfaces and interiors of equipment and remove all dirt, cement, plaster and other debris. Protect interior of equipment from dirt during construction and clean thoroughly before energizing.

B. Clean out cracks, corners and surfaces on equipment to be painted. Remove grease and oil spots so that paint may be applied without further preparation.

1.09 PROJECT RECORD DOCUMENTS - Prepare the following and submit to the engineer before final acceptance:

A. Mark Project Record Documents daily to indicate all changes made in the field.

1. In addition to general requirements of Project Record Drawings, indicate on drawings, changes of equipment locations and ratings, trip sizes, and settings on circuit breakers, alterations in raceway runs and sizes, changes in wire sizes, circuit designations, installation details, one-line diagrams, control diagrams and schedules.

B. Use green to indicate deletions and red to indicate additions.

1. Use the same symbols and follow the same drafting procedures used on the Contract Drawings.

C. Locate dimensionally off of contract drawings all underground conduit stubbed-out for future use, underground feeder conduits, and feeder pull box locations using building lines by indicating on the Project Record Drawings.

D. At the completion of underground conduit installation provide underground conduit record documents to owner's representative.

E. Two copies, in binder form, of all test results as required by these specifications -

F. Two copies of local and/or state code enforcing authorities final inspection certificates.

G. Two copies, in binder form, of electrical equipment cut sheets, manufacturer's installation instructions, warranty certificates, and product literature for all products utilized on project.

1.10 SERVICE INTERRUPTIONS AND UTILITY

A. Coordinate with the Owner the interruption of services necessary to accomplish the work.

B. Coordinate with the Fire Marshall all work associated with fire alarm operation and in service use. Provide fire watch if fire alarm system is inoperable and the facility is occupied.

C. Electrical contractor shall supply temporary power for all trades.

1.11 MINIMUM SPECIFICATION REQUIREMENTS (ALL WORK OF DIVISION 260000)

A. As a minimum Specification requirement, all materials and methods shall comply with applicable governing codes.

1.12 PENETRATION SEALING

A. Seal penetration through exterior walls and fire rated walls, floors, ceilings, and roofs with 3M Firestopping materials of fire rating capacity rated per architectural plans and UBC or prevailing building code requirements.

1.13 PLACING EQUIPMENT IN SERVICE

A. Do not energize or place electrical equipment in service until all interested parties have been duly notified and are present or have waived their rights to be present. Where equipment to be placed in service involves service or connection from another contractor of the owner, notify the owner in writing when the equipment will be ready for final testing/connection and schedule to the owner's satisfaction of this service connection. Notify the owner two weeks in advance of the date the various items of equipment will be complete.

1.14 OWNER-FURNISHED ITEMS

A. Pick up Owner-furnished items and handle, deliver, install, and make all final connections.

1. Assume responsibility for the items when consigned at the storage facility or in the field in accord with requirements of the Contract Documents.

1.15 ELECTRIC ITEM LOCATION

A. Electrical drawings are generally diagrammatic. Verify equipment sizes with shop drawings and manufacturers' data and coordinate location layout with other trades. Notify owner and engineer of any changes of location requirements prior to installation and obtain engineer's written acceptance for all changes/revisions.

1.16 DEMOLITION

A. Scope: Provide and perform demolition, preparatory and miscellaneous work as indicated and specified, complete.

B. Principle Items of Work:

1. Demolition and removal of existing electrical conduit, wiring and equipment required to complete the project.

2. Preparation of the existing building to receive or connect the new work.

3. Miscellaneous demolition, cutting, alteration, and repair work in and around the existing building necessary for the completion of the entire project.

4. Disconnecting and reconnection of electrical equipment as required by the construction modifications.

C. Existing Conditions: Make a detailed survey of the existing conditions pertaining to the work. Check the locations of all existing structures, equipment and wiring (branch circuiting and controls). Provide at bid time any exclusions for existing conditions work.

D. Salvage and Disposal: All removed material other than items to be reused shall be returned to the owner or disposed of in accordance with instructions from the owner's representative. Disposal shall be done in accordance with EPA and governing body requirements and regulations. Contractor shall pay all fees and charges for disposal.

1.17 ELECTRICAL WORKMANSHIP REQUIREMENTS

A. It is required that all electrical construction of this Contract be performed by journeyman electricians. All journeyman electricians shall have a minimum of 4 years of apprenticeship training and hold a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards. This is intended to mean that a person who does not hold a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards will not be permitted to do electrical work of any kind that involves new construction, nor make repairs, alterations, additions, or changes of any kind to any existing system of electrical wiring, apparatus, equipment, light, heat, or power.

B. Contractor may employ electrical helpers or apprentices on any job of electrical construction, new or existing, when the work of such helpers or apprentices is performed under direct and constant personal supervision of a journeyman electrician holding a valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards.

1. Each journeyman electrician will be permitted to be responsible for quality of workmanship for a maximum of eight helpers or apprentices during any same time period, provided the nature of work is such that good supervision can be maintained and quality of workmanship achieved is the best, as expected by Owner and as implied by the latest edition of the California Electrical Code (National Electrical Code with State of California amendments).

2. Before each journeyman electrician commences work, deliver to Owner at project site a photocopy of journeyman's valid Certificate of Completion from an apprenticeship training course approved by the State of California Department of Industrial Relations, Division of Apprenticeship Standards.

C. All electrical systems shall be installed in a neat and workmanlike manner per National Electrical Code requirements and ANSI approved NEIS National Electrical Installation Standards.

1.18 DESIGN CHANGES AFTER AWARD OF BID

A. When a change in the quantity or size of conductors is made, the conduit size will remain in accordance with that indicated in the original contract drawings rather than the drawing symbol conduit table. When code permits, provide conductor insulation 'THWN' where required to maintain conduit fill conformance with the National Electrical Code.

1.19 MATERIAL AND EQUIPMENT SUBSTITUTION

A. Where two or more trade names or manufacturers are mentioned, selection shall be made from the group listed for use in the base bid. The order in which names are listed is not intended to be any indication of preference.

B. Where a single manufacturer, product or trade name is stated, that manufacturer, product or trade name shall be used in the base bid. The use of other manufacturers, products or trade names will be considered by the engineer of record (unless that product is indicated for no substitution) only if submitted as alternate items at the time of bidding, with evidence of equality and a statement of net price difference as compared to the specified item. After approval by the engineer of record, the architect and owner reserve the right to review such submittals and to determine the acceptability for use.

C. Equipment other than that specified will be accepted only when written approval is given by the engineer of record and architect, in accordance with Division 1.

D. The contractor shall be held responsible for all physical changes in piping, equipment, etc. resulting from equipment substitution and likewise bear any increased cost of other trades in making said substitution. Approval by the architect of equipment other than that specified does not relieve this contractor of this responsibility.

1.20 REQUESTS FOR INFORMATION

A. The contractor shall submit all requests for information (RFI's) typewritten on the attached form.

PART 2 – PRODUCTS

Not Used.

PART 3 – EXECUTION

Not Used.

END OF SECTION

SECTION 26 0060

MINOR ELECTRICAL DEMOLITION FOR REMODELING

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Electrical demolition.

PART 2 - PRODUCTS

2.01 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on Drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition Drawings are based on casual field observation and existing record documents. Report discrepancies to Owner and Architect/Engineer before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.02 PREPARATION

A. Disconnect and make safe all electrical systems in walls, floors, and ceilings scheduled for removal.

B. Coordinate utility service outages with Utility Company and Owner's representative.

C. Provide temporary wiring and connections to maintain required existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

D. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Obtain permission from Owner at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area when outage affects business operation.

E. Existing Fire Alarm System: Maintain existing system in service until new system is accepted. Disable system only to make switchovers and connections. Notify Owner and local fire service at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

F. Existing Telephone System: Maintain existing system in service until new system is complete and ready for service and new system is accepted. Disable system only to make switchovers and connections. Notify Owner and Telephone Utility Company at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

G. Existing Security System: Maintain existing system in service until new system is complete and ready for service and new system is accepted. Disable system only to make switchovers and connections. Obtain permission from the Owner and security company at least 72 hours before partially or completely disabling system. Minimize outage duration. Make temporary connections to maintain service in areas adjacent to work area.

3.03 DEMOLITION AND EXTENSION OF EXISTING ELECTRICAL WORK

A. Demolish and extend existing electrical work under provisions of this Section.

B. Remove, relocate, and extend existing installations to accommodate new construction.

C. Remove abandoned wiring to source of supply and re-label devices as spares.

D. Remove exposed abandoned conduit, including abandoned conduit above accessible ceiling finishes. Cut conduit flush with walls and floors, and patch surfaces.

E. Disconnect abandoned outlets and remove devices. Remove abandoned outlets if conduit servicing them is abandoned and removed. Provide blank cover for abandoned outlets which are not removed.

F. Disconnect and remove abandoned panelboards and distribution equipment.

G. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.

H. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories.

