DRAFTER: CM02 DRAWING FILENAME: 20-120E100 PATHNAME: G:\20\120\EL\Sheets DATE: 19 April 2021 TIME: 12:17 pm

FILE PATH & NAME: G:\20\120\EL\SHEETS\20-120E100.DWG PLOTTED: 12:17 PM THIS SHEET WAS ORIGINALLY PRINTED ON A 24"x36" SHEET.

Drafter:CM02 Paper Size: 12.9
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Apr 19, 2021, 12:17pm
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XREF: G:\20\120\EL\Xrefs\20-120TB.dwg
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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. ALL ITEMS NOTED ON THE PLAN WHICH ARE NOT EXPLICITLY STATED AS EXISTING SHALL BE NEW.

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 2019 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 INSTALLED MATERIALS AND EQUIPMENT SHALL BE LISTED U.L., NRTL OR LISTED AND APPROVED BY AN APPROVED TESTING LABORATORY.

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.

2. SWITCHES AND RECEPTACLES
NOT USED.

3. 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.

4. 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).

5. LIGHTING FIXTURES
NOT USED.

6. PANELBOARDS
NOT USED.

7. STRUCTURAL SUPPORT
EACH SECTION OF FLOOR MOUNTED SWITCHBOARD, DISTRIBUTION BOARD, MCC, ETC. SHALL BE BOLTED TO THE CONCRETE HOUSEKEEPING PAD USING (6) 3/4"-10 GRADE 2 BOLTS AND CONICAL WASHERS TORQUED TO 70LB-FT. PROVIDE MINIMUM 4000 PSI STRENGTH CONCRETE BELOW ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. TIE THE TOP OF ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT TO THE BUILDING STRUCTURE IN A SEISMICALLY APPROVED MANNER.

8. 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. BEGINNING OF DEMOLITION MEANS CONTRACTOR ACCEPTS EXISTING CONDITIONS.

D. EXECUTION
1. CAREFULLY PROTECT ALL WALLS, TRIM, FLOORS, EQUIPMENT UTILITY LINES 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. 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. TELEPHONE SYSTEMS
NOT USED.

F. 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.

G. 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. 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.

7. 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.

8. PANEL CIRCUIT DIRECTORY SHALL COMPLY WITH CEC 408.4.

H. ADDITIONAL NOTES
1. 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 THE CITY, RELEVANT LAWS, ORDINANCES, RULES AND/OR REGULATIONS.

2. 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 FOR THE LISTED RATED ASSEMBLY.

3. PROVIDE SEPARATE SUBMITTAL; OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND APPROVALS FOR ALL FIRE ALARM SYSTEM INSTALLATIONS AND/OR MODIFICATIONS FROM THE FIRE DEPARTMENT.

4. RACEWAY SEALS. CONDUITS OR RACEWAYS THROUGH WHICH MOISTURE MAY CONTACT LIVE PARTS SHALL BE SEALED OR PLUGGED AT EITHER OR BOTH ENDS.

5. 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.

I. FIRE ALARM SYSTEM
1. CONTRACTOR SHALL PROVIDE AND INSTALL A FIRE ALARM SYSTEM FOR THE PROJECT AREA TO INCLUDE:

A) SMOKE DETECTORS IN ALL REQUIRED AREAS
B) HEAT DETECTORS IN ALL REQUIRED AREAS
C) DUCT DETECTORS IN ALL REQUIRED SPACES
D) STROBES/SPEAKERS IN ALL REQUIRED AREAS
E) PULL STATIONS AT ALL LEGAL FIRE EXITS

2. CONTRACTOR SHALL SUBMIT FOR THE OWNERS SIGNED APPROVAL, APPROVED FIRE DEPARTMENT FIRE ALARM DRAWINGS FOR THE PROJECT SPACE.

3. CONTRACTOR SHALL BE CAMPUS STANDARD - FCI.

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 6 (SIX) 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 24 HOURS OF MONITORING INITIATING CIRCUITS PLUS 30 MINUTES OF ALARM 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 ALL CONNECTION TO POWER PANELS, CONDUIT AND WIRE AND CONNECTIONS REQUIRED TO PROVIDE AN OPERATIONAL FIRE ALARM SYSTEM.

10. UNIQUELY LABEL ALL ADDRESSABLE DEVICES TO MATCH FIRE ALARM PROGRAMMING & AS BUILTS, EACH DEVICE TO BE UNIQUELY LABELED.

11. CONTRACTOR TO LABEL AS ASM/E3 DEVICE

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).

EXCEPTION NO. 4: DERATING FACTORS SHALL NOT APPLY TO UNDERGROUND CONDUCTORS ENTERING OR LEAVING AN OUTDOOR TRENCH IF THOSE CONDUCTORS HAVE PHYSICAL PROTECTION IN THE FORM OF RIGID METAL CONDUIT, INTERMEDIATE METAL CONDUIT, OR RIGID NONMETALLIC CONDUIT HAVING A LENGTH NOT EXCEEDING 10 FEET (3.05m) ABOVE GRADE AND THE NUMBER OF CONDUCTORS DOES NOT EXCEED FOUR.

EXCEPTION NO. 5: FOR OTHER LOADING CONDITIONS, ADJUSTMENT FACTORS AND AMPACITIES SHALL BE PERMITTED TO BE CALCULATED UNDER SECTION 310-15(b)

(FNC): SEE APPENDIX B, TABLE B-310-11 FOR ADJUSTMENT FACTORS FOR MORE THAN THREE CURRENT-CARRYING CONDUCTORS IN A RACEWAY OR CABLE WITH LOAD DIVERSITY.

(b) MORE THAN ONE CONDUIT, TUBE, OR RACEWAY. SPACING BETWEEN CONDUITS, TUBING, OR RACEWAYS SHALL BE MAINTAINED.

SYMBOLS

⊽	SPECIAL OUTLET, TYPE AS REQUIRED BY EQUIPMENT.
Ⓙ	JUNCTION BOX (CEILING MTD.) SIZE PER TABLE AND NEC ARTICLE 370
Ⓙ	JUNCTION BOX (WALL MTD.) SIZE PER TABLE AND NEC ARTICLE 370
T	TRANSFORMER
▬	BRANCH CIRCUIT PANELBOARD - 240/120V, 1Ø, 3W OR 3Ø, 3W, 240VAC OR 120/208VAC, 3Ø, 4W.
──	CONDUIT RUN CONCEALED ABOVE CEILING OR IN WALLS,
— — —	CONDUIT RUN CONCEALED BELOW FLOOR OR UNDERGROUND
∿∿	FLEXIBLE CONDUIT (WITH GROUND CONDUCTOR, PROVIDE LIQUID TIGHT CONDUIT IN ALL EXPOSED AREAS)
#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	SEE KEY NOTE #1 AS INDICATED ON DRAWING
Ⓜ	100A UTILITY METER (OR AS NOTED)
200AF 150AT 3P	MOLDED CASE CIRCUIT BREAKER 200 AMP FRAME, 150 AMP TRIP RATING, 3 POLE

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)

COLOR CODE FOR CONDUCTORS

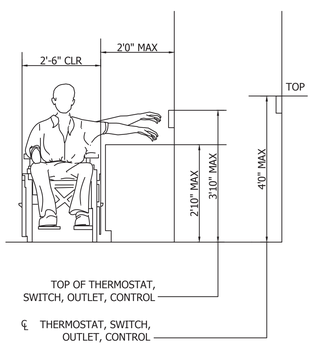
PROVIDE CONDUCTOR COLOR CODE AS FOLLOWS:
120/208VAC,3Ø,4W: BLUE,BLACK,RED FOR PHASE CONDUCTORS AND WHITE FOR NEUTRAL, GREEN FOR GROUND.

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

APPLICABLE CODES AND STANDARDS

1. 2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 1
2. 2019 CALIFORNIA BUILDING CODE (CBC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 2
(2018 INTERNATIONAL BUILDING CODE (IBC) W/CALIFORNIA AMENDMENTS)
3. 2019 CALIFORNIA ELECTRICAL CODE (CEC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 3
(2017 NATIONAL ELECTRICAL CODE (NEC) W/CALIFORNIA AMENDMENTS)
4. 2019 CALIFORNIA ENERGY CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 6
5. 2019 CALIFORNIA FIRE CODE (CFC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 9
(2018 INTERNATIONAL FIRE CODE (IFC) W/CALIFORNIA AMENDMENTS)
6. 2019 CALIFORNIA REFERENCED STANDARDS CODE
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 12
7. AMERICANS WITH DISABILITIES ACT (ADA)
TITLE II - ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES (ADAG)
1990 STATE FIRE MARSHAL REGULATIONS AND AMENDMENTS TO-DATE
8. CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, CALIFORNIA STATE ACCESSIBILITY STANDARDS
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 19
9. 2019 CALIFORNIA GREEN BUILDING STANDARDS CODE
(CAL GREEN), PART II, TITLE 24 C.C.R.
10. 2019 CALIFORNIA MECHANICAL CODE (CMC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 4
(2018 UNIFORM MECHANICAL CODE (UMC) W/CALIFORNIA AMENDMENTS)
11. 2019 CALIFORNIA PLUMBING CODE (CPC)
CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 5
(2018 UNIFORM PLUMBING CODE (UPC) W/CALIFORNIA AMENDMENTS)
12. 2013 TITLE 19 CALIFORNIA CODE OF REGULATIONS (CCR)
PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
13. 2016 NFPA 72 NATIONAL FIRE ALARM CODE

MOUNTING HEIGHT OVER OBSTRUCTION



LIST OF DRAWINGS

SHEET	DESCRIPTION	SHEET	DESCRIPTION
E100	GENERAL NOTES, ABBREVIATIONS, SYMBOLS & DRAWING LIST	E503	36'X40' MODULAR FIRE ALARM PLAN MODULAR #6 & 7
E140	PARTIAL SITE PLAN	E504	36'X40' MODULAR FIRE ALARM PLAN MODULAR #5 & RESTROOM
E200	ELECTRICAL PANEL SCHEDULE	E510	FIRE ALARM DETAIL SHEET
E500	FIRE ALARM GENERAL NOTES, SYMBOLS & ABBREVIATION	E511	FIRE ALARM RISER DIAGRAM, VOLTAGE DROP, AND BATTERY CALCULATION CALCULATION
E501	24'X40' MODULAR FIRE ALARM PLAN MODULAR #2 & 3		
E502	36'X40' MODULAR FIRE ALARM PLAN MODULAR #1, 4, 8 & 9		

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-121326 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 05/03/2021

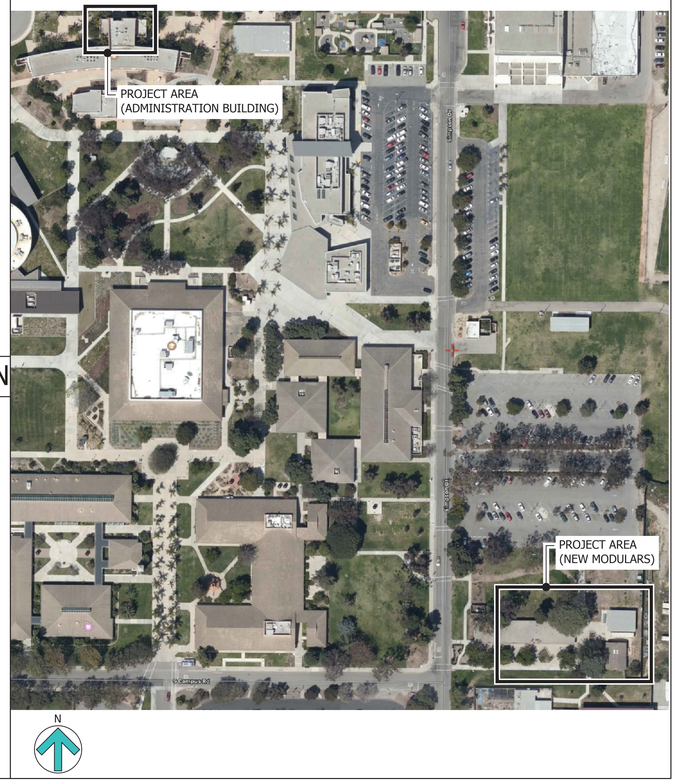
SCOPE OF WORK

PROVIDE F.A. PLANS FOR 9 NEW MODULAR BUILDINGS PER SITE PLAN & 2 WAY COMMUNICATIONS TO ADMINISTRATION BUILDING.