I. Disconnect and remove abandoned conduit.

J. Repair adjacent construction and finishes damaged during demolition and extension work.

K. Maintain access to existing electrical installations which remain active. Modify installation or provide access panel as appropriate.

L. Extend existing installations using materials and methods compatible with existing electrical installations, and in compliance with new project specifications.

M. Modify existing as-built drawings to note changes.

3.04 CLEANING AND REPAIR

A. Clean and repair existing materials and equipment which remain or are to be reused.

B. Panelboards: Clean exposed surfaces and check tightness of electrical connections. Replace damaged circuit breakers and provide closure plates for vacant positions. Provide typed circuit directory showing revised circuiting arrangement.

C. Luminaires: Remove existing luminaires for cleaning. Use mild detergent to clean all exterior and interior surfaces; rinse with clean water and wipe dry. Replace lamps, ballasts, and broken electrical parts.

3.05 INSTALLATION

A. Install relocated materials and as required by this section and Owner's representative.

END OF SECTION

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SECTION 26 0111

CONDUITS

PART 1 - GENERAL

A. The general provisions apply to this section.

1.01 WORK INCLUDED

A. Conduits; including:

1. Rigid steel conduit.
2. Intermediate metal conduit (IMC).
3. Electrical metallic tubing (EMT).
4. Rigid aluminum conduit.
5. Polyvinyl chloride conduit (PVC).
6. Flexible metal conduit.
7. Liquid-tight flexible metal conduit.

1.02 DEFINITION

A. Conduit: This term shall be construed to mean conduit and conduit fittings; and tubing and tubing fittings.

1.03 RELATED WORK SPECIFIED ELSEWHERE

A. Support material: Section 260190.

PART 2 - PRODUCTS

2.01 MATERIAL AND FABRICATION - ALL MATERIALS SHALL BE MANUFACTURED IN THE USA.

A. Rigid Steel Conduit: Hot-dipped galvanized or sherardized including the threads, manufactured in accordance with ANSI C80.1 and UL6.

1. Threaded, hot-dipped galvanized or sherardized fittings manufactured in accordance with ANSI C80.4.

B. Intermediate Metal Conduit: Hot-dipped galvanized including the threads, manufactured in accordance with UL 1242.

C. Electrical Metallic Tubing: Manufactured in accordance with ANSI C80.3 and UL 797.

1. Provide compression fittings in walls, ceiling spaces or exposed construction areas.

2. Provide compression (water tight) fittings in damp areas or areas exposed to weather.

D. Rigid Aluminum Conduit: Manufactured in accordance with ANSI C80.5.

1. Threaded fittings, manufactured in accordance with ANSI C80.4.

E. Polyvinyl Chloride Conduit: Schedule 40 and schedule 80, manufactured in accordance with ANSI C33.91, UL 651, and Nema TC-2.

1. Cemented type fittings of the same manufacturer as the conduit.

F. Polyvinyl Chloride Conduit: Type EB, heavy wall, manufactured in accordance with ANSI C33.91, UL651, and Nema TC-8.

1. Cemented fittings of the same manufacturer as the conduit.

G. Flexible Metal Conduit: Hot-dipped galvanized steel, manufacturer in accordance with UL 1.

1. Squeeze type, malleable iron, cadmium plated, straight and angle connectors for all sizes and twist-in connectors for 1/2-inch and 3/4-inch flexible metal conduit.

H. Liquid-Tight Flexible Conduit: Hot-dipped galvanized with liquid-tight vinyl jacket.

1. Liquid-tight fittings.

PART 3 - EXECUTION

3.01 USE

A. EMT for all exposed and concealed work except as indicated in Paragraphs B, C, D, E, F, and G.

B. Rigid steel, IMC, or rigid aluminum conduit in areas where exposed conduit could be subject to physical damage or where conduit is exposed and conductor phase to ground voltage exceeds 300 volts.

C. Rigid aluminum conduit may be used for all feeder runs exposed or concealed in stud walls and spaces above suspended ceilings.

D. PVC Conduit:

1. Schedule 40 for runs below grade in direct contact with earth.

2. Schedule 40 in concrete floors, walls or roofs.

E. Flexible Conduit (steel only permitted):

1. For connection to equipment subject to vibration, maximum length 18 inches. In wet locations use liquid-tight flexible conduit.

2. For connection to lighting fixtures above suspended ceilings. Lengths limited to 72 inches.

3. Install ground conductors in all flexible conduits.

F. Where 3/4-inch conduit runs are concealed in walls or ceilings and these runs are through wood studs and wood joists, flexible steel conduit may be used up to a maximum length of 6'0".

G. All risers shall be PVC coated RGS with bushings.

H. In concrete or below grade use conduit not smaller than 1 inch. Maximum size in concrete slab: 1 inch. Run larger sizes under slab.

I. Use long sweep elbows with minimum radius 10 times nominal conduit diameter for all telephone and communication runs.

3.02 INSTALLATION

A. Provide conduit support and bracing in accordance with the latest published SMACNA guidelines.

B. Perform excavating, trenching, backfilling, and compacting as specified in Division 2.

C. Minimum cover for runs below finished grade outside buildings: 24 inches except where noted or required by the serving utility. Minimum cover for conduit in concrete floors, walls or roof: 1/3 thickness of slab. Minimum cover under building slabs is 12-inches.

D. Minimum separation from uninsulated hot water pipes, steam pipes, heater flues or vents: 6 inches. Avoid running conduit directly under water lines.

E. Protect inside of conduit from dirt and rubbish during construction by capping all openings with plastic caps intended for the purpose.

F. Provide conduit bodies for exposed conduit runs at junctions, bends or offsets where required. Do not use elbows or bends around outside corners of beams, walls or equipment. Make conduit body covers accessible.

G. Make conduit field cuts square with saw and ream out to full size. Shoulder conduits in couplings.

H. Run a minimum of one 3/4-inch empty conduit for every three single pole spare circuit breakers, spaces or fraction thereof and not less than two 3/4-inch conduits from every flush mounted panel to an accessible space above the ceiling and below the floor.

I. Make conduit projections from covered areas to areas exposed to the weather watertight by proper flashing. Extend flashing a minimum of 6 inches in all directions from conduit.

J. Where conduit is to remain empty, install polypropylene or nylon pull-line 3/16" minimum diameter from end to end with tag at each end designating opposite terminations.

K. Run conduit parallel and at right angle to building lines, when visible in finished construction.

L. Cap conduits indicated to be stubbed-out underground using glued-on PVC caps intended for this purpose.

M. Install a coupling flush with the floor on all conduits stubbed up through floors on grade.

N. Make no bends with a radius less than 12 times the diameter of the cable it contains nor more than 90 degrees. Make field bends with tools designed for conduit bending. Heating of metallic conduit to facilitate bending is not permitted.

O. Where conduit installed in concrete or masonry extends across building construction joints, provide expansion fittings as manufactured by O.Z.; Crouse-Hinds; Appleton; or equal, with approved ground straps and clamps.

P. Concrete Wall or Slab Penetrations: All core drilling, sleeves, blockouts or other penetrations must be approved by the Structural Engineer prior to installation.

1. Space sleeves and core drills to insure a minimum dimension of 3 times the nominal trade diameter of the largest adjacent conduit between sleeves or core drills.

2. Use blockouts for concentrations of conduits in a confined area.

Q. Do not penetrate walls with flexible conduit where subject to physical damage. Use recessed box with extension ring for transition from interior to exterior of wall.

R. All homeruns shown shall be run to the panel indicated independently of all other homeruns. Provide pull points so as not to exceed total bends of 360 degrees between them unless otherwise indicated.

S. At switchboards, manholes and floor standing distribution panelboards, provide insulated throat bushings or bell ends on all non-metallic conduit entries and bushings on all metallic conduit entries.

T. Provide bushings on all conduit terminations sized 1" and larger.

U. Provide weatherproof boxes and connectors for all exposed parking structure raceways and boxes.

V. Provide bell ends on all conduits into pullboxes and manholes, seal all conduits after conductors are pulled.

W. Cap all unused conduits with end cap. Do not tape.

X. All Fire Alarm Conduits shall be painted red.

END OF SECTION

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SECTION 26 0120

CONDUCTORS

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Conductors; for power, lighting, sound, communication and control, including conductors for general wiring, flexible cords and cables, and ground conductors.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Submittals: Section 260000.

PART 2 - PRODUCTS

2.01 MATERIAL AND FABRICATION

A. Conductors for General Wiring: Thermoplastic insulated rated for 600V manufactured in accordance with UL 83.

1. Provide 3/4 hard drawn copper conductors. Provide solid conductor for #12 AWG and smaller. Provide stranded conductors for #10 AWG and larger.

B. Conductor Connectors for General Wiring:

1. Sizes No. 14 to No. 8: Splice with insulated spring wire connectors.

a. Ideal No. 451, 455 and 453.

b. Minnesota Mining: Types Y, R, G, and B.

c. Buchanan No. B1, B2 and B4.