ABBREVIATIONS

A	AMPERES	(F)	FRONT	NC	NORMALLY CLOSED
AF	AMP FRAME/AMP FUSE	FS	SHALLOW FLOOR BOX	OH	OVERHEAD
AFC	AVAILABLE FAULT CURRENT	FT	FEET	P	POWER OR POLE
AFF	ABOVE FINISHED FLOOR	GC	GENERAL CONTRACTOR	PBO	PROVIDED BY OTHERS
AIC	AMP INTERRUPTING CURRENT	GFI	GROUND FAULT INTERRUPTER	PNL	PANEL
ARCH	ARCHITECT	GND	GROUND	PV	PHOTO VOLTAIC
AS	AMP SWITCH	HP	HORSEPOWER	(R)	REMOVED
ASTM	AMERICAN SOCIETY OF TESTING MATERIAL(S)	ID	IDENTIFICATION	RGS	RIGID GALVANIZED STEEL CONDUIT
AT	AMP TRIP	IDF	INTERMEDIATE DISTRIBUTION FRAME	RM	ROOM
ATS	AUTOMATIC TRANSFER SWITCH	IG	ISOLATED GROUND	SN	SYSTEM NEUTRAL
AWG	AMERICAN WIRE GAGE	JB	JUNCTION BOX	SPD	SURGE PROTECTION DEVICE
BKBD	BACKBOARD	K	KILO	TC	TIME CLOCKS
C	CONDUIT OR CEILING	KVA	KILO VOLT AMPS=1000VA	TTB	TELEPHONE TERMINAL BOARD
CB	CIRCUIT BREAKER	LC	LIGHTING CONTACTOR	TTC	TELEPHONE TERMINAL CABINET
CONT	CONTINUATION	LCL	LONG CONTINUOUS LOAD	TR	TRANSFORMER
CKT	CIRCUIT	LV	LOW VOLTAGE	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
CLG	CEILING	M	METER	TYP	TYPICAL
CO	CONDUIT ONLY	MC	METAL CLAD	UG	UNDERGROUND
CTV	CABLE TELEVISION	MDF	MAIN DISTRIBUTION FRAME	UL	UNDERWRITERS LABORATORY
(CU)	COPPER	MIN.	MINIMUM	UON	UNLESS OTHERWISE NOTED
CW	COLD WATER PIPE	MTD	MOUNTED	UNSW	UNSWITCHED
DIS	DISCONNECT	MTB	MAIN TELEPHONE BACKBOARD	V	VOLTS/VOLTAGE
DS	DISCONNECT SWITCH	MTG	MOUNTING	VA	VOLT AMPS
DWG	DRAWING	MV	MEDIUM VOLTAGE	VD	VOLTAGE DROP
ECD	ELECTRICAL CONTRACTOR	MH	MAN HOLE	W	WATTS/WATTAGE OR WIRE
EM	EMERGENCY LIGHT/FEEDER	MFG	MANUFACTURER	WP	WEATHERPROOF
EMT	ELECTRICAL METAL TUBING	NEC	NATIONAL ELECTRICAL CODE	W/	WITH
EOR	ENGINEER OF RECORD	(N)	NEW	(X)	EXISTING
EPR	ETHYLENE PROPYLENE RUBBER	NIC	NOT IN CONTRACT	ϕ	PHASE
EVCS	ELECTRIC VEHICLE CHARGING STATION	NL	NIGHT LIGHT		
		NO	NORMALLY OPEN		

SITE/AREA MAP



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KENNETH W. LUCCI
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GENERAL NOTES, SYMBOLS, ABBREVIATIONS & DRAWING LIST

Revisions		
	R&A No:	A162002
	Date:	4/19/2021
	Drawn:	LK/DS
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ART/DESIGN COMPLEX
MODULAR CLASSROOMS
OXNARD COLLEGE
4000 SOUTH ROSE AVENUE
OXNARD, CALIFORNIA 93033

Sheet No.
E100

L.A.I.# 20-120 PAPER SIZE 36"x24"

DRAFTER: CM02 DRAWING FILENAME: 20-120E140 PATHNAME: G:\20\120\EL\Sheets DATE: 19 April 2021 TIME: 12:17 pm

FILE PATH & NAME: G:\20\120\EL\SHEETS\20-120E140.DWG PLOTTED: 12:17 PM

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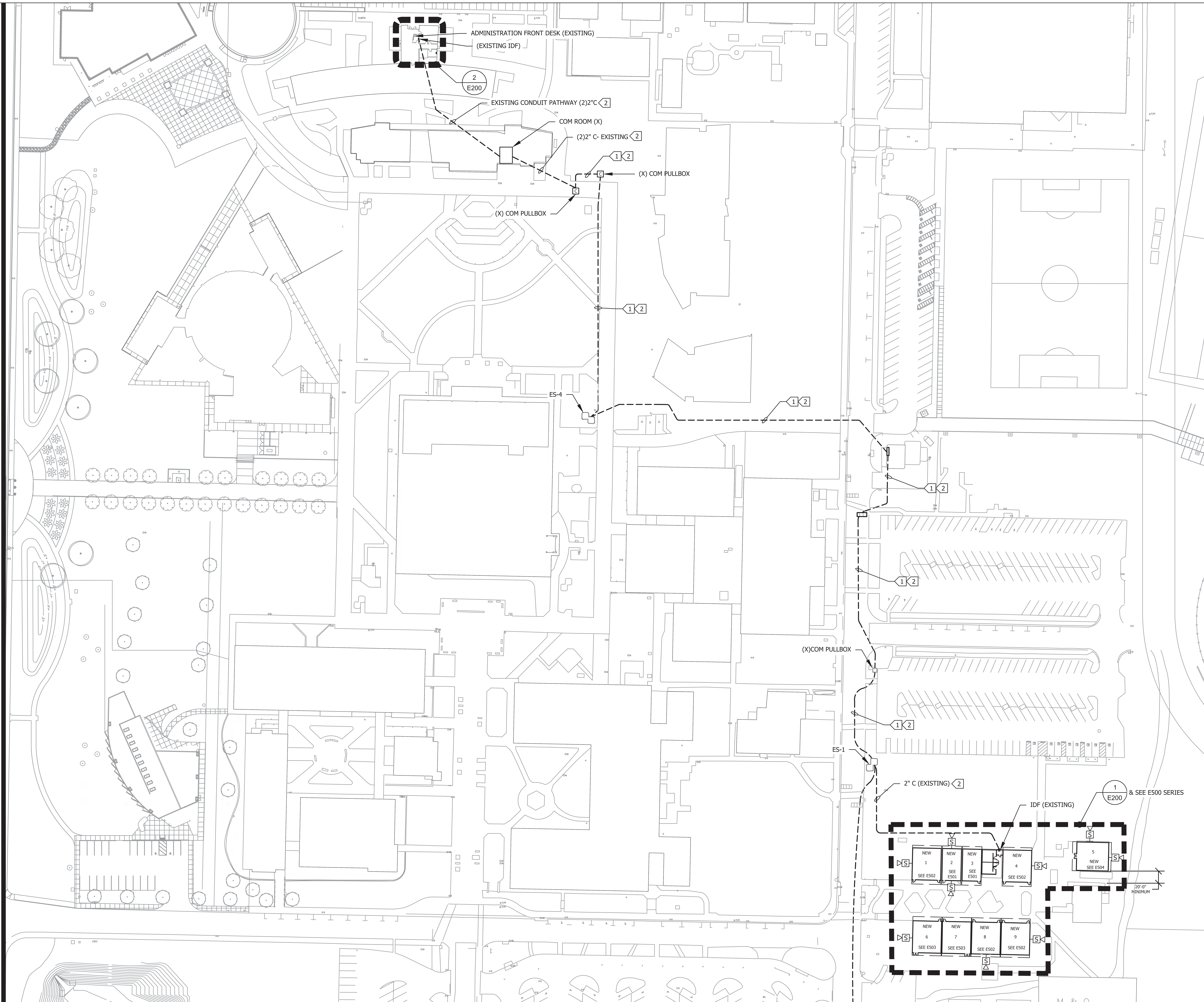

SCALE: 1"=60'

0 60 120

PARTIAL SITE PLAN

SCALE: 1"=60'-0"

1 E140

N

SHEET NOTES:

1. ALL SITE ELECTRICAL WORK TO BE COMPLETED UNDER SEPARATE PERMIT (EXCEPT FIRE ALARM).
2. MODULAR BUILDING TO BE PROVIDED BY MODULAR COMPANY.
3. ALL LIGHTING & POWER IN MODULAR BUILDINGS TO BE PROVIDED BY MODULAR COMPANY AND APPROVED BY DSA UNDER SEPARATE PERMIT.

KEY NOTES:

1. EXISTING (9) 4"C.O. COM.
2. PROVIDE NEW WEST PENN AQ 245 (2 PAIR #16 UTP AQUASEAL) FROM NEW MODULAR BUILDING #1 (FA) SYSTEM (E3) TO ADMINISTRATION BUILDING (E3) FOR 2-WAY COMMUNICATIONS.

IDENTIFICATION STAMP
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ART/DESIGN COMPLEX MODULAR CLASSROOMS

OXNARD COLLEGE
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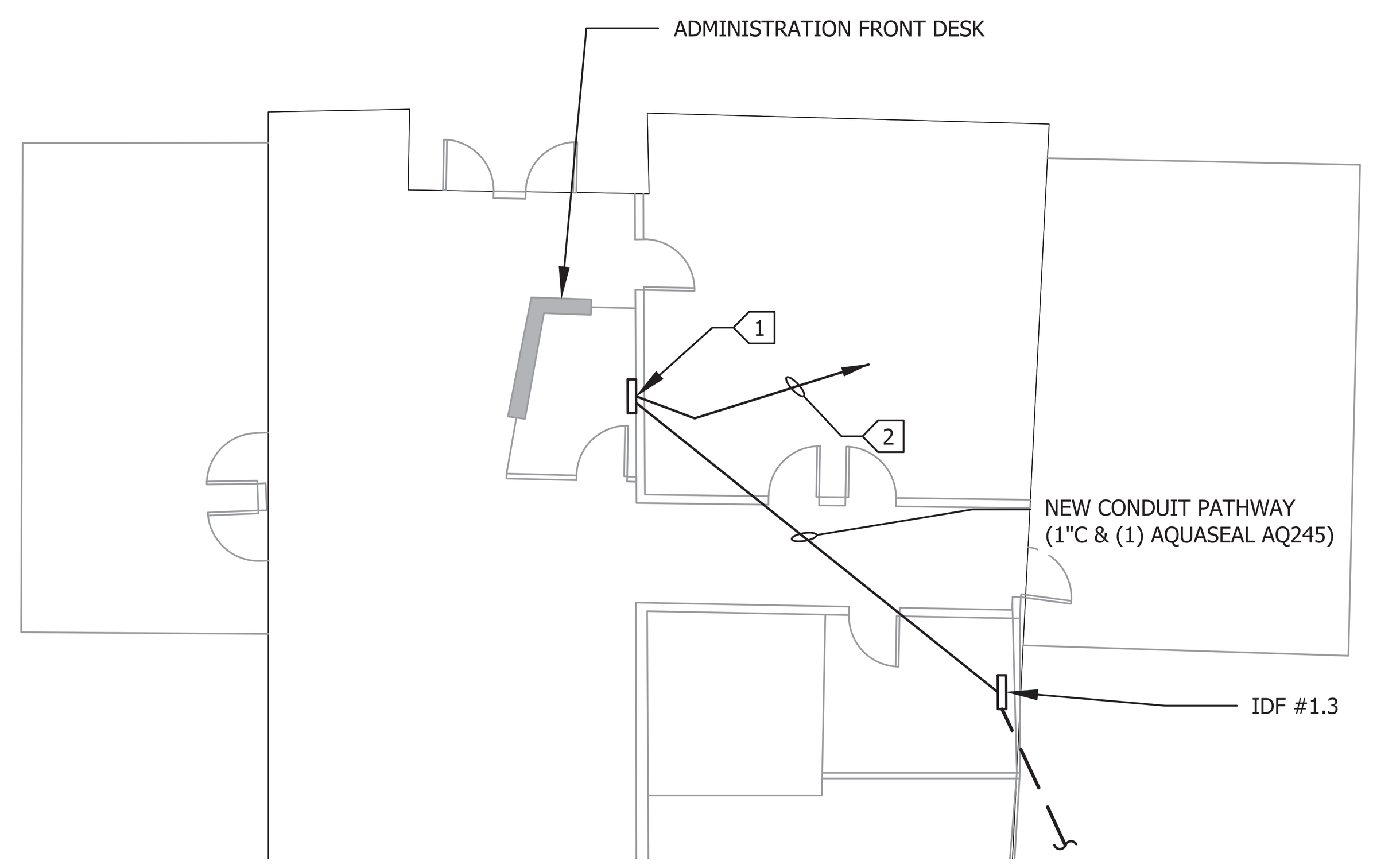
OXNARD, CALIFORNIA 93033

Sheet No.
E140

KEY NOTES:

1. NEW FCI E3 FIRE ALARM STATION (FOR 2-WAY COMMUNICATIONS) WITH:
   - AOM TELF
   - ASM-16
   - INI VGE UTP
   - INI 7100 UTP
   - VOICE PAGING MICROPHONE ASSEMBLY
   - LCD NGA ANNUNCIATOR
   - FIRE FIGHTERS HANDSET
2. CONNECT TO DEDICATED 120VAC, 20A, DEDICATED CIRCUIT BREAKER WITH RED HANDLE & LOCK ON DEVICE.