2. Size No. 6 or Larger, Copper: Splice and terminate with compression or pressure type connectors and terminal lugs.

C. Provide connector sealing packs for all area lighting and exterior box splices which require complete protection from dampness and water.

1. Scotchlok No.'s 3576, 3577 and 3578, by 3M Company.

PART 3 - EXECUTION

3.01 USE

A. Conductors for General Wiring:

1. Minimum 75 degrees C temperature rated insulation on conductors, except use minimum 90 degrees C temperature rated insulation on conductors in conduits exposed on roof, or where required due to ambient temperature.

2. Stranded conductors at motors, audio video and other applications where subject to vibration.

3. Minimum size conductors for power and lighting #12 AWG, except where noted.

4. Minimum size conductors for control circuits #14 AWG stranded with THHN/THWN insulation.

B. Use flexible cords and cables for connection of special equipment as indicated. Length not to exceed 72 inches.

C. Ground Conductors:

1. Provide an insulated green ground conductor for all branch circuit wiring where indicated.

2. Bare copper conductor may be used.

a. Install ground conductors in all non-metallic conduits as required by code. Install ground conductors in all motor branch circuits and all feeders. Where ground conductor size is not indicated, provide size as required for an equipment ground conductor by the National Electrical Code.

b. Install ground conductors in all flexible metal conduits.

D. Install XHHW – 2, 90°C copper conductors for all underground installations unless noted otherwise on the plans.

E. Install for all dimmers, stranded THHN/THWN – 2 copper 90°C conductors with dedicated neutrals.

3.02 INSPECTION

A. Check conduit system for damage and loose connections, replace damaged sections.

B. Check for caps at conduit openings. Make sure that inside of conduit is free of dirt and moisture.

C. Pull mandrel, one size smaller than the conduit, through entire length of all underground conduits prior to conductor installation.

3.03 INSTALLATION

A. Conductors for General Wiring:

1. Color code conductors insulation as follows:

CONDUCTOR	SYSTEM 208Y/120	VOLTAGE 480Y/277
Phase A	Black	Brown
Phase B	Red	Orange
Phase C	Blue	Yellow

2. For conductors #6 AWG or larger, permanent plastic colored tape may be used to mark conductor in lieu of coded insulation. Tape shall cover not less than 2 inches of conductor insulation within enclosure.

   a. Provide color tape on each end and at all terminal points and splices on wire enclosed in conduit.

   b. Provide color tape every 3 feet on wire not enclosed in a listed wireway.

3. When pulling conductors, do not exceed manufacturer's recommended values.

4. Use polypropylene or nylon ropes for pulling conductors.

B. Insulate splices with plastic electrical tape: Scotch No. 33+, Tomic No. 1T, or equal.

C. Terminate all control wires with terminal lugs on terminal boards not designed with pressure plates. If splices are needed, use same procedure, installing a terminal board in a junction box for protection.

D. All splices or connections shall be compression type Thomas & Betts or Burndy, no split bolt connections are allowed.

3.04 IDENTIFICATION

A. Feeders: Identify with the corresponding circuit designation at over-current device and load ends, at all splices and in pull boxes.

B. Branch Circuits: Identify with the corresponding circuit designation at the over-current device and at all splices and devices.

C. Control Wires: Identify with the indicated number and/or letter designation at all terminal points and connections.

D. Alarm and Detection Wires: Identify with the indicated wire and zone numbers at all connections, terminal points, and coiled conductors within cabinets.

E. Conductors Terminated By Others: Indicate location of opposite end of conductor, i.e., Pull Box-Room 101.

F. For identification of conductors, use heat shrinkable white marking sleeves such as Brady Permasleeve with type written identification.

G. Circuit designation is construed to mean panel designation and circuit number, i.e., LA-13.

END OF SECTION

SECTION 26 0130

ELECTRICAL BOXES

PART 1 - GENERAL

1.01 WORK INCLUDED

A. Boxes; including:

1. Outlet boxes.
2. Pull and junction boxes.
3. Cabinets.

1.02 RELATED WORK SPECIFIED ELSEWHERE

A. Submittals: Section 260000.

PART 2 - PRODUCTS

2.01 MATERIAL AND FABRICATION

A. Outlet Boxes:

1. Pressed Steel Boxes: Knockout type, hot-dipped or electro-plate galvanized.
2. Cast Iron Boxes: Hot-dipped or electro-plate galvanized with threaded hubs.
3. Cast Iron Conduit Bodies: Hot-dipped or electro-plate galvanized with threaded hubs.
4. Cast copper free aluminum conduit bodies with threaded hubs.
5. Covers for Pressed Steel Boxes: Hot dipped or electro-plate galvanized.
6. Outlet boxes manufactured in accordance with UL 514.

B. Pull and Junction Boxes:

1. Sheet steel, hot-dipped or electro-plate galvanized, or prime coated and a final coat of manufacturer's standard enamel or lacquer finish. Manufactured in accordance with UL 50.
    a. Where exposed to weather, provide raintight hubs for conduits entering the boxes, top and sides only.
2. Floor Boxes:

a. Single gang, similar to Hubbell #B-2536.

b. Covers:

1) Combination, similar to Hubbell #S-2525.

2) Duplex receptacle, similar to Hubbell #S-3925.

c. Carpet flange, similar to Hubbell #S-3075 thru #S-3079.

d. Hubs: Provide hubs as required to suit the conduit arrangement.

3. Pre-Cast Concrete Pull Boxes: As manufactured by Jensen Pre-Cast or Utility Vault and shown on drawings.

4. High impact resistant PVC boxes: As manufactured by Carlon, Sedco, or R & G Sloan.

C. Cabinets: Sheet metal, prime coat and final coat of manufacturer's standard enamel or lacquer finish. Manufactured in accordance with UL 50.

1. Control Cabinet: NEMA 1 enclosure, door with butt hinges and flush handle latches.

a. Provide with removable steel back panel.

2. Terminal Cabinets: NEMA 1 enclosure, door with concealed hinges and spring catch type flush cylinder locks. Key locks alike, provide two keys with each lock.

3. Provide engraved plastic nameplates with 1/2" minimum height letters indicating designation of control and terminal cabinets as shown on the drawings.

a. Secure nameplates with at least two screws or rivets. Cementing and adhesive installation not acceptable.

PART 3 - EXECUTION

3.01 USE

A. Outlet Boxes:

1. Ceiling Outlet Boxes: Not less than 4" octagonal by 2" deep.

2. FDD cast iron or cast aluminum device boxes and conduit bodies with metal covers for exposed conduit installation. Provide gasket for covers in wet areas.

3. Intercom, Microphone and TV Outlet Boxes: Not less than 4-11/16" square x 2-1/8" deep.

4. Provide floor boxes with quantity of gangs as required for power, communication or control as indicated. Use boxes with barriers where required. Provide carpet flanges in carpeted areas.

B. Pull and Junction Boxes:

1. Use sheet steel boxes NEMA Type 1 for indoor and NEMA Type 3R for outdoor installation, except as follows.

2. Use pre-cast concrete boxes for boxes flush in finish grade where requiring a nominal capacity greater than 144 cubic inches, where located in vehicular traffic areas, or where indicated.

3. Use polyvinyl chloride (PVC) boxes flush in finish grade when the nominal internal volume is less than or equal to 144 cubic inches or where indicated.

4. Use cast iron boxes for boxes flush in slab on grade.

3.02 INSTALLATION

A. Provide 3/8" fixture studs in wall bracket and ceiling boxes.

B. Provide covers suitable for the fixtures or devices used.

C. Make outlet box covers flush with finished surfaces.

D. Close unused open knockouts with knockout seals.

E. Provide 1" deep plaster rings on recessed outlet boxes installed in areas where concrete will be exposed after construction is complete.

F. Where boxes are concealed in exposed concrete unit masonry, use square cornered types or boxes fitted with rings of sufficient depth for the box to be recessed completely within cavity of block or tile. Install box to insure that ring fits an opening sawed out of the masonry, so that no mortar is required to fill between ring and construction.

G. Provide a 6" base of compacted crushed rock under pre-cast concrete pull boxes.

H. Adjust floor boxes so they are level with top of finished floors.

I. Provide pull boxes and junction boxes in all branch circuit and feeder runs as indicated. Do not provide pull boxes unless they are indicated or required by the Electrical Code.

3.03 IDENTIFICATION

A. Junction Boxes: Use permanent black marker, 2” high lettering, and on each cover plate indicate the power source and circuits contained within that junction box.

END OF SECTION

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SECTION 26 4721

FIRE ALARM SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. This specification document provides the requirements for the Fire Alarm Systems throughout the facility. These systems shall include, but not be limited to, system terminal cabinets, signal power boosters, backboards, terminal strips, devices with termination, wire/cabling, testing and verification and other relevant components. The contractor shall include all costs for devices, wire, cable, panels, installation labor, tests, approvals and as-built documentation. Additionally, the contractor will be required to provide the necessary interfaces (control modules, etc.) to the monitoring system in which audio is incorporated. All conduits for the fire alarm systems and associated wiring shall be included. The fire alarm contractor shall provide “shop” drawing layouts to owner showing device locations mounting heights and conduit size requirements.

1.02 WORK INCLUDED

A. General Requirements:

1. The contractor shall furnish and install a modified addressable fire alarm system comprising of fire alarm panels, signal booster panels, Manual Pull Stations, Smoke Detectors, Heat Detectors, system alarm connections, connection to building water flow, tamper and post indicator valves, Alarm Horns, Alarm Strobes, Alarm Horn/Strobes, Alarm Mini-Horns as required by code and as specified herein.

2. Labeling: All system equipment shall be labeled with the manufacturer's name and logotype to assure the integrity of the complete system.

1.03 RELATED WORK DOCUMENTS

A. Submittals.

B. Coordination

C. Electrical General Requirements

D. Electrical Raceway

E. Electrical Conduit

F. Electrical Outlet and Junction Boxes

G. Electrical Interior Pull boxes and wireways

H. Electrical Grounding systems

I. Fire Alarm Audio Evacuation Systems

J. Mechanical Plans (connections to heating and air conditioning units)

K. Plumbing Plans (sprinkler flow, tamper and Post Indicator Valve locations)

L. Systems Plans (monitoring systems)

M. Electrical Plans

1.04 DESCRIPTION:

A. This section of the specification includes the furnishing, installation, and connection of the microprocessor controlled, intelligent reporting fire alarm equipment required to form a complete coordinated system ready for operation. It shall include, but not be limited to, alarm initiating devices, alarm notification appliances, control panel, auxiliary control devices, annunciators, and wiring as shown on the drawings and specified herein.

B. The fire alarm system shall comply with requirements of NFPA Standards for protected premises signaling systems except as modified and supplemented by this specification. The system field wiring shall be supervised either electrically or by software-directed polling of field devices.

C. The FACP and peripheral initiation devices shall be manufactured 100% by a single manufacturer (or division thereof).

D. The installation company shall employ only factory-trained technicians on site to install and perform the final checkout and to ensure the systems integrity. No “parts & smarts” installation will be acceptable.

1.05 SCOPE

A. A new intelligent reporting, microprocessor controlled fire detection system shall be installed in accordance to the project specifications and drawings.

B. Basic Performance:

1. Alarm, trouble and supervisory signals from all intelligent reporting devices shall be encoded on a two wire Signaling Line Circuit (SLC).

2. Initiation Device Circuits (IDC) shall be a two-wire circuit.

3. Notification Appliance Circuits (NAC) shall be a two-wire circuit.

4. Digitized electronic signals shall employ check digits or multiple polling.

5. A single ground or open on the system Signaling Line Circuit shall not cause system malfunction, loss of operating power or the ability to report an alarm.

6. Alarm signals arriving at the main FACP shall not be lost following a power failure (or outage) until the alarm signal is processed and recorded.

7. The Alarm System shall perform the following functions:

   a. Provide automatic fire alarm detection in all building spaces as dictated by local code requirements.

   b. Provide evacuation signals for employees and guests as dictated by local code requirements.

   c. Connect all buildings local fire alarm panels into a seamless network incorporating a central control console located in the administration building and remote console in the guard gatehouse.

   d. Interface with local show control, audio systems, ride control to perform the required activation or shutdown as dictated by local code requirements.

   e. Perform any added functions as specified or required by local codes or AHJ.

C. Basic System Functional Operation:

1. When a fire alarm condition is detected and reported by one of the system initiating devices, the following functions shall immediately occur:

   a. The system alarm LED shall flash.

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

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

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

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

1.06 SUBMITTALS

A. General:

1. All references to manufacturer's model numbers and other pertinent information herein is intended to establish minimum standards of performance, function and quality. Equivalent equipment from other manufacturers may be substituted for the specified equipment as long as the minimum standards are met.

2. For equipment other than that specified, the contractor shall supply proof that such substitute equipment equals or exceeds the features, functions, performance, and quality of the specified equipment.

B. Software Modifications:

1. Provide the services of a factory trained and authorized technician to perform all system software modifications, upgrades or changes. Response time of the technician to the site shall not exceed 4 hours.

2. Provide all hardware, software, programming tools and documentation necessary to modify the fire alarm system on site. Modification includes addition and deletion of devices, circuits, zones and changes to system operation and custom label changes for devices or zones. The system structure and software shall place no limit on the type or extent of software modification on site. Modification of software shall not require power-down of the system or loss of system fire protection while modifications are being made.

C. Certifications: Together with the shop drawing submittal, submit a certification from the major equipment manufacturer indicating that the proposed supervisor of the installation and the proposed performer of contract maintenance is an authorized representative of the major equipment manufacturer. Include names and addresses in the certification.

D. Owner’s designated representative shall approve all equipment submittals.

E. In addition to the General requirements, submit all materials for approval arranged in the same order as Specifications, Individually referenced to Specification paragraph and drawing number Submit number required In Division I plus three (3) copies of A4 material and 2 prints plus one reproducible of drawings in A0, minimum. Submit A4 items bound in volumes and A0 drawings in edge bound sets.

F. Progress Schedule: Include duration and milestones for the following:

1. All submittals specified.

2. Shipment to site.

3. Installation.

4. Field testing.

5. Training.

6. First beneficial use date.

G. Manufacturer's Product Data:

1. List of Materials: For each item, Include:

a. Manufacturer.

b. Model number.

c. Listing: CSFM.

d. Quantity.

2. Manufacturer's Product Data: In sequence of List of Materials, Data sheet for each item, including all accessories, marked for proposed product. Photo copies will not be accepted. Original manufacturer specifications sheets only.

H. Field/Shop Drawings:

1. Resubmit: for coordination reference complete with corrections from previous submittal:

a. List of Materials.

b. Manufacturer's Product Data.

2. Field (installation) Drawings: Collate in sequence:

a. Drawing Index/symbol sheet.

b. Floor plans. At scale of Contract Documents. Show:

(1) Devices with circuit number.

(2) Rough-in.

(3) Mounting height.

(4) Conduit size.

(5) Wire type.

(6) Wire fill.

c. Sections/Elevations. At scale of Contract Documents.

(1) Mounting location reference.

d. Enlarged Plans. At scale of Contract Documents or larger as required for trade coordination. Show:

(1) Refer to “floor plans”.

(2) Architectural features.

(3) Clearances.

e. System conduit riser drawing, show:

(1) Terminal cabinets.

(2) Coordination with floor plans.

(3) Wire runs not shown on floor plans.

(4) Wire type.

(5) Wire fill.

f. Mounting details

(1) Stamped and signed by Engineer licensed in jurisdiction for work of this type.

(2) Show loads, strength of connections, etc.

(3) Show calculations - on drawings or in bound volume for review by authorities having jurisdiction.

(4) Provide details for:

(a) Racks/cabinets/panels

g. Installation details as required.

(1) Terminal cabinets: terminations.

h. Wire run sheets (if used) Show:

(1) Wire Number.

(2) Source.

(3) Designation

(4) Signal Type.

(5) Wire type.

(6) Operating level or voltage (if applies).

3. Shop (Fabrication) Drawings: Collate In sequence:

a. Drawing Index/symbol sheet (if separate set from Field Drawings).

b. System functional drawings. Submit separate drawing for each system/subsystem. Show:

(1) Equipment: Function, make, model.

(2) Wire number.

(3) Wire Type.

c. Fabrication details submit for:

(1) Receptacles.

(2) Panels.

(3) Special mounting provisions.

(4) Legends/engraving details. Half or full size:

(a) Receptacles.

(b) Panels.

(c) Equipment.

4. Sufficient information, clearly presented, shall be included to determine compliance with drawings and specifications.

5. Include manufacturer's name(s), model numbers, ratings, power requirements, equipment layout, device arrangement, complete wiring point-to-point diagrams, and conduit layouts.

6. Show annunciator layout, configurations, and terminations.

I. Shop and Field Test Reports:

1. Schedule: Submit test reports In timely manner relative to Project schedule such that owner may conduct Verification of submitted Test Data at owner’s option, without delay of progress.

a. Shop test report: Submit prior to shipping completed system to project site.

b. Field test report: Submit following system completion and prior to and as condition precedent to owner's acceptance of the Work of this Section.

2. Test Reports: Include:

a. Time and date of test.

b. Personnel conducting test.

c. Test Object.

d. Procedure used.

e. Test equipment, Including serial and date of calibration.

f. Results of test - numerical or graphical presentation.

3. Verification of Submitted Test Data: owner may elect to verify some or all test data submitted. Retest In presence of designated observer(s) at reasonable convenience of owner. Provide technician familiar with work of this Section. Provide all test equipment.