SEE E500 SERIES FOR EQUIPMENT AND RISER DIAGRAM



SCALE: 1"=10'
0 10 20

ENLARGED AREA ADMIN FRONT DESK 2 / E200
SCALE: 1"=10'-0"

N

TYPICAL PANEL IN EACH MODULE

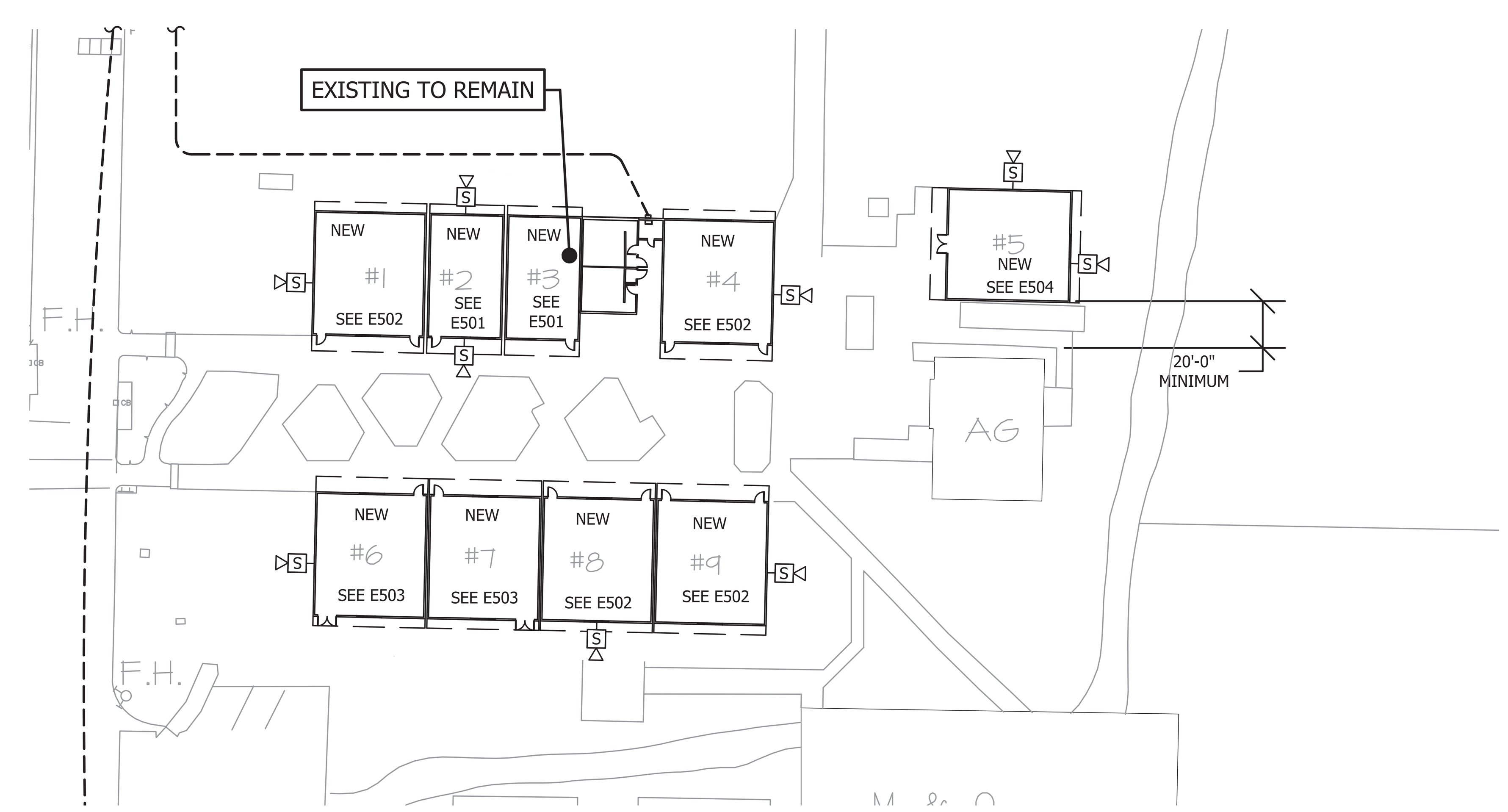
PANEL NUMBER A | VOLTAGE 120/240 | PHASE 1 | WIRE 3
SOURCE DB | A.I.C. 10,000
PANEL LOCATION INSIDE UNIT (SEE E501) | BUS AMPERE RATING 125

■ NEMA 1 ■ COPPER BUSS
■ MAIN CIRCUIT BREAKER 125
■ FLUSH MOUNTING

PROVIDE LOCK ON DEVICE & NEW RED BREAKER →(FIRE ALARM)

LCL	MISC	RCPT	LITE	CIRCUIT DESCRIPTION	LOAD(VA) A	LOAD(VA) B	BRKR POLE	BRKR AMP	CKT	PHASE A B	CKT	BRKR AMP	BRKR POLE	LOAD(VA) A	LOAD(VA) B	CIRCUIT DESCRIPTION	MISC	RCPT	LITE	LCL
				HVAC UNIT	7360			60	1		2	20	1	1440		LIGHTING A			10	
				HVAC UNIT		7360	2		3		4	20	1		720	OUTLETS		4		
				SPACE	·				5		6	20	1	180		WP GFCI		1		
				SPACE		·			7		8	20	1		540	OUTLETS		3		
				SPACE	·				9		10			·		SPACE				
				SPACE		·			11		12				·	SPACE				
				SPACE	·				13		14			·		SPACE				
				SPACE		·			15		16				·	SPACE				
				SPACE	·				17		18			·		SPACE				
				SPACE		·			19		20				·	SPACE				
				SPACE	·				21		22	40		·		FUTURE SOLAR PV ELECTRICAL				
				FIRE ALARM		100	1	20	23		24		2		·	FUTURE SOLAR PV ELECTRICAL				
				TOTALS	7360	7460								1620	1260	TOTALS				

L.C.L. VOLT AMPS:	.	PHASE A	.	PHASE B	.	.
TOTAL VOLT AMPS:	17700	PHASE A	8980	PHASE B	8720	.
TOTAL AMPS:	73.75	PHASE A	74.8	PHASE B	72.6	.



SCALE: 1"=40'
0 40 80

ENLARGED MODULAR PLAN 1 / E140 E200
SCALE: 1"=40'-0"

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Revisions

ELECTRICAL PANEL SCHEDULES

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Sheet No.
E200

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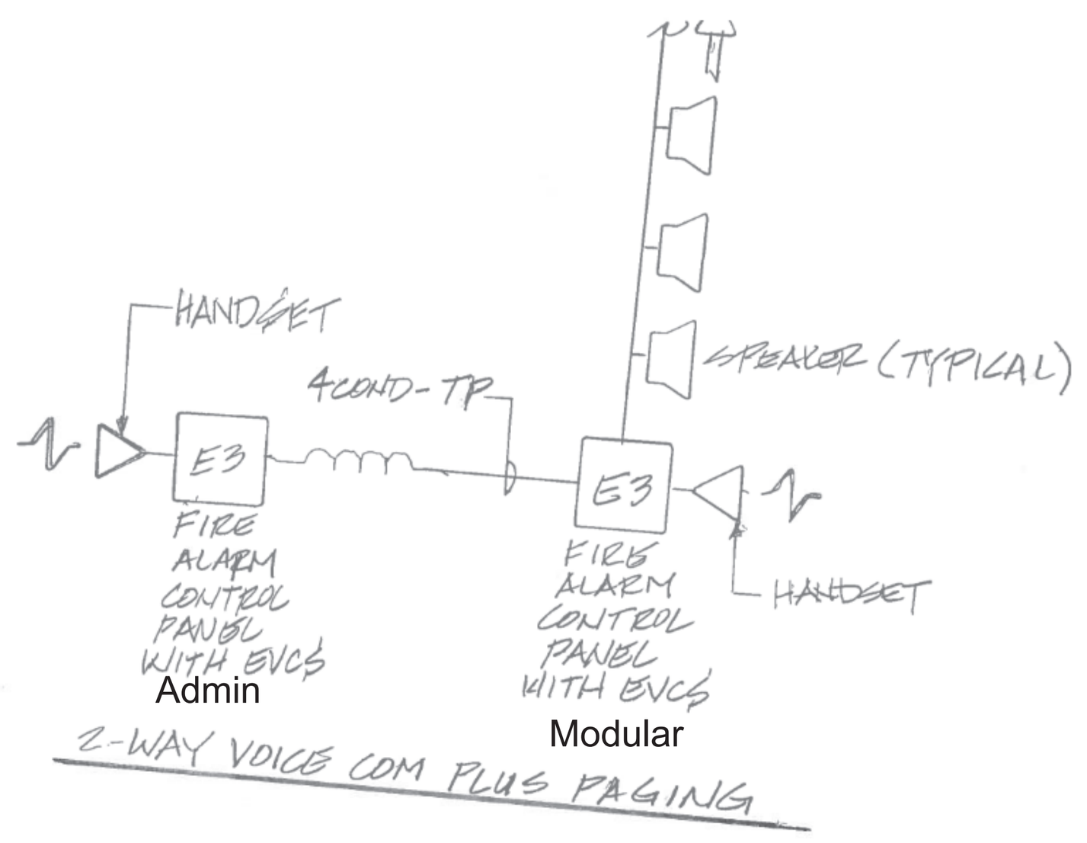

SCOPE OF WORK

PROVIDE A STAND ALONE FIRE ALARM SYSTEM WITH EVACS TO ACCOMMODATE NEW MODULAR CLASSROOMS.

NEW FIRE ALARM SYSTEM WILL INCLUDE MANUAL AND AUTOMATIC DETECTION AND VOICE EVACUATION.

NEW FIRE ALARM SYSTEM WILL BY MONITORED BY A UL LISTED CENTRAL STATION PER CFC 907.6.6 AND UTILIZE ALTERNATE MEANS OF COMMUNICATIONS PER NFPA 72 CHAPTER 26

Provide two way voice communication between a new E3 fire alarm station handset in Administration Building at main desk and new E3 Fire Alarm master panel in Building 1, plus provide at both new E3 Fire Alarm panels (Administration and new Modulars) the ability to provide paging over the new modular building speakers on interior and exterior of project buildings as a portion of this scope of work.

PROJECT DATA

APPLICABLE CODES:

A. 2019 CALIFORNIA BUILDING CODE (CBC)
B. 2019 CALIFORNIA ELECTRICAL CODE (CEC)
C. 2019 CALIFORNIA MECHANICAL CODE (CMC)
D. 2019 CALIFORNIA PLUMBING CODE (CPC)
E. 2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, C.C.R.;
F. TITLE 19, CCD, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
G. NFPA 72–2016 EDITION
H. CAL/OSHA CONSTRUCTION SAFETY ORDERS
J. ADA, ADAAG, ARS, TITLE 24, CHAPTER 11

BUILDING CLASSIFICATION:

A. OCCUPANCY TYPE: E
B. OCCUPANCY LOAD: –
C. CONSTRUCTION TYPE: –
D. FIRE SPRINKLERS: NO

DSA TRACKING #

AGENCIES: DSA

DSA REQUIRED NOTES

1. APPLICABLE STANDARD 2016 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. OWNER SHALL BE RESPONSIBLE FOR ESTABLISHING A FIRE SYSTEM MONITORING CONTRACT OR PROVISIONS.

EVACS LEGEND

SYMBOL	DESCRIPTION	MODEL #	C.S.F.M. #	BACK BOX REQUIREMENTS
FACP	FIRE ALARM CONTROL PANEL W/ EVACS *	GAMEWELL–FCI E3	7165–1703:0125	SURFACE MOUNT
CELL	HONEYWELL CELL/IP COMMUNICATOR	HONEYWELL HWF2V–COM	7300–1645:0511	SURFACE MOUNT
DOC	FIRE ALARM DOCUMENT BOX	SPACE AGE	–	SURFACE MOUNT
P	MANUAL PULL STATION	GAMEWELL–FCI MS–7AF	7160–1703:0170	SINGLE GANG BOX
SD	SMOKE DETECTOR W/ BASE	GAMEWELL–FCI ASD–LS3	7272–1703:0504	4" SQ. BOX W/ 3" ROUND RING
HD	HEAT DETECTOR W/ BASE	GAMEWELL–FCI ATD–L3H	7272–1703:0502	4" SQ. BOX W/ 3" ROUND RING
SV	SPEAKER/STROBE COMBO, WALL MOUNT	SYSTEM SENSOR SPSRL	7320–1653:0505	4" SQ. DEEP BOX
S	OUTDOOR SPEAKER, RED	SYSTEM SENSOR SPRK	7320–1653:0201	SURFACE MOUNT BOX

* INCLUDES:

- AOM TELF
- ASM-16
- INI VGE UTP
- INI 7100 UTP
- VOICE PAGING MICROPHONE ASSEMBLY
- LCD NGA ANNUNCIATOR
- FIRE FIGHTERS HANDSET

WIRE CHART

SYMBOL	CIRCUIT DESCRIPTION	CONDUCTOR COLOR	WIRE IN CONDUIT	NO CONDUIT NO PLENUM	NO CONDUIT IN PLENUM	UNDERGROUND / WET SYMBOL	WIRE IN CONDUIT UNDERGROUND/WET	CLASS
SBUS	SBUS COMM CIRCUIT – POWER	YELLOW / BLUE	2 CONDUCTOR 2/14 STRANDED TYPE THHN	2 CONDUCTOR 2/14 FPLR SOLID OR STRANDED TWISTED/ UNSHIELDED	2 CONDUCTOR 2/14 FPLP SOLID OR STRANDED TWISTED/ UNSHIELDED	SBUSU	2 CONDUCTOR 2/14 TYPE THWN	B
	SBUS COMM CIRCUIT – DATA	RED / BLACK	2 CONDUCTOR 2/18 FPL SOLID TWISTED/ SHIELDED	2 CONDUCTOR 2/18 FPLR SOLID TWISTED/ SHIELDED	2 CONDUCTOR 2/18 FPLP SOLID TWISTED/ SHIELDED		2 CONDUCTOR 2/16 FPL STRANDED TWISTED/ SHIELDED WEST PENN#AQ294	B
Z	SIGNAL LINE CIRCUIT (SLC)	RED / BLACK	2 CONDUCTOR 2/16 FPL SOLID TWISTED/UNSHIELDED	2 CONDUCTOR 2/16 FPLR SOLID TWISTED/UNSHIELDED	2 CONDUCTOR 2/16 FPLP SOLID TWISTED/UNSHIELDED	ZU	2 CONDUCTOR 2/16 FPL STRANDED TWISTED/ SHIELDED WEST PENN#AQ225	B
V	VISUAL APPLIANCE CIRCUIT	YELLOW / BLIE RED / BLACK ORANGE / BROWN	2 CONDUCTOR 2/12 STRANDED TYPE THHN	2 CONDUCTOR 2/12 FPLR SOLID TWISTED/UNSHIELDED	2 CONDUCTOR 2/12 FPLP SOLID TWISTED/UNSHIELDED	VU	2 CONDUCTOR 2/12 STRANDED TYPE THWN	B
S	SPEAKER APPLIANCE CIRCUIT	RED / BLACK	2 CONDUCTOR 2/16 FPL STRANDED TWISTED/ SHIELDED	2 CONDUCTOR 2/16 FPLR STRANDED TWISTED/ SHIELDED	2 CONDUCTOR 2/16 FPLP STRANDED TWISTED/ SHIELDED	SU	2 CONDUCTOR 2/16 FPL STRANDED TWISTED/ SHIELDED WEST PENN#AQ294	B
Y	HANDSET/COM CIRCUIT	RED/BLACK/ BROWN/BLUE	2 PAIR 2/16 FPC TWISTED/UNSHIELDED	2 PAIR 2/16 FPC TWISTED/UNSHIELDED	2 PAIR 2/16 FPC TWISTED/UNSHIELDED	SU	2 PAIR 16/4 FPC TWISTED/UNSHIELDED WEST PENN#AQ245	B