J. Reference Data for Operation, Maintenance and Repair

1. In addition to the requirements of Division 1, submit one (1) additional set. Submit in three post binders (not ring binder) with Tabs.

2. Index.

3. Systems operating Instructions.

4. Reduced set of system Record Drawings.

5. Key schedule.

6. Maintenance and spare parts schedules.

7. Shop and Field Test Reports.

8. Equipment manuals. Collate alphabetically by manufacturer. Provide manufacturer's original operation, Instruction and service manuals for each equipment item. For each set, provide manufacturer's original printed copies only. Photocopies not acceptable.

K. Record Drawings in AutoCAD R2014 format min.

1. Quantity:

a. Review sets: as for Shop and Field Drawings.

b. Record set:

(1) Three (3) blueline.

(2) One CD disk with applicable .DWG files

2. Content: All drawings required under “Field and Shop Drawings”. Show “as Installed” condition.

L. Other than Specified Equipment

1. Equipment other than specified shall be considered for approval provided the following is submitted in writing by the contractor to the Consultant ten (3) days before the bid date:

2. Complete lists, descriptions and drawings of materials to be used.

3. A complete list of current drain requirements during normal supervisory conditions, trouble conditions, and alarm conditions

4. Battery standby calculations showing total standby power needed to meet the system requirements as specified

M. Substituted Equipment:

1. If equipment other than that specified is supplied, it shall be the contractor's obligation to submit the appropriate documentation and allow the specifying Consultant sufficient time to consider the equality of the substituted items.

N. Satisfying the Entire Intent of these Specifications

1. It is the contractor's responsibility to meet the entire intent of these specifications. Deviations from the specified items shall be at the risk of the contractor until the date of final acceptance by the Consultant and owner’s representative.

2. All costs for removal, relocation, or replacement of a substituted item shall be at the risk of the contractor.

1.07 GUARANTEE/WARRANTY

A. All work performed and all material and equipment furnished under this contract shall be free from defects and shall remain so for a period of at least one (1) year from the date of acceptance. The full cost of maintenance, labor and materials required to correct any defect during this one year period shall be included in the submittal bid.

1.08 POST CONTRACT MAINTENANCE:

A. Complete maintenance and repair service for the fire alarm system shall be available from a factory trained authorized representative of the manufacturer of the major equipment for a period of five (5) years after expiration of the guaranty.

B. As part of the submittal, include a quote for a maintenance contract to provide all maintenance, test, and repair described below. Include also a quote of unscheduled maintenance/repair, including hourly rates for technicians trained on this equipment, and response travel costs. Submittals that do not identify all post contract maintenance costs will not be accepted. Rates and costs shall be valid for the period of five (5) years after expiration of the guaranty.

C. Maintenance and testing shall be on a semiannual basis or as required by the AHJ. A preventive maintenance schedule shall be provided by the contractor that shall describe the protocol for preventive maintenance. The schedule shall include:

1. Systematic examination, adjustment and cleaning of all detectors, manual fire alarm stations, control panels, power supplies, relays, waterflow switches and all accessories of the fire alarm system.

2. Each circuit in the fire alarm system shall be tested semiannually.

3. Each smoke detector shall be tested in accordance with the requirements of CSFM & NFPA Standards.

1.09 POST CONTRACT EXPANSIONS:

A. The contractor shall provide parts and labor to expand the system specified, if so requested, for a period of five (5) years from the date of acceptance.

B. As part of the submittal, include a quotation for all parts and material, and all installation and test labor as needed to increase the number of intelligent or addressable devices by ten percent (10%). This quotation shall include intelligent smoke detectors, intelligent heat detectors, addressable manual stations, addressable monitor modules and addressable control modules equal (list actual quantity of each type).

C. Quotation shall include installation and test labor and labor to reprogram the system for this 10% expansion. If additional FACP hardware would be required, include the material and labor necessary to install this hardware.

D. Do not include cost of conduit or wire or the cost to install conduit or wire except for labor to make final connections at the FACP and at each intelligent addressable device. Do not include cost of conventional peripherals or the cost of initiating devices or Notification appliances connected to the addressable monitor/control modules.

E. Submittals that do not include this estimate of post contract expansion cost will not be accepted.

1.10 APPLICABLE STANDARDS AND SPECIFICATIONS:

A. The specifications and standards listed below form a part of this specification. The system shall fully comply with the latest issue of these standards.

1. DSA Requirements

2. State of California Fire Code 2022

3. All requirements of the Authority Having Jurisdiction (AHJ).

1.11 APPROVALS

A. The system shall have proper listing and/or approval from internationally recognized agencies.

B. The system shall be listed by the international agencies as suitable for extinguishing release applications.

PART 2 - PRODUCTS

2.01 EQUIPMENT AND MATERIAL

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

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

C. All Equipment shall be attached to walls and ceiling/floor assemblies and shall be held firmly in place (e.g., detectors shall not be supported solely by suspended ceilings). Fasteners and supports shall be adequate to support the required load.

2.02 CONDUIT AND WIRE

A. Conduit:

1. Conduit shall be red & installed in accordance with the DSA & fire marshal requirements.

2. All wiring shall be installed in conduit or raceway. Conduit fill shall not exceed 40 percent of interior cross sectional area where three or more cables are contained within a single conduit.

3. Cable must be separated from any open conductors of Power, or Class circuits, and shall not be placed in any conduit, junction box or raceway containing these conductors.

4. Wiring for 24 volt control, alarm notification, emergency communication and similar power-limited auxiliary functions may be run in the same conduit as initiating and signaling line circuits. All circuits shall be provided with transient suppression devices and the system shall be designed to permit simultaneous operation of all circuits without interference or loss of signals.

5. Conduits shall not enter the Fire Alarm Control Panel, or any other remotely mounted Control Panel equipment or backboxes, except where conduit entry is specified by the FACP manufacturer.

6. Conduit shall be 3/4 inch (19.1 mm) minimum and red in color.

B. Wire:

1. All fire alarm system wiring shall be new.

2. Wiring shall be in accordance with DSA codes and approved by CSFM and as recommended by the manufacturer of the fire alarm system. Number and size of conductors shall be as recommended by the fire alarm system manufacturer, but not less than 18 AWG (1.02 mm) for Initiating Device Circuits and Signaling Line Circuits, and 14 AWG (1.63 mm) for Notification Appliance Circuits.

3. All wire and cable shall be listed and/or approved by a recognized testing agency for use with a protective signaling system.

4. Wire and cable not installed in conduit shall have a fire resistance rating suitable for the installation.

5. Wiring used for the multiplex communication loop shall be twisted and shielded and support a minimum wiring distance of 10,000 feet. The system shall support up to 1,000 ft. of untwisted, unshielded wire. The system shall permit use of IDC and NAC wiring in the same conduit with the communication loop.

6. All field wiring shall be completely supervised.

7. The Fire Alarm Control panel shall be capable of T-Tapping two wire type. Signaling Line Circuits (SLC's) Systems, which do not allow or have restrictions in, for example, the amount of T-Taps, length of T-Taps etc., are not acceptable.

8. All wire/cable used in underground or below grade, applications shall be rated by the manufacturer for the intended use and be gel filled.

C. Terminal Boxes, Junction Boxes and Cabinets:

1. All boxes and cabinets shall be DIN listed for their use and purpose.

D. Initiating circuits shall be arranged to serve like categories (manual, smoke, water flow). Mixed category circuitry shall not be permitted except on signaling line circuits connected to intelligent reporting devices.

E. The Fire Alarm Control Panel shall be connected to a separate dedicated branch circuit, maximum 16 amperes. This circuit shall be labeled at the Main Power Distribution Panel as FIRE ALARM. Fire Alarm Control Panel Primary Power wiring shall be 12 AWG. The Control Panel Cabinet shall be grounded securely to either a cold water pipe or grounding rod.

2.03 MAIN FIRE ALARM CONTROL PANEL

A. The FACP shall be a Silent Knight Fire System and shall contain a microprocessor based Central Processing Unit (CPU). The CPU shall communicate with and control the following types of equipment used to make up the system: intelligent detectors, addressable modules, printer, annunciators, and other system controlled devices.

B. System Capacity and General Operation:

1. The control panel shall provide, or be capable of expansion to 2000 intelligent/addressable devices.

2. The system shall include Form-C alarm and trouble relays rated at a minimum of 2.0 amps @ 30 VDC. It shall also include four Class B (Style Y) programmable Notification Appliance Circuits.

3. The system shall support programmable driven relays.

4. The Fire Alarm Control Panel shall include a full featured operator interface control and annunciation panel that shall include a backlit Liquid Crystal Display, individual, color coded system status LEDs, and an alphanumeric keypad for the field programming and control of the fire alarm system.

5. All programming or editing of the existing program in the system shall be achieved without special equipment and without interrupting the alarm monitoring functions of the Fire Alarm Control Panel.

6. The FACP shall provide the following features:

a. Drift Compensation to extend detector accuracy over life.

b. Sensitivity Test

c. Maintenance Alert to warn of excessive smoke detector dirt or dust accumulation.

d. System Status Reports to display or printer.

e. Alarm Verification, with verification counters.

f. PAS presignal.

g. Rapid manual station reporting (under 2 seconds).

h. Non-Alarm points for general (non-fire) control.

i. Periodic Detector Test, conducted automatically by software.

j. Pre-alarm for advanced fire warning.

k. Cross Zoning with the capability of: counting two detectors in alarm, two software zones in alarm, or one smoke detector and one thermal detector.

l. March time and temporal coding options.

m. Walk Test, with check for two detectors set to same address.

n. Security Monitor Points.

o. Control-By-Time for non-fire operations, with holiday schedules.

p. Day/Night automatic adjustment of detector sensitivity.

q. Device Blink Control for sleeping areas.

C. Central Microprocessor:

1. The Microprocessor shall communicate with, monitor, and control all external interfaces with the control panel. It shall include EPROM for system program storage, non-volatile memory for building-specific program storage, and a "watch dog" timer circuit to detect and report microprocessor failure.

2. The microprocessor shall contain and execute all control-by-event programs for specific action to be taken if an alarm condition is detected by the system. Control-by-event equations shall be held in non-volatile programmable memory and shall not be lost even if system primary and secondary power failure occurs.

3. The microprocessor shall also provide a real-time clock for time annotation of system displays, printer, and history file. The time-of-day and date shall not be lost if system primary and secondary power supplies fail. The real time clock may also be used to control non-fire functions at programmed time-of-day, day-of-week, and day-of-year.

D. Display:

1. The display shall provide all the controls and indicators used by the system operator and may be used to program all system operational parameters.

2. The display shall include status information and custom alphanumeric labels for all intelligent detectors, addressable modules, and software zones.

3. The display shall provide an 80-character back-lit alphanumeric Liquid Crystal Display (LCD). It shall also provide Light-Emitting-Diodes (LEDs), that will indicate the status of the following system parameters: AC POWER, SYSTEM ALARM, SYSTEM TROUBLE, SIGNAL SILENCED, SUPERVISORY, and PRE-ALARM.

4. The Display shall provide a key touch key-pad with control capability to command all system functions, entry of alphabetic or numeric information, and field programming. Two different password levels shall be provided to prevent unauthorized system control or programming.

5. The Display shall include the following operator functions: SIGNAL SILENCE, RESET, DRILL, and ACKNOWLEDGE.

E. Signaling Line Circuit (SLC):

1. The SLC interface shall provide power to and communicate with intelligent detectors (Ionization, Photoelectric, or Thermal) and intelligent modules (monitor or control). This shall be accomplished over a single SLC loop and shall be capable of Style 4 or Style 6 wiring.

2. The loop interface shall receive analog information from all intelligent detectors that shall be processed to determine whether normal, alarm, or trouble conditions exist for each detector. The software shall automatically maintain the detector's desired sensitivity level by adjusting for the effects of environmental factors, including the accumulation of dust in each detector. The analog information shall also be used for automatic detector testing and for the automatic determination of detector maintenance requirements.

3. The detector software shall meet all local VDE and VdS requirements and be certified by VdS as a calibrated sensitivity test instrument.

4. The detector software shall allow manual or automatic sensitivity adjustment.

F. Serial Interfaces:

1. An EIA-232 interface between the Fire Alarm Control Panel and Listed Electronic Data Processing (EDP) peripherals shall be provided.

2. The EIA-232 interface shall allow the use of printers, CRT monitors, and PC compatible computers.

3. The EIA-232 interface shall include special protocol methods that allow off-site monitoring of the FACP over standard dial-up phone lines. This ancillary capability shall allow remote readout of all status information, including analog values, and shall not interfere with or degrade FACP operations when used. It shall allow

remote FACP Acknowledge, Reset, or Signal Silence in this mode. It shall also allow adjustment of detector sensitivity and readout of the history file.

4. An EIA-485 interface shall be available for the serial connection of remote annunciators and LCD displays.

5. The EIA-485 interface may be used for network connection to a Proprietary Receiving Unit.

G. Enclosures:

1. The control panel shall be housed in a DIN listed cabinet suitable for surface or semi-flush mounting. Cabinet and front shall be corrosion protected, given a rust-resistant prime coat, and manufacturer's standard finish.

2. The door shall provide a key lock and shall include a glass or other transparent opening for viewing of all indicators.

H. All interfaces and associated equipment are to be protected so that they will not be affected by voltage surges or line transients, consistent with DIN standards.

I. An optional module shall be available which provides Form-C relays rated at 5.0. The relays shall track programmable software zones.

J. Power Supply:

1. The Power Supply shall operate on 120 VAC, 60 Hz, and shall provide all necessary power for the FACP.

2. It shall provide 5.0 amps of usable Notification appliance power, using a switching 24 VDC regulator. A 3.0 amp notification expansion power supply shall be available for the demanding requirements visual devices, for a total system capacity of 8 amps.

3. It shall provide a battery charger for 30 hours of standby using dual-rate charging techniques for fast battery recharge.

4. It shall provide a very low frequency sweep earth detect circuit, capable of detecting earth faults.

5. It shall be power-limited.

6. It shall provide optional meters to indicate battery voltage and charging current.

K. Field Charging Power Supply: The FCPS is a device designed for use as either a remote 24 volt power supply or used to power Notification Appliances.

1. The FCPS shall offer up to 6.0 amps (4.0 amps continuous) of regulated 24 volt power. It shall include an integral charger designed to charge 7.0 amp hour batteries and to support 30 hour standby.

2. The Field Charging Power Supply shall have two input triggers. The input trigger shall be a Notification Appliance Circuit (from the fire alarm control panel) or a relay. Four outputs (two Style Y or Z and two style Y) shall be available for connection to the Notification devices.

3. The FCPS shall include an attractive surface mount backbox.

4. The Field Charging Power Supply shall include the ability to delay the AC fail delay requirements.

5. The FCPS include power limited circuitry.

L. Field Wiring Terminal Blocks:

1. For ease of service all panel I/O wiring terminal blocks shall be a removable, plug-in type and have sufficient capacity for 18 to 12 AWG wire. Terminal blocks, which are permanently fixed, are not acceptable.

M. Operators Controls:

1. Acknowledge Switch:

a. Activation of the control panel Acknowledge switch in response to new alarms and/or troubles shall silence the local panel piezo electric signal and change the alarm and Trouble LEDs from flashing mode to steady-ON mode. If multiple alarm or trouble conditions exist, depression of this switch shall advance the 80-character LCD display to the next alarm or trouble condition.

b. Depression of the Acknowledge switch shall also silence all remote annunciator piezo sounders.

2. Signal Silence Switch: Activation of the Signal silence switch shall cause all programmed alarm notification appliances and relays to return to the normal condition after an alarm condition. The selection of notification circuits and relays that are silenceable by this switch shall be fully field programmable within the confines of all applicable standards. The FACP software shall include silence inhibit and auto-silence timers.

3. System Reset Switch: The system reset switch shall cause all electronically-latched initiating devices, appliances or software zones, as well as all associated output devices and circuits, to return to their normal condition.

a. Holding the system RESET switch shall perform a lamp test function.

4. Drill (Evacuate) Switch:

   a. The drill switch shall activate all notification appliance circuits. The drill function shall latch until the panel is silenced or reset.

N. Field Programming:

1. The system shall be programmable, configurable and expandable in the field without the need for special tools or electronic equipment and shall not require field replacement of electronic integrated circuits.

2. All programming may be accomplished through the standard FACP keypad.

3. All field defined programs shall be stored in non-volatile memory.

4. The programming function shall be enabled with a password that may be defined specifically for the system when it is installed. Two levels of password protection shall be provided in addition to a key-lock cabinet. One level is used for status level changes such as zone disable or manual on/off commands. A second (higher-level) is used for actual change of program information.

5. Program edit shall not interfere with normal operation and fire protection. If a fire condition is detected during programming operation, the system shall exit programming and perform fire protection functions as programmed.

6. A special program check function shall be provided to detect common operator errors.

7. An Auto-Program (self-learn) function shall be provided to quickly install initial functions and make the system operational.

8. For flexibility, an off-line programming function, with batch upload/download, shall also be available.

O. Specific System Operations:

1. Smoke Detector Sensitivity Adjust: A means shall be provided for adjusting the sensitivity of any or all analog intelligent smoke detectors in the system from the control panel. Sensitivity range shall be within the allowed window.

2. Alarm Verification: Each intelligent addressable smoke detector in the system shall be independently selected and enabled to be alarm verified. The alarm verification delay shall be programmable from 5 to 30 seconds. The FACP shall keep a count of the number of times that each detector has entered the verification cycle. These counters may be displayed and reset by the proper operator commands.