FIRE ALARM INPUTS / FIRE ALARM OUTPUTS

CONTROL MATRIX	CONTROL UNIT ANNUNCIATION							NOTIFICATION										REQUIRED FIRE SAFETY CONTROL							
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE COMMON SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE COMMON TROUBLE SIGNAL	DISPLAY CHANGE OF STATUS MESSAGE ON LCD DISPLAY	DISPLAY MESSAGE ON LCD DISPLAY	TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION	TRANSMIT SUPERVISORY SIGNAL TO SUPERVISING STATION	TRANSMIT TROUBLE SIGNAL TO SUPERVISING STATION	TRANSMIT CARBON MONOXIDE DETECTOR SUPERVISORY SIGNAL	ACTIVATE 120VAC SPRINKLER BELL	ACTIVATE INTELLIGENT VOICE EVACUATION	NOT USED	ACTIVATE MANUAL OVER RIDE OF SPEAKERS "ALL CALL"	NOT USED	SYSTEM WILL BE 100% OPERATIONAL ON BATTERY BACK UP	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED	NOT USED
MANUAL PULL STATION	●	●					●	●	●					●											
AREA SMOKE / ATTIC HEAT DETECTOR	●	●					●	●	●					●											
MICROPHONE KEY																●									
FIRE ALARM SYSTEM AC POWER FAIL					●	●	●	●			●							●							
FIRE ALARM SYSTEM LOW BATTERY					●	●	●	●			●														
FIRE ALARM AMPLIFIER AC POWER FAIL					●	●	●	●			●							●							
FIRE ALARM AMPLIFIER SYSTEM LOW BATTERY					●	●	●	●			●														
GROUND FAULT					●	●	●	●			●														
SIGNAL LINE "SHORT"					●	●	●	●			●														
NOTIFICATION "OPEN" CIRCUIT					●	●	●	●			●														
CELLULAR PANEL "FAIL TO COMMUNICATE"					●	●	●	●			●														
CELLULAR PANEL "TELCO LINE CUT"					●	●	●	●			●														

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FIRE ALARM GENERAL NOTES, SYMBOLS & ABBREVIATION

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SYMBOL LEGEND:

SYMBOLS:

Symbol	Description
- - - - - -	AQUA SEAL CABLE IN CONDUIT BELOW GRADE
———	FIRE ALARM CABLE IN CONDUIT ABOVE GRADE
FACP	EXISTING FIRE ALARM CONTROL PANEL W/ EVAC
AMP	50 WATT AMPLIFIER
RPS	REMOTE POWER SUPPLY
F	ADDRESSABLE MANUAL PULL STATION
SD	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
HD	ADDRESSABLE HEAT DETECTOR
S	OUTDOOR SPEAKER ONLY
	SPEAKER STROBE, WALL MOUNT

CIRCUIT DESCRIPTION:

V1-12 EOL ⟵ END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- NOTIFICATION APPLIANCE CIRCUIT

S1-12 EOL ⟵ END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- SPEAKER APPLIANCE CIRCUIT

s001
- DEVICE ADDRESS
- SIGNALLING LINE CIRCUIT. m= MODULES, d = DETECTORS

KEYED NOTES:

1. ABOVE CEILING HEAT DETECTOR. TYPICAL
2. SMOKE DETECTOR. TYPICAL
3. PULL STATION. TYPICAL
4. SPEAKER STROBE. TYPICAL
5. OUTDOOR SPEAKER. TYPICAL

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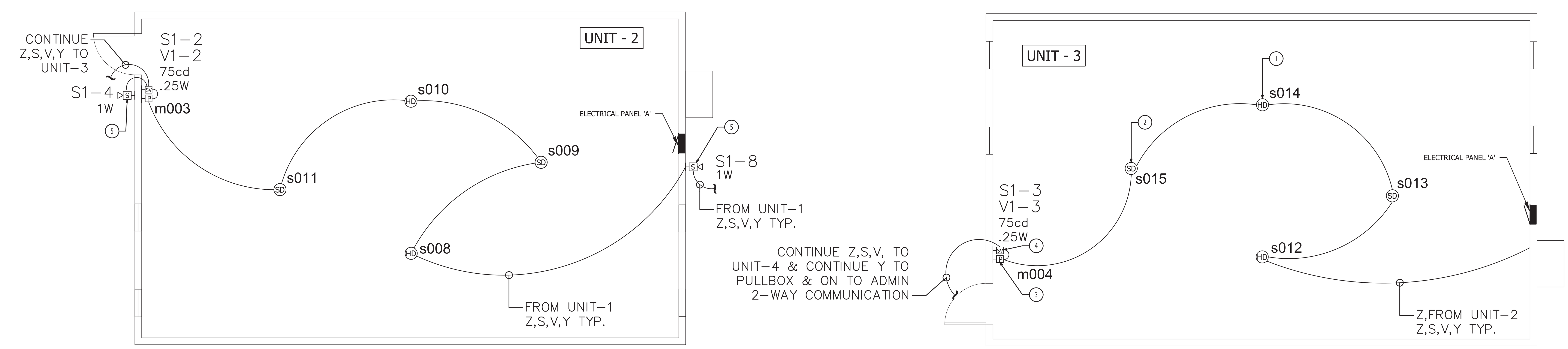

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MODULAR FIRE ALARM PLAN UNIT -2 & UNIT -3

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

1 / E501

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DRAFTER: CM02 DRAWING FILENAME: 20-120E501 PATHNAME: G:\20\120\EL\Sheets DATE: 19 April 2021 TIME: 12:18 pm

FILE PATH & NAME: G:\20\120\EL\SHEETS\20-120E501.DWG PLOTTED: 12:18 PM

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LUCCI & ASSOCIATES INC.
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(805) 389-6520 FAX (805) 389-6519

REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
No. E 8340
Exp. 09/30/2022
ELECTRICAL
STATE OF CALIFORNIA

RASMUSSEN & ASSOCIATES
Architecture
Planning
Interiors
21 S. California Street
Fourth Floor
Ventura, California 93001
(805) 648-1234

24"X40' MODULAR FIRE ALARM PLAN MODULAR #2 & 3

Revisions	
R&A No:	A162002
Date:	4/19/2021
Drawn:	LK/DS
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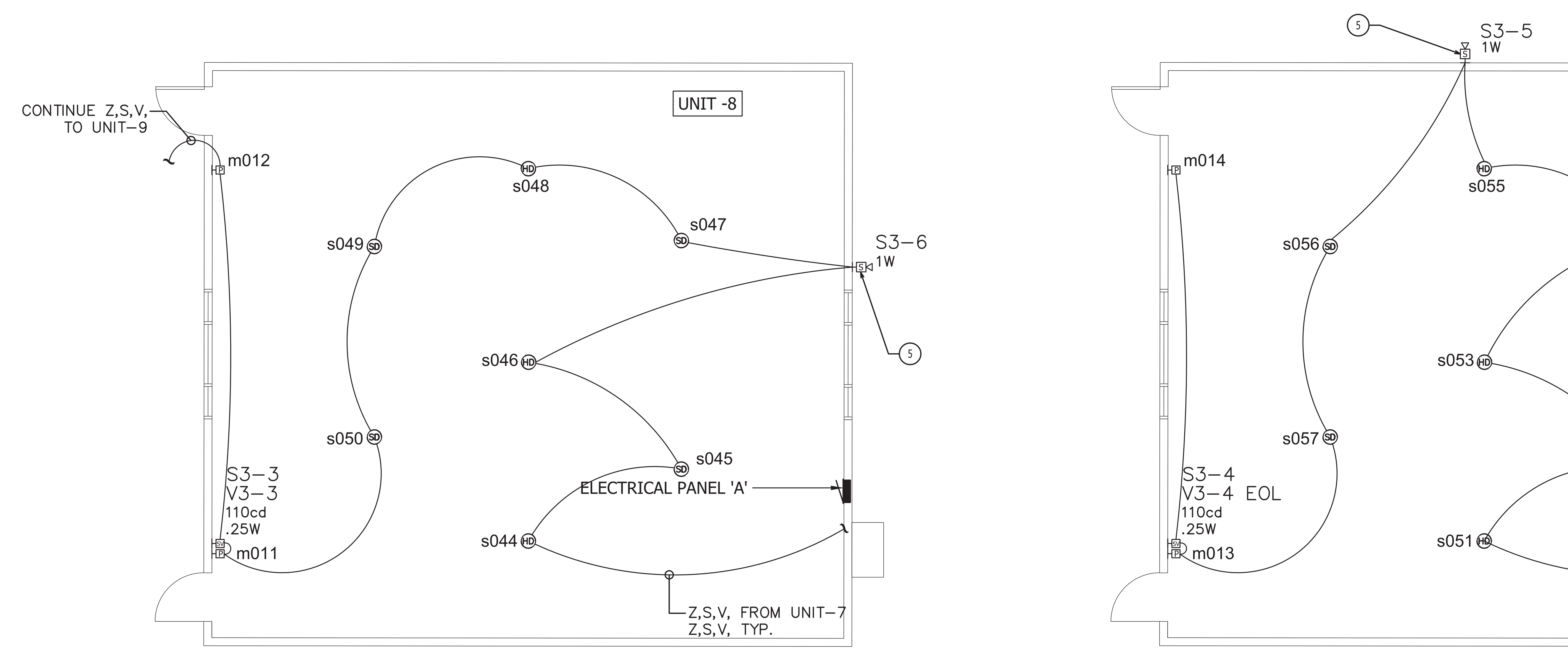
Consult. No:	

ART/DESIGN COMPLEX MODULAR CLASSROOMS

OXNARD COLLEGE
4000 SOUTH ROSE AVENUE
OXNARD, CALIFORNIA 93033

Sheet No.
E501

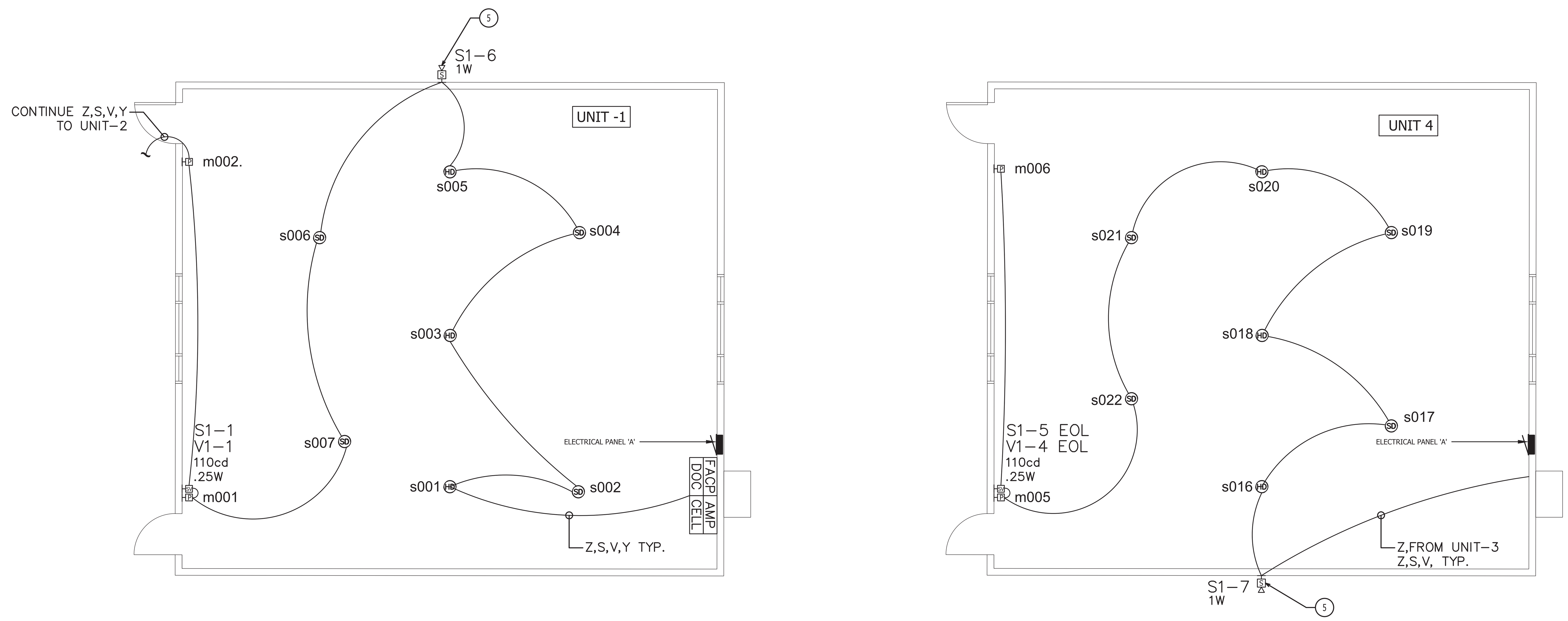


3/16" = 1'-0"

MODULAR FIRE ALARM PLAN - UNIT 8 AND UNIT 9

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

2 - E502



3/16" = 1'-0"

MODULAR FIRE ALARM PLAN - UNIT 1 AND UNIT 4

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

1 - E502

SYMBOL LEGEND:

SYMBOLS:

Symbol	Description
- - - - - - -	AQUA SEAL CABLE IN CONDUIT BELOW GRADE
———	FIRE ALARM CABLE IN CONDUIT ABOVE GRADE
FACP	EXISTING FIRE ALARM CONTROL PANEL W/ EVAC
AMP	50 WATT AMPLIFIER
RPS	REMOTE POWER SUPPLY
P	ADDRESSABLE MANUAL PULL STATION
SD	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
HD	ADDRESSABLE HEAT DETECTOR
S	OUTDOOR SPEAKER ONLY
	SPEAKER STROBE, WALL MOUNT

CIRCUIT DESCRIPTION:

V1-12 EOL ← END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- NOTIFICATION APPLIANCE CIRCUIT

S1-12 EOL ← END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- SPEAKER APPLIANCE CIRCUIT

M97:s001
- DEVICE ADDRESS
- SIGNALLING LINE CIRCUIT. m= MODULES, d = DETECTORS
- SLC LOOP #

KEYED NOTES:

1. ABOVE CEILING HEAT DETECTOR. TYPICAL
2. SMOKE DETECTOR. TYPICAL
3. PULL STATION. TYPICAL
4. SPEAKER STROBE. TYPICAL
5. OUTDOOR SPEAKER. TYPICAL

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APP: 03-121326 INC:
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SS ☑ FLS ☑ ACS ☑
DATE: 05/03/2021

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36'X40' MODULAR FIRE ALARM PLAN MODULAR #1, 4, 8 & 9

Revisions	
R&A No:	A162002
Date:	4/19/2021
Drawn:	LK/DS
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ART/DESIGN COMPLEX MODULAR CLASSROOMS

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 L.A.I.# 20-120 PAPER SIZE 36"x24"

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THIS SHEET WAS ORIGINALLY PRINTED ON A 24"x36" SHEET.