3. Point Disable: Any device in the system may be enabled or disabled through the system keypad.

4. Point Read: The system shall be able to display or print the following point status diagnostic functions:

    a. Device status.

    b. Device types.

    c. Custom device labels.

    d. View analog detector values.

    e. Device zone assignments.

    f. all program Parameters.

5. System Status Reports: Upon command from an operator of the system, a status report will be generated and printed, listing system status.

6. System History Recording and Reporting: The Fire Alarm Control Panel shall contain a History Buffer that will be capable of storing up to 800 system alarms/troubles/operator actions. Each of these activation's will be stored and time and date stamped with the actual time of the activation. The contents of the History Buffer may be manually reviewed, one event at a time, or printed in its entirety.

    a. Although the foreground history buffer may be cleared for user convenience, a background, non-erasable buffer shall be maintained which provides the last 800 system events.

    b. The History Buffer shall use non-volatile memory. Systems that use volatile memory for history storage are not acceptable.

7. Automatic Detector Maintenance Alert: The Fire Alarm Control Panel shall automatically interrogate each intelligent smoke detector and shall analyze the detector responses over a period of time.

    a. If any intelligent smoke detector in the system responds with a reading that is below or above normal limits, then the system will enter the Trouble Mode, and the particular detector will be annunciated on the system display, and printed on the optional printer. This feature shall in no way inhibit the receipt of alarm conditions in the system, nor shall it require any special hardware, special tools or computer expertise to perform.

8. Pre-alarm Function: The system shall provide two levels of pre-alarm warning to give advance notice of a possible fire situation. Both pre-alarm levels shall be fully field adjustable. The first level shall give an audible indication at the panel. The second level shall give an audible indication and may also activate control relays.

The system shall also have the ability to activate local detector sounder bases at the pre-alarm level, to assist in avoiding nuisance alarms.

9. Software Zones: The FACP shall provide 99 software zones. All addressable devices may be field programmed to be grouped into software zones for control activation and annunciation purposes.

2.04 SYSTEM COMPONENTS

A. Signaling Devices:

1. STROBES (as required by Code):

a. Strobes shall be provided as required and indicated on the contract drawings and shall have a flash rate not to exceed 60 times per minute.

b. The word “Fire” shall appear on the lens or lens plate.

c. Strobes shall be a 15cd, 1Hz minimum for restrooms and 75cd, 1Hz for large rooms (i.e., library, multi-use, meeting, etc.).

d. Strobes shall mount to 2 gang box, flush or surface as shown on drawings.

2. SPEAKERS (as required by Code):

a. SPEAKERS shall be provided as required and as indicated on the contract drawings.

b. Speakers shall mount to a 4 sq. box. for interior use and a cast weatherproof, gasketed box for exterior use.

c. Speakers shall be red in color.

d. Sound pressure level shall be 85dBA at 10 feet

e. Screw terminals shall be provided for field connections.

f. Unit may be configured with optional Strobe for interior Speaker/Strobe applications.

3. Speaker/STROBES (as required by Code):

a. Speakers/Strobe combination units shall be supplied as required and as indicated on the contract drawings.

b. Strobes shall not to exceed 60 flashes per minute.

c. The word “Fire” shall appear on the lens or lens plate.

d. Strobes shall be a 15cd, 1Hz minimum restrooms and 75cd, 1Hz for large rooms (i.e., library, multi-use)

e. Wiring for Strobes shall be separate from Horn Circuits. Strobes shall mount to face of Horn unit.

f. Wiring for Horns shall be separate from Strobe Circuits. Horns shall mount to a 4 sq. box. for interior use.

g. Speakers shall be red in color.

h. Sound pressure level shall be 85dBA at 10 feet

i. Screw terminals shall be provided for field connections.

B. Addressable Devices – General:

1. Addressable Devices shall provide an address-setting means using rotary decimal switches.

2. Addressable Devices shall use simple to install and maintain decade (numbered 1 to 10) type address switches. Devices, which use a binary address setting method, such as a dip switch, are not an allowable substitute.

3. Detectors shall be intelligent and addressable, and shall connect with two wires to the Fire Alarm Control Panel Signaling Line Circuits.

4. Addressable smoke and thermal detectors shall provide dual alarm and power LEDs. Both LEDs shall flash under normal conditions indicating that the detector is operational and in regular communication with the control panel, and both LEDs shall be placed into steady illumination by the control panel, indicating that an alarm condition has been detected. If required, the flashing mode operation of the detector LEDs shall be optional through the system field program. An output connection shall also be provided in the base to connect an external remote alarm LED.

5. The fire alarm control panel shall permit detector sensitivity adjustment through field programming of the system. Sensitivity shall be automatically adjusted by the panel on a time-of-day basis.

6. Using software in the FACP, detectors shall automatically compensate for dust accumulation and other slow environmental changes that may affect their performance. The detectors shall be listed by DIN, VDE and/or VdS as meeting the calibrated sensitivity test requirements.

7. The detectors shall be ceiling-mount and shall include a separate twist-lock base with tamper proof feature. An optional base shall be available with a built-in (local) sounder rated at 85 DBA minimum.

8. The detectors shall provide a test means whereby they will simulate an alarm condition and report that condition to the control panel. Such a test may be initiated at the detector itself (by activating a magnetic switch) or initiated remotely on command from the control panel.

9. Detectors shall also store an internal identifying type code that the control panel shall use to identify the type of device (ION, PHOTO, THERMAL).

C. Addressable Pull Box (manual station as required by Code):

1. Addressable pull boxes shall, on command from the control panel, send data to the panel representing the state of the manual switch and the addressable communication module status. They shall use a key operated test-reset lock, and shall be designed so that after actual emergency operation, they cannot be restored to normal use except by the use of a key.

2. All operated stations shall have a positive, visual indication of operation and utilize a key type reset.

3. Manual stations shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters, 1.75 inches or larger.

D. Intelligent Photoelectric Smoke Detector:

1. The detectors shall use the photoelectric (light-scattering) principal to measure smoke density and shall, on command from the control panel, send data to the panel representing the analog level of smoke density.

E. Intelligent Thermal Detectors:

1. Thermal detectors shall be intelligent addressable devices rated at 135 degrees Fahrenheit (58 degrees Celsius) and have a rate-of-rise element rated at 15 degrees F (9.4 degrees C) per minute. It shall connect via two wires to the fire alarm control panel signaling line circuit.

F. Intelligent Duct Smoke Detector:

1. The in-duct smoke detector housing shall accommodate either an intelligent ionization detector or an intelligent photoelectric detector, of that provides continuous analog monitoring and alarm verification from the panel.

2. When sufficient smoke is sensed, an alarm signal is initiated at the FACP, and appropriate action taken to change over air handling systems to help prevent the rapid distribution of toxic smoke and fire gases throughout the areas served by the duct system.

G. Addressable Dry Contact Monitor Module

1. Addressable monitor modules shall be provided to connect one supervised IDC zone of conventional alarm initiating devices (any N.O. dry contact device) to one of the fire alarm control panel SLC loops.

2. The monitor module shall mount in a 4-inch square, 2-1/8 inch deep electrical box.

3. The IDC zone shall be suitable for Style D or Style B operation. An LED shall be provided that shall flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.

4. For difficult to reach areas, the monitor module shall be available in a miniature package and shall be no larger than 2-3/4 inch x 1-1/4 inch x 1/2 inch. This version need not include Style D or an LED.

H. Two Wire Detector Monitor Module:

1. Addressable monitor modules shall be provided to connect one supervised IDC zone of conventional 2-wire smoke detectors or alarm initiating devices (any N.O. dry contact device).

2. The two-wire monitor module shall mount in a 4-inch square, 2-1/8 inch deep electrical box or with an optional surface backbox.

3. The IDC zone may be wired for Class A or B (Style D or Style B) operation. An LED shall be provided that shall flash under normal conditions, indicating that the monitor module is operational and in regular communication with the control panel.

I. Addressable Control Module:

1. Addressable control modules shall be provided to supervise and control the operation of one conventional NACs of compatible, 24 VDC powered, polarized audio/visual notification appliances. For fan shutdown and other auxiliary control functions, the control module may be set to operate as a dry contract relay.

2. The control module shall mount in a standard 4-inch square, 2-1/8 inch deep electrical box, or to a surface mounted backbox.

3. The control module NAC may be wired for Style Z or Style Y (Class A/B) with up to 1 amp of inductive A/V signal, or 2 amps of resistive A/V signal operation, or as a dry contact (Form-C) relay. The relay coil shall be magnetically latched to reduce wiring connection requirements, and to insure that 100% of all auxiliary relay or NACs may be energized at the same time on the same pair of wires.

4. Audio/visual power shall be provided by a separate supervised power loop from the main fire alarm control panel or from a supervised listed remote power supply.

5. The control module shall be suitable for pilot duty applications and rated for a minimum of 0.6 amps at 30 VDC.

J. Waterflow Indicators:

1. Flow switches shall be integral, mechanical, non-coded, non-accumulative retard type.

2. Flow switches shall have an alarm transmission delay time that is conveniently adjustable from 0 to 60 seconds. Initial settings shall be 30 Ä 45 seconds.