SYMBOL LEGEND:

SYMBOLS:

Symbol	Description
-------	AQUA SEAL CABLE IN CONDUIT BELOW GRADE
———	FIRE ALARM CABLE IN CONDUIT ABOVE GRADE
FACP	EXISTING FIRE ALARM CONTROL PANEL W/ EVAC
AMP	50 WATT AMPLIFIER
RPS	REMOTE POWER SUPPLY
P	ADDRESSABLE MANUAL PULL STATION
SD	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
HD	ADDRESSABLE HEAT DETECTOR
S	OUTDOOR SPEAKER ONLY
	SPEAKER STROBE, WALL MOUNT

CIRCUIT DESCRIPTION:

V1-12 EOL ⟵ END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- NOTIFICATION APPLIANCE CIRCUIT

S1-12 EOL ⟵ END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- SPEAKER APPLIANCE CIRCUIT

M97:s001
- DEVICE ADDRESS
- SIGNALLING LINE CIRCUIT. m= MODULES, d = DETECTORS
- SLC LOOP #

KEYED NOTES:

1. ABOVE CEILING HEAT DETECTOR. TYPICAL
2. SMOKE DETECTOR. TYPICAL
3. PULL STATION. TYPICAL
4. SPEAKER STROBE. TYPICAL
5. OUTDOOR SPEAKER. TYPICAL

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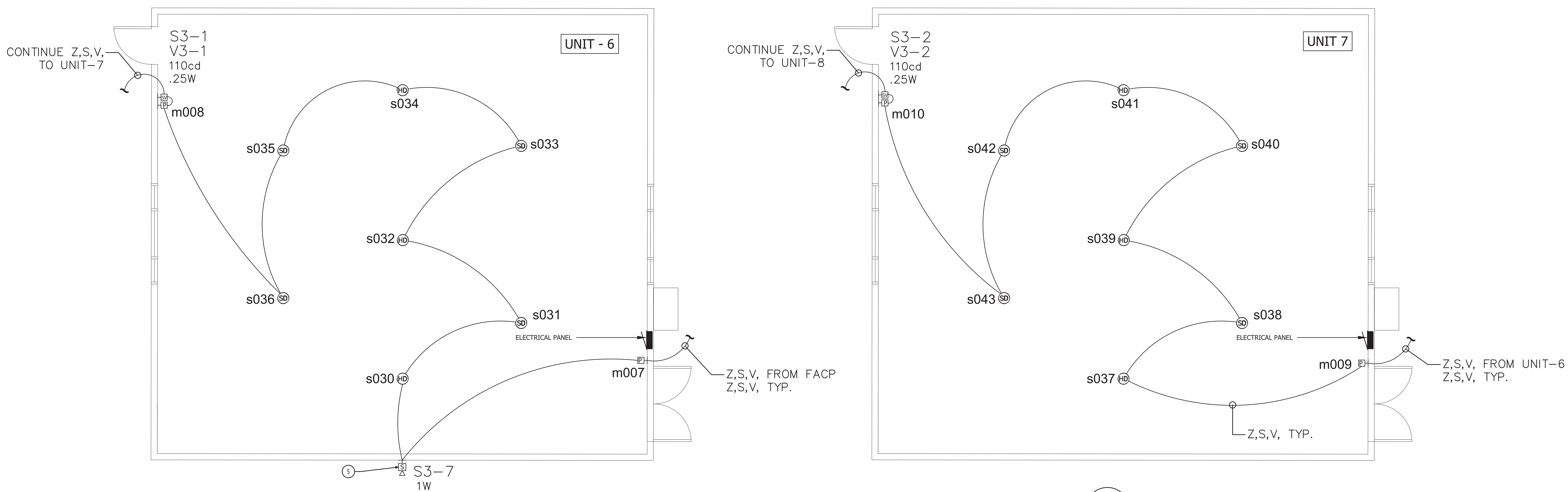
DATE: 05/03/2021



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

MODULAR FIRE ALARM PLAN (TYPICAL FOR MODULAR 6 & 7)

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

1 - E503

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36'X40' MODULAR FIRE ALARM PLAN MODULAR #6 & 7

Revisions	
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 L.A.I.# 20-120 PAPER SIZE 36"x24"

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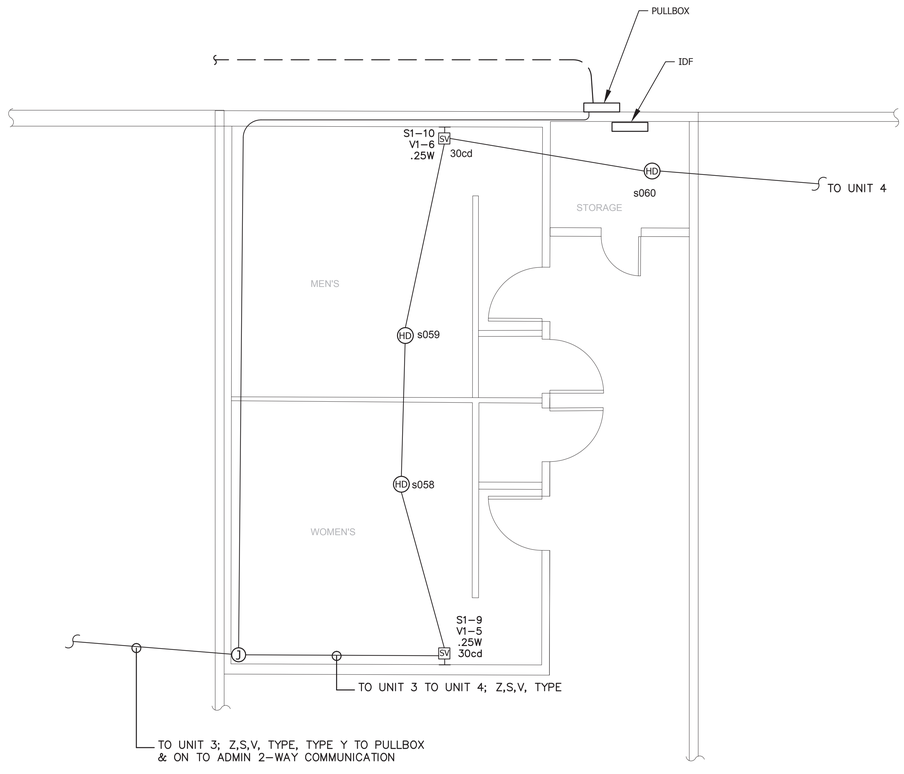

SCALE: 1/4"=1'-0"
0 2' 4' 8'

RESTROOM FIRE ALARM PLAN 1
SCALE: 1/4"=1'-0" - E504 -

SYMBOL LEGEND:

SYMBOLS:

- - - - - - -	AQUA SEAL CABLE IN CONDUIT BELOW GRADE
———————	FIRE ALARM CABLE IN CONDUIT ABOVE GRADE
FACP	EXISTING FIRE ALARM CONTROL PANEL W/ EVAC
AMP	50 WATT AMPLIFIER
RPS	REMOTE POWER SUPPLY
P	ADDRESSABLE MANUAL PULL STATION
SD	ADDRESSABLE PHOTOELECTRIC SMOKE DETECTOR
HD	ADDRESSABLE HEAT DETECTOR
S	OUTDOOR SPEAKER ONLY
SW	SPEAKER STROBE, WALL MOUNT

CIRCUIT DESCRIPTION:

V1-12 EOL ← END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- NOTIFICATION APPLIANCE CIRCUIT

S1-12 EOL ← END OF LINE RESISTOR
- DEVICE NUMBER
- CIRCUIT NUMBER
- SPEAKER APPLIANCE CIRCUIT

M97-s001
- DEVICE ADDRESS
- SIGNALLING LINE CIRCUIT. m= MODULES, d = DETECTORS
- SLC LOOP #

KEYED NOTES:

1. ABOVE CEILING HEAT DETECTOR. TYPICAL
2. SMOKE DETECTOR. TYPICAL
3. PULL STATION. TYPICAL
4. SPEAKER STROBE. TYPICAL
5. OUTDOOR SPEAKER. TYPICAL

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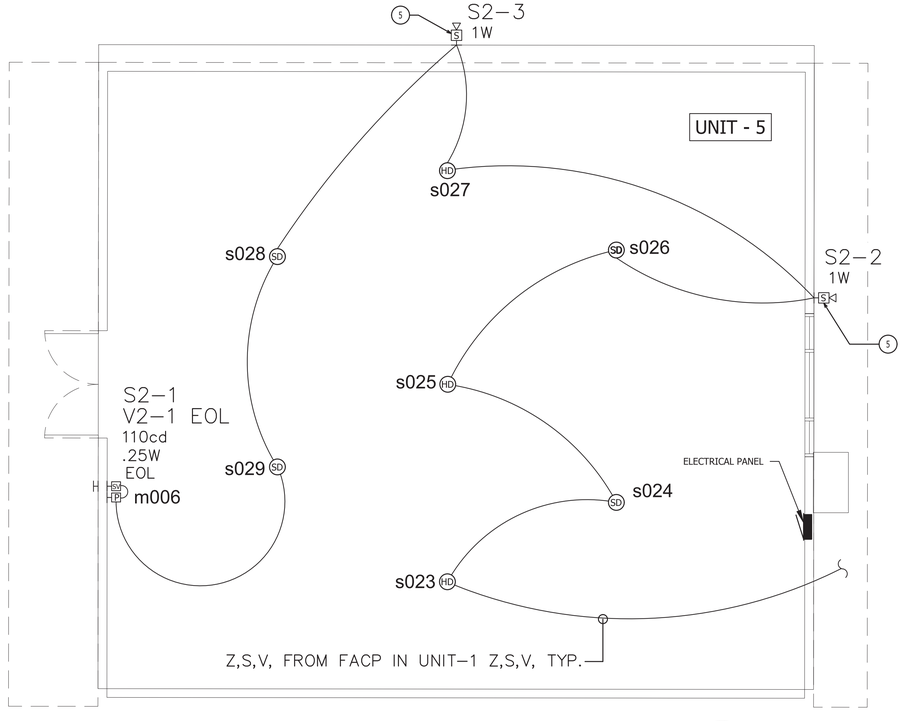
DIV. OF THE STATE ARCHITECT
APP: 03-121326 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 05/03/2021



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

MODULAR #5 FIRE ALARM PLAN 1
SCALE: 1/4"=1'-0" - E504 -

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STATE OF CALIFORNIA

36'X40' MODULAR FIRE ALARM
PLAN MODULAR #5 & RESTROOM

Revisions	R&A No: A162002
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MODULAR CLASSROOMS
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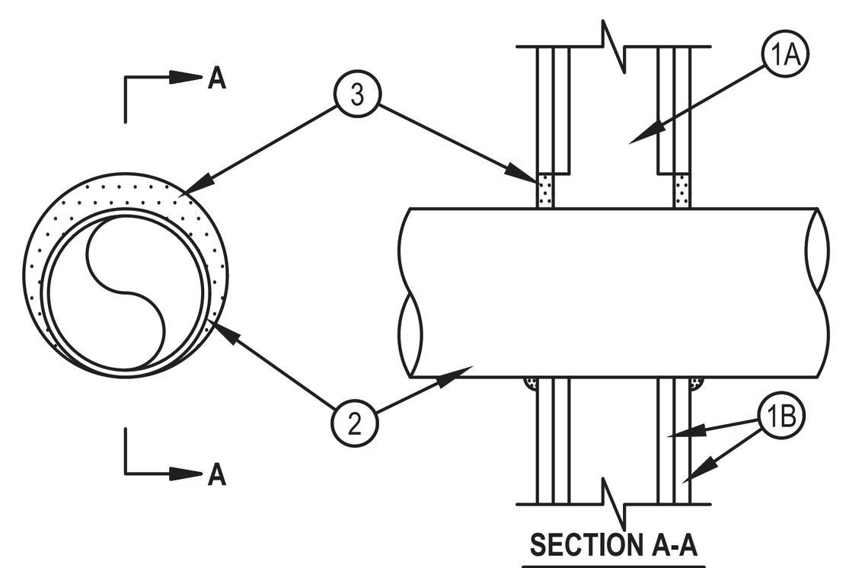
Sheet No.
E504