3. Flow switches shall be located a minimum of one (1) foot from a fitting that changes the direction of the flow and a minimum of three (3) feet from a valve.

K. Sprinkler and Standpipe Valve Supervisory Switches:

1. Each sprinkler system water supply control valve riser or zone control valve, and each standpipe system riser control valve shall be equipped with a supervisory switch. Standpipe hose valves, and test and drain valves shall not be equipped with supervisory switches.

2. Each Post Indicator Valve (PIV) or main gate valve shall be equipped with a supervisory switch.

3. Mount switch so as not to interfere with the normal operation of the valveand adjust to operate within two revolutions toward the closed position of the valve control, or when the stem has moved no more than one-fifth of the distance from its normal position.

4. The mechanism shall be contained in a weatherproof aluminum housing that shall provide a 3/4 inch tapped conduit entrance and incorporate the necessary facilities for attachment to the valves.

5. Switch housing to be finished in red baked enamel.

6. The entire installed assembly shall be tamper proof and arranged to cause a switch operation if the housing cover is removed, or if the unit is removed from its mounting.

7. Valve supervisory switches shall be provided and connected under this section and installed by mechanical contractor.

L. LCD Alphanumeric Display Annunciator:

1. The alphanumeric display annunciator shall be a supervised, back-lit LCD display containing a minimum of forty (40) characters for alarm annunciation in clear English text.

2. The LCD annunciator shall display all alarm and trouble conditions in the system.

3. Up to 32 LCD annunciators may be connected to an EIA 485 interface. LCD annunciators shall not reduce the annunciation or point capacity of the system. Each LCD shall include vital system wide functions such as, System Acknowledge, Silence and Reset.

4. LCD display annunciators shall mimic the main control panel 80 character display and shall not require special programming.

5. The LCD annunciator shall have switches that may be programmed for System control such as, Global Acknowledge, Global Signal Silence and Global System Reset. These switch inputs shall be capable of being disabled permanently or by a key lockout function on the front plate.

2.05 BATTERIES:

A. Shall be 12 volt, Gell-Cell type (two required).

B. Battery shall have sufficient capacity to power the fire alarm system for not less than thirty hours (30) plus thirty minutes (30) of alarm upon a normal AC power failure.

C. The batteries are to be completely maintenance free. No liquids are required. Fluid level checks refilling, spills and leakage shall not be required.

PART 3 - EXECUTION

3.01 INSTALLATION

A. Installation shall be in accordance with the VDE, DIN, EN, VdS Standards, along with local codes, as shown on the drawings, and as recommended by the equipment manufacturer.

B. All conduit, junction boxes, conduit supports and hangers shall be concealed in finished areas and may be exposed in unfinished areas. Smoke detectors shall not be installed prior to the system programming and test period. If construction is ongoing during this period, measures shall be taken to protect smoke detectors from contamination and physical damage.

C. All fire detection and alarm system devices, control panels and remote annunciators shall be flush mounted when located in finished areas and may be surface mounted when located in unfinished areas.

PART 4 - GUARANTEE AND TEST

4.01 GENERAL

A. The contractor shall guarantee all equipment and wiring free from inherent mechanical and electrical defects for one year from the date of final acceptance by consultant.

B. Acceptance shall consist of the following:

1. Burn-in period.

a. The system shall be accepted for start of warranty upon successful completion and testing of AHJ and Consultant.

b. Burn-In period shall be a 30 day time frame to allow the system to operate free of defects, grounds, programming faults, etc.

c. The 30 day Burn-In shall begin the day of acceptance by AHJ.

d. The Burn-In period shall be 30 days of continuous use without system trouble, false alarm, open, short or ground condition present.

e. Should the system fail for any reason during the burn-in period, the contractor shall respond immediately upon notification by owner's personnel and correct said deficiencies.

f. Upon correction and restoration, the "Burn-In" period shall be re-set to "0" and the 30 day count shall begin again.

g. Start of Warranty shall commence upon day 31 of successful "Burn-In" period.

4.02 FINAL TEST (as applicable for project devices)

A. Provide the service of a competent, factory-trained engineer or technician authorized by the manufacturer of the fire alarm equipment to technically supervise and participate during all of the adjustments and tests for the system. All testing shall be in accordance with VDE, VdS and DIN Standards.

1. Before energizing the cables and wires, check for correct connections and test for short circuits, ground faults, continuity, and insulation.

2. Close each sprinkler system flow valve and verify proper supervisory alarm at the FACP.

3. Verify activation of all flow switches.

4. Open initiating device circuits and verify that the trouble signal actuates.

5. Open and short signaling line circuits and verify that the trouble signal actuates.

6. Open and short Notification Appliance Circuits and verify that trouble signal actuates.

7. Ground all circuits and verify response of trouble signals.

8. Check presence and audibility of tone at all alarm notification devices.

9. Check installation, supervision, and operation of all intelligent smoke detectors using the Walk Test.

10. Each of the alarm conditions that the system is required to detect should be introduced on the system. Verify the proper receipt and the proper processing of the signal at the FACP and the correct activation of the control points.

11. When the system is equipped with optional features, the manufacturer's manual should be consulted to determine the proper testing procedures. This is intended to address such items as verifying controls performed by individually addressed or grouped devices, sensitivity monitoring, verification functionality and similar.

B. Before the installation shall be considered completed and acceptable by the awarding authority, a test on the system shall be performed as follows:

1. The contractor's job foreman, in the presence of a representative of the manufacturer, a representative of the owner, the inspector of record (IOR) and the fire department shall operate every building fire alarm device to ensure proper operation and correct annunciation at the control panel.

2. Audibility tests shall be performed utilizing a calibrated Decibel Meter. The system shall be capable of supplying 15dB over ambient noise levels. Tests shall be conducted in the presence of the Consultant and AHJ at selected locations by Consultant/AHJ. Prior to acceptance, testing the contractor shall have verified signal levels in each area as to meeting the above criteria.

3. Where application of heat would destroy any detector, it may be manually activated.

4. The initiation circuits and the indicating appliance circuits shall be opened in at least two (2) locations per zone to check for the presence of correct supervisory circuitry.

5. When the testing has been completed to the satisfaction of both the contractor's job foreman and the representatives of the manufacturer and owner, a notarized letter co-signed by each attesting to the satisfactory completion of said testing shall be forwarded to the owner and the fire department.

6. The contractor shall leave the fire alarm system in proper working order, and, without additional expense to the owner, shall replace any defective materials or equipment provided by him under this contract within one year (365 days) from the date of final acceptance and successful burn in period.

7. Prior to final test, the fire department must be notified in accordance with local requirements.

8. Submit completed Certification form. The form shall be submitted in type written format. Hand written forms will not be accepted.

4.03 AS-BUILT DRAWINGS, TESTING, AND MAINTENANCE INSTRUCTIONS

A. A complete set of reproducible "as-built" drawings in AutoCAD R2015 format (CDs and sheets) showing installed wiring, color coding, and wire tag notations for exact locations of all installed equipment, specific interconnections between all equipment, and internal wiring of the equipment shall be delivered to the owner upon completion of system acceptance.

B. Operating and Instruction Manuals:

1. Operating and instruction manuals shall be submitted prior to testing of the system. Four (4) complete sets of operating and instruction manuals shall be delivered to the owner upon completion.

2. The owner shall be furnished with all programming disks for each installation as well as hard copy printouts. Provide necessary training and/or schooling to designated owner personnel at no additional cost to owner. Training shall be at the owner's designated location, by factory trained personnel. Provide all necessary interconnection cables for remote programming via "laptop" computer.

C. Testing Frequency Instructions:

1. Complete, accurate, step-by-step testing instructions giving recommended and required testing frequency of all equipment, methods for testing each individual piece of equipment, and a complete trouble-shooting manual explaining how to test the primary internal parts of each piece of equipment shall be delivered to the owner upon completion of the system.

D. Maintenance instructions shall be complete, easy to read, understandable, and shall provide the following information:

1. Instruction on replacing any components of the system, including internal parts.

2. Instructions on periodic cleaning and adjustment of equipment with a schedule of these functions

3. A complete list of all equipment and components with information as to the address and phone number of both the manufacturer and local supplier of each item.

4. User operating instructions, shall be provided prominently displayed on a separate sheet located next to the control unit.

5. Administrative staff of the school shall be thoroughly instructed in the use of system by authorized distributor. Such service shall be provided in conjunction with the Fire Alarm equipment.

6. Staff of the Park as well as owner maintenance staff shall be thoroughly instructed in the use of the System. Training shall include a minimum of three (1) hour sessions, to be scheduled at the Owner's designated time.

7. Maintenance instruction shall be performed in the same manner as described above. Training shall include a minimum of three (1) hour sessions, to be scheduled at the owner's designated time.

END OF SECTION

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