FIRE STOPPING DETAIL

System No. W-L-1054

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings —1 and 2 Hr (See Items 1 and 3)	F Ratings — 1 and 2 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating at Ambient — Less Than 1 CFM/sq ft	FH Ratings —1 and 2 Hr (See Items 1 and 3)
L Rating at 400 F — Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	FTH Rating — 0 Hr
	L Rating at Ambient — Less Than 1 CFM/sq ft L Rating at 400 F — Less Than 1 CFM/sq ft



SECTION A-A

1. Wall Assembly — The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. (102 to 152 mm) wider and 4 to 6 in. (102 to 152 mm) higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. (51 to 76 mm) clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft (122 cm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. (819 mm) for steel stud walls. Max diam of opening is 14-1/2 in. (368 mm) for wood stud walls.
   The F and FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
2. Through-Penetrants — One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. (57 mm). Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or 6 in. (152 mm) . diam steel conduit.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

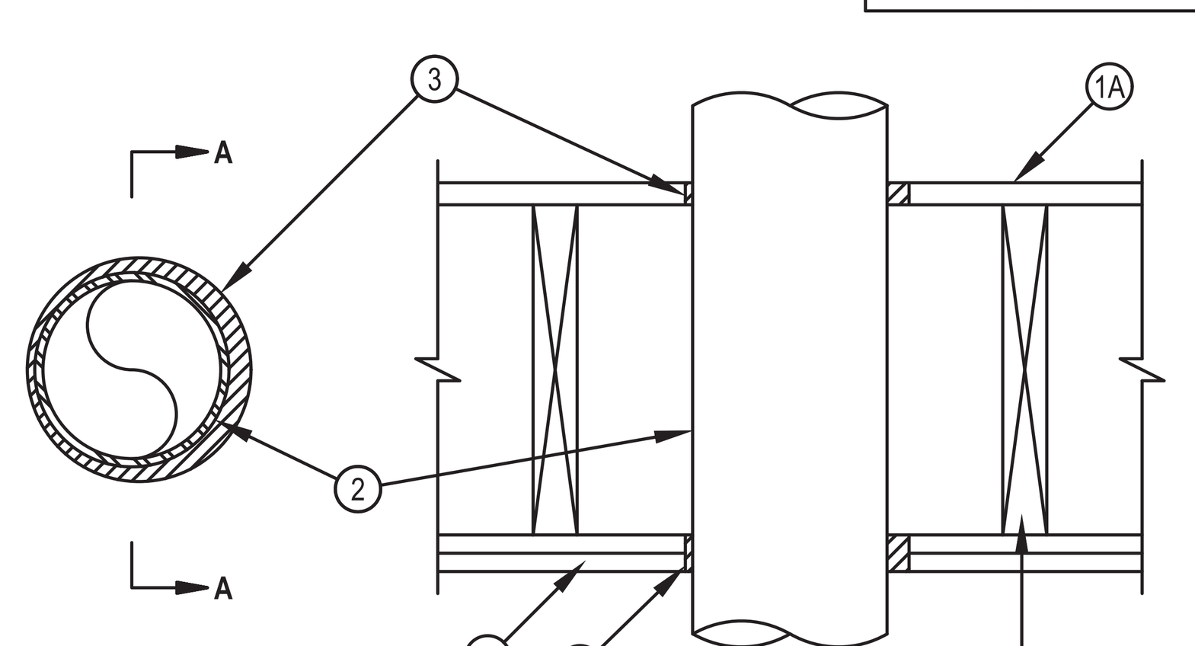
Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 23, 2015

FIRE STOPPING DETAIL

System No. F-C-1059

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr	F Rating — 1 and 2 Hr
T Rating — 1 and 2 Hr	FT Rating — 1 and 2 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 1 and 2 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 1 and 2 Hr
W Rating — Class 1 (See Item 4)	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



SECTION A-A

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The F, FH Rating of the firestop system is equal to the rating of the floor-ceiling and wall assemblies. The T, FT and FTH Rating of the firestop system is 0 hr for 1 hr rated floor ceiling assembly and 1/2 hr for 2 hr rated floor ceiling assembly. The general construction features of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 7-5/8 in. (194 mm).
   B. Wood Joists* — Nom 10 in (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
   C. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Max diam of opening shall be 7-5/8 in. (194 mm).
   D. Furring Channels — (Not Shown) (As required) Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.

1.1 Chase Wall — (Not Shown, Optional)—The through penetrants (Item 2) may be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum wallboard chase wall having a fire rating consistent with that of the floor-ceiling assembly. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features :
   A. Studs — Nom 2 by 8 in. (51 by 203 mm) lumber or double nom 2 by 6 in. (51 by 152 mm) lumber studs.
   B. Sole Plate — Nom 2 by 8 in. (51 by 203 mm) lumber or parallel 2 by 6 in. (51 by 152 mm) lumber plates, tightly butted. Max diam of opening shall be 7-5/8 in. (194 mm).
   C. Top Plate — The double top plate shall consist of two nom 2 by 8 in. (51 by 203 mm) lumber plates or two sets of nom 2 by 6 in. (51 by 152 mm) lumber plates tightly butted. Max diam of opening is 7-5/8 in. (194 mm).
   D. Gypsum Board* — Thickness, type, number or layers and fasteners shall be as specified in individual Wall and Partition Designs.

2. Through Penetrants — One metallic tubing, pipe or conduit to be installed concentrically or eccentrically within the firestop system. Annular space between pipe or conduit and edge of opening to be min 1/4 in. (6 mm) and max 3/4 in. (19 mm). Pipe, tubing or conduit to be rigidly supported on both sides of floor-ceiling assembly. The following types and sizes of metallic pipes, tubing or conduit may be used:
   A. Steel Pipe — Nom 6 in. (152 mm) diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe — Nom 6 in. (152 mm) diam (or smaller) cast or ductile pipe.
   C. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing or nom 6 in. diam (or smaller) steel conduit.
   D. Steel Flexible Metal Conduit + — Nom 2 in. (51 mm) diam (or smaller) steel flexible metal conduit.
      See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Materials Directory for names of manufacturers.

3. Fill, Void or Cavity Material*—Sealant — Min 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness of sealant applied within annular space, flush with the bottom surface of gypsum wallboard or lower top plate for 1 and 2 hr floors respectively. Min. 3/4 in. (19 mm) thickness of sealant applied within annular space, flush with top surface of floor or sole plate.
   HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

+Bearing the UL Listing Mark.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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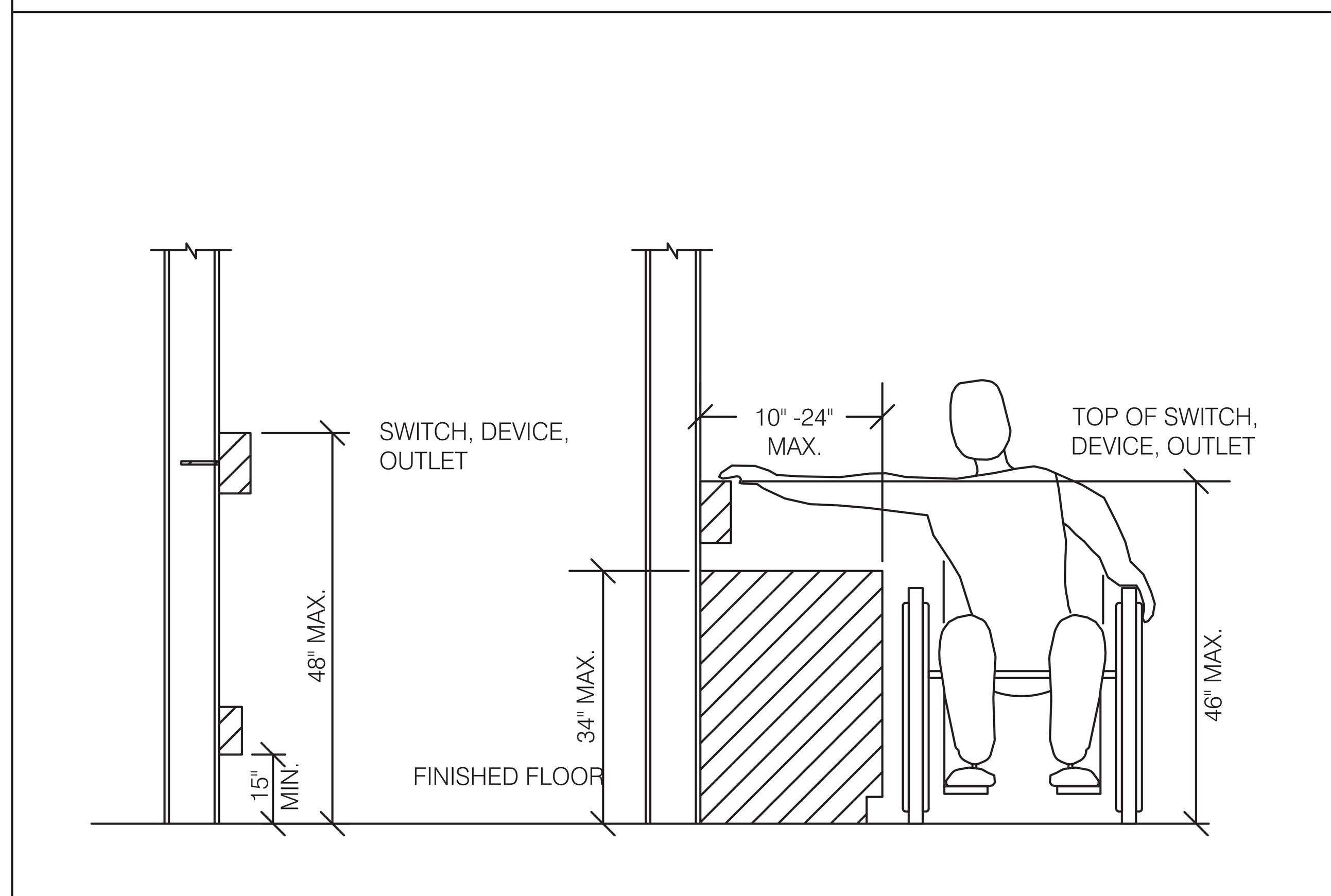
MOUNTING HEIGHT OVER OBSTRUCTION



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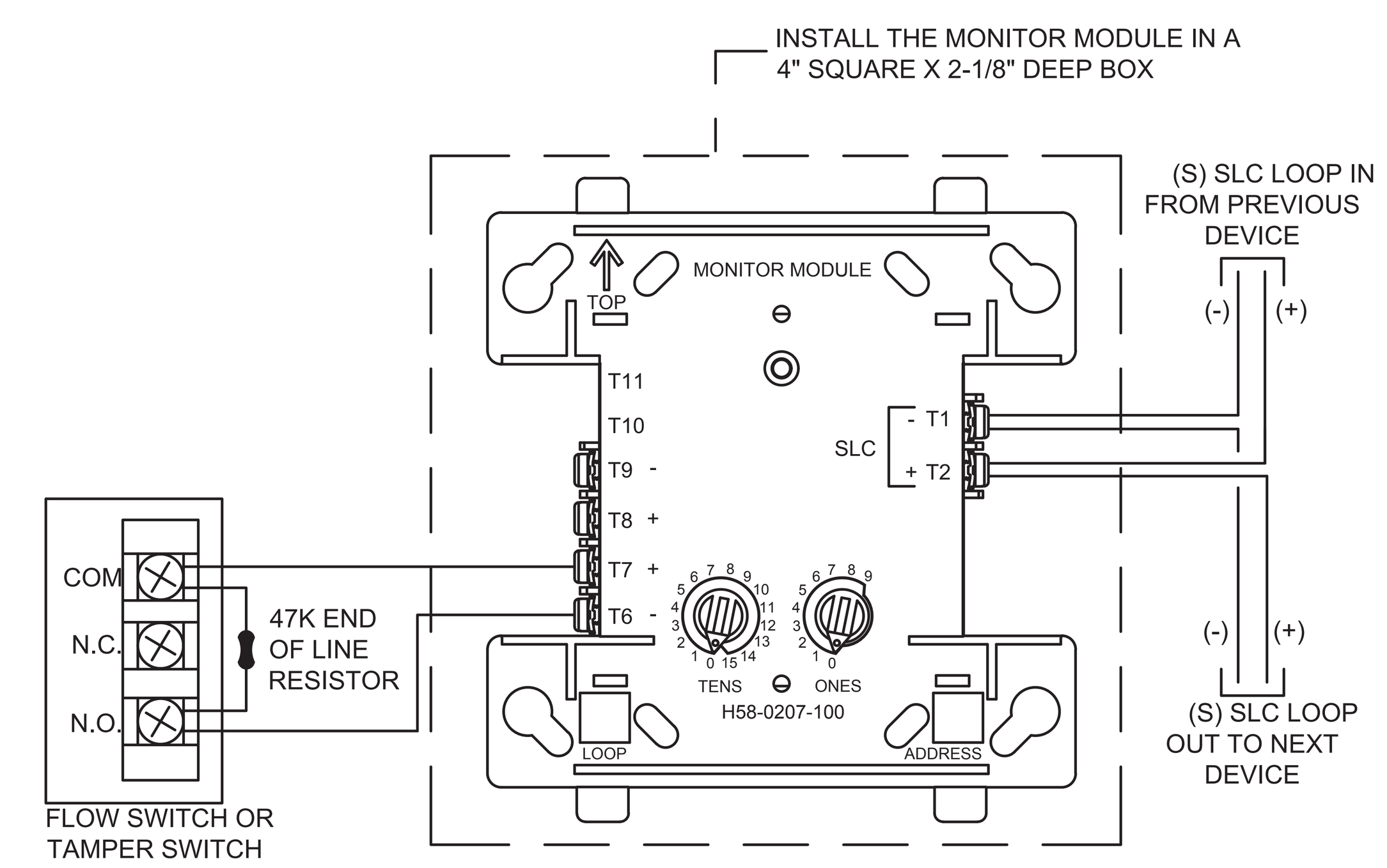
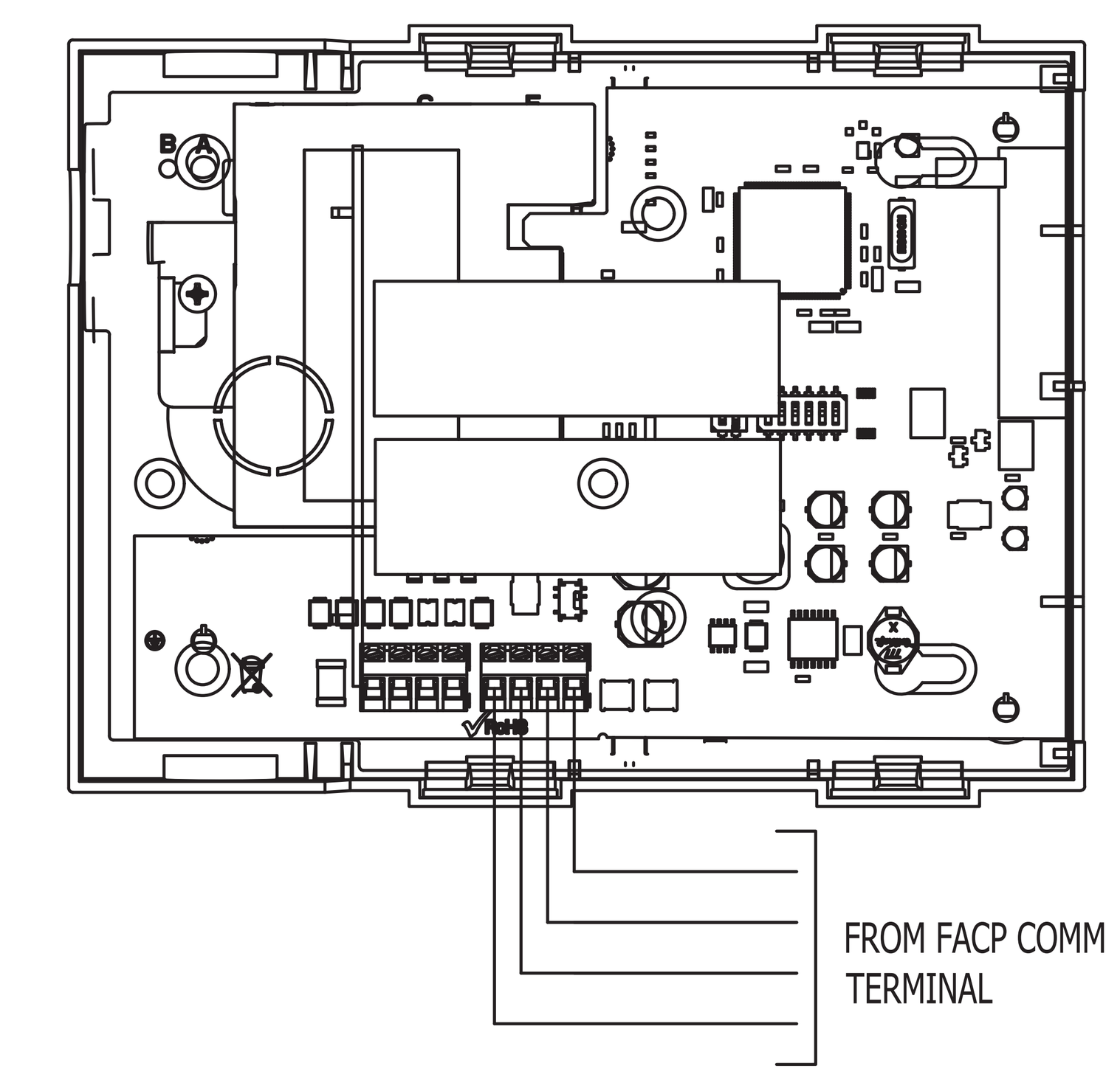
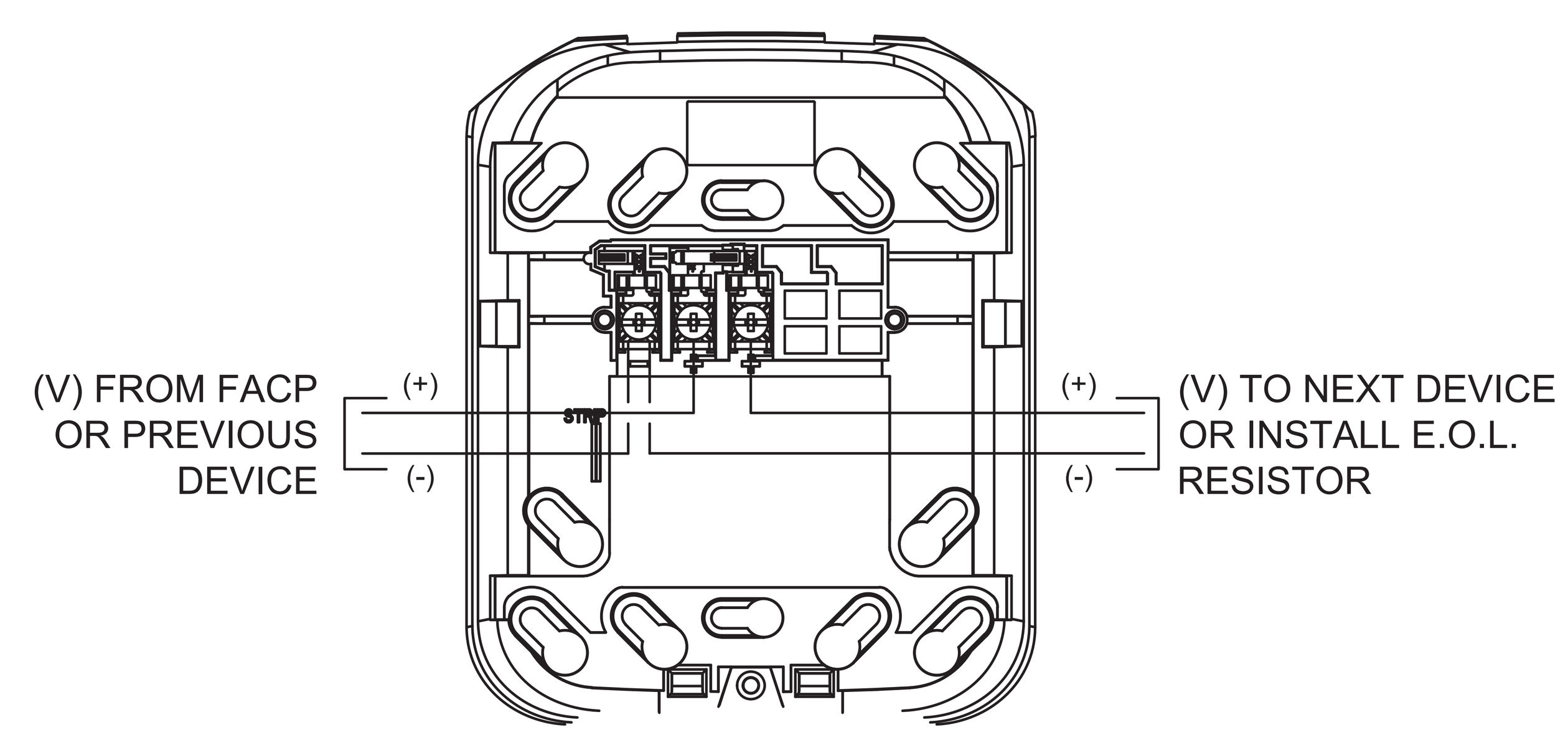


CELLULAR COMMUNICATOR WIRING DETAIL



SYSTEM SENSOR HORN STROBE WIRING DETAIL



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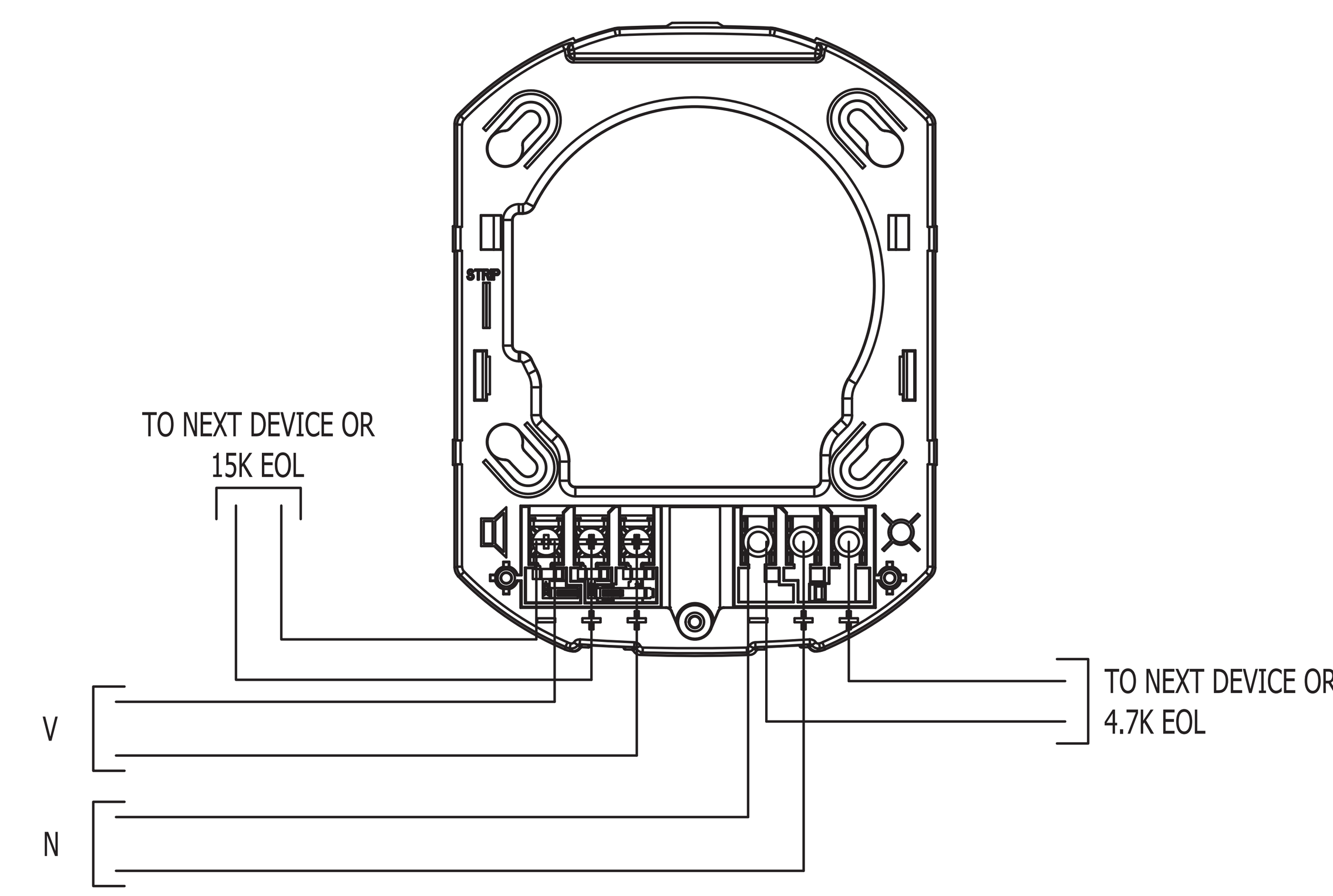

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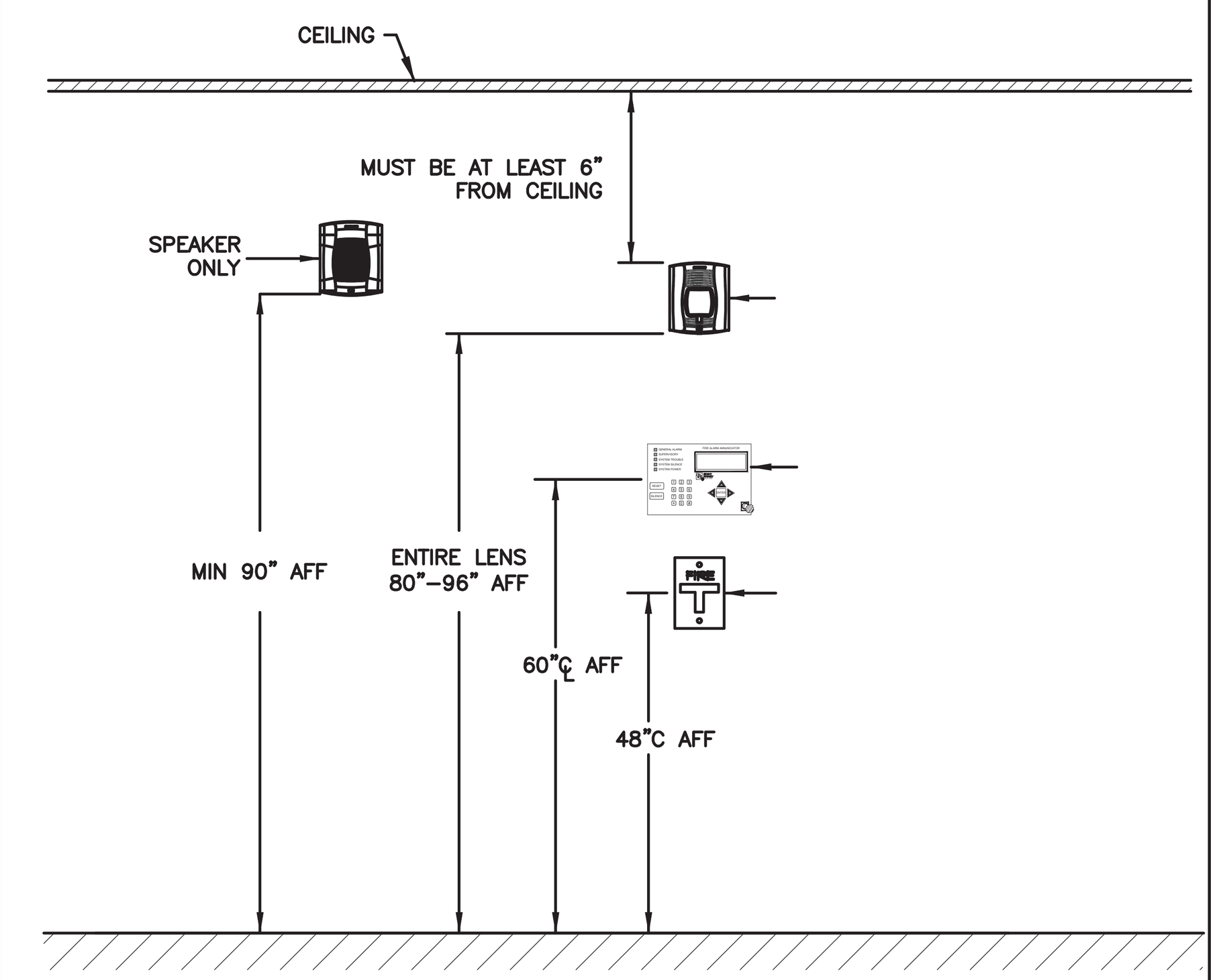

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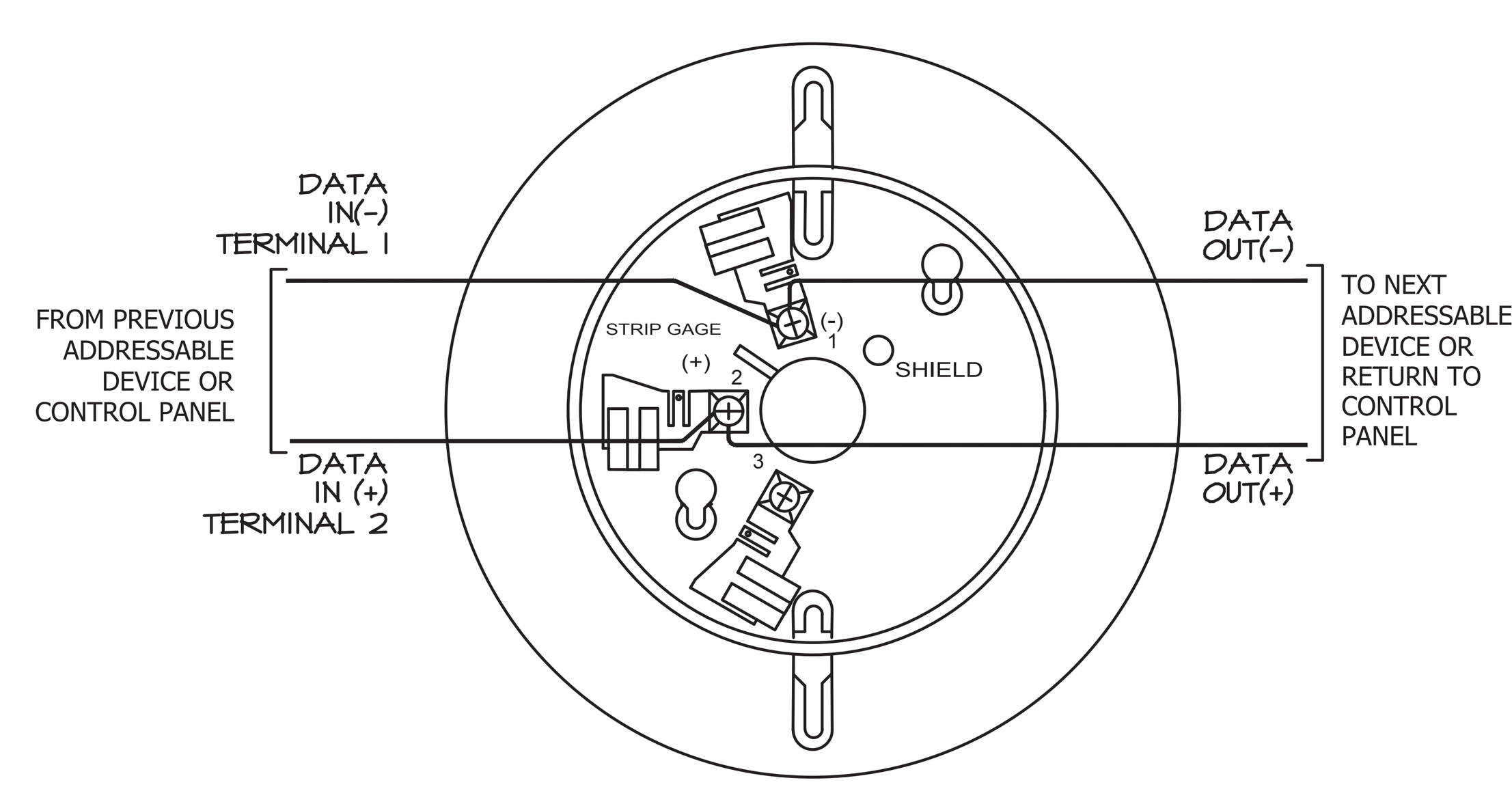
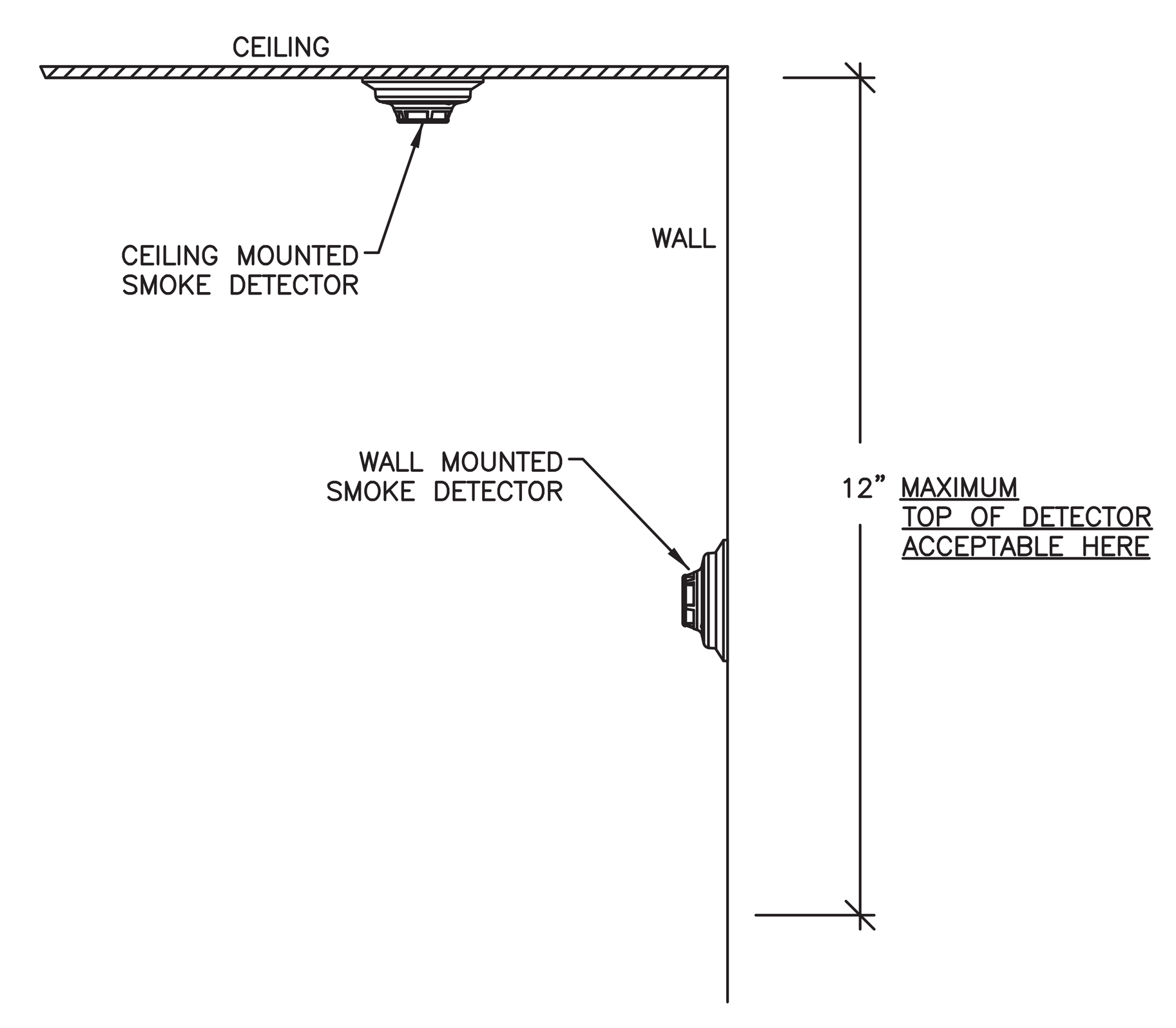


SMOKE DETECTOR MOUNTING DETAIL



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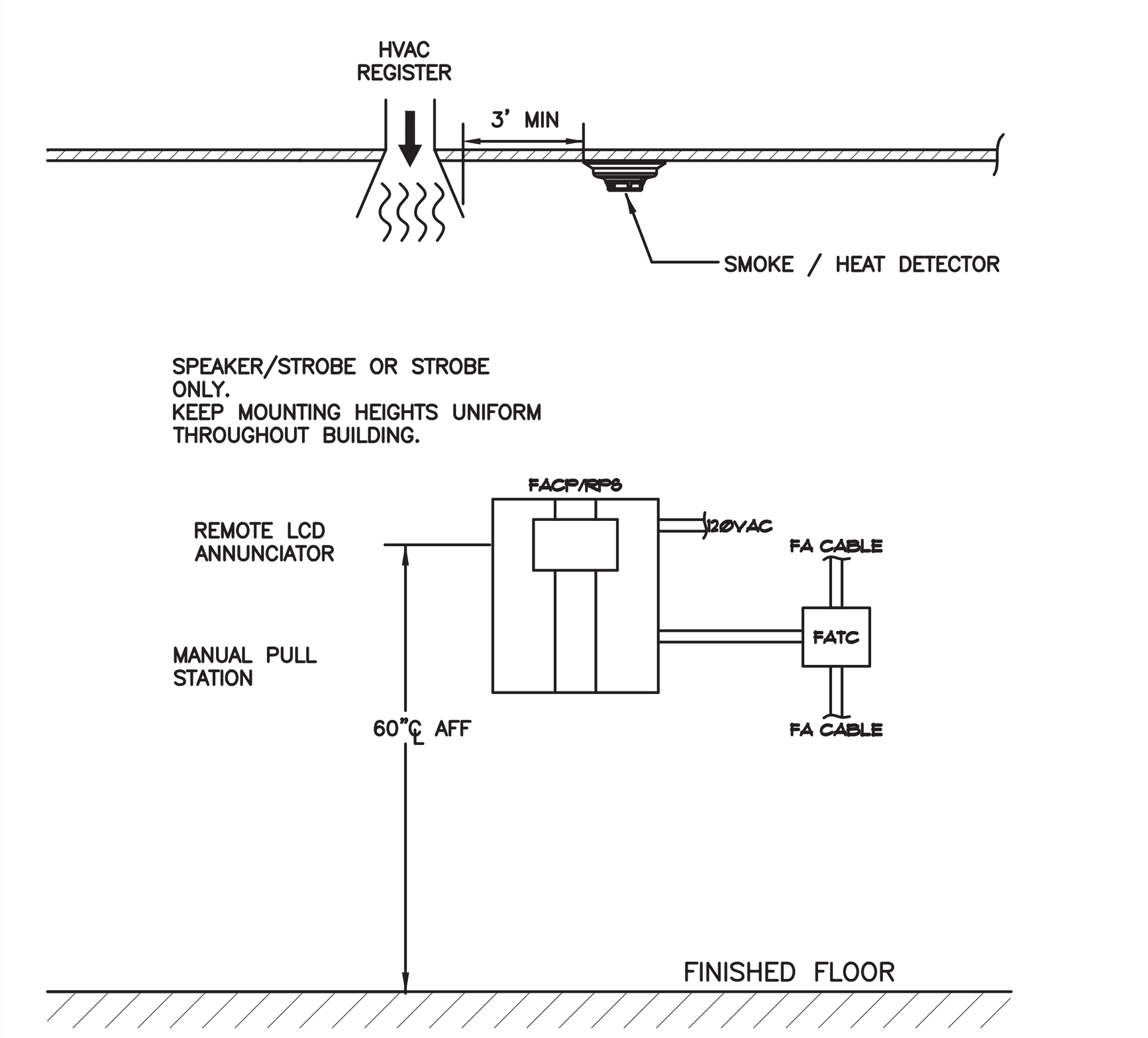

IDENTIFICATION STAMP
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APP: 03-121326 INC:
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LUCCI & ASSOCIATES INC.
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REGISTERED PROFESSIONAL ENGINEER KENNETH W. LUCCI No. E 8340 Exp. 09/30/2022 ELECTRICAL STATE OF CALIFORNIA

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FIRE ALARM DETAIL SHEET

Revisions	
R&A No:	A162002
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OXNARD, CALIFORNIA 93033

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THIS SHEET WAS ORIGINALLY PRINTED ON A 24"x36" SHEET.

Drafter:CM02 Paper Size: 12,9
Drawing:G:\20\120\EL\Sheets\20-120E510.dwg
Apr 19, 2021, 12:18pm
Attached XREFS:
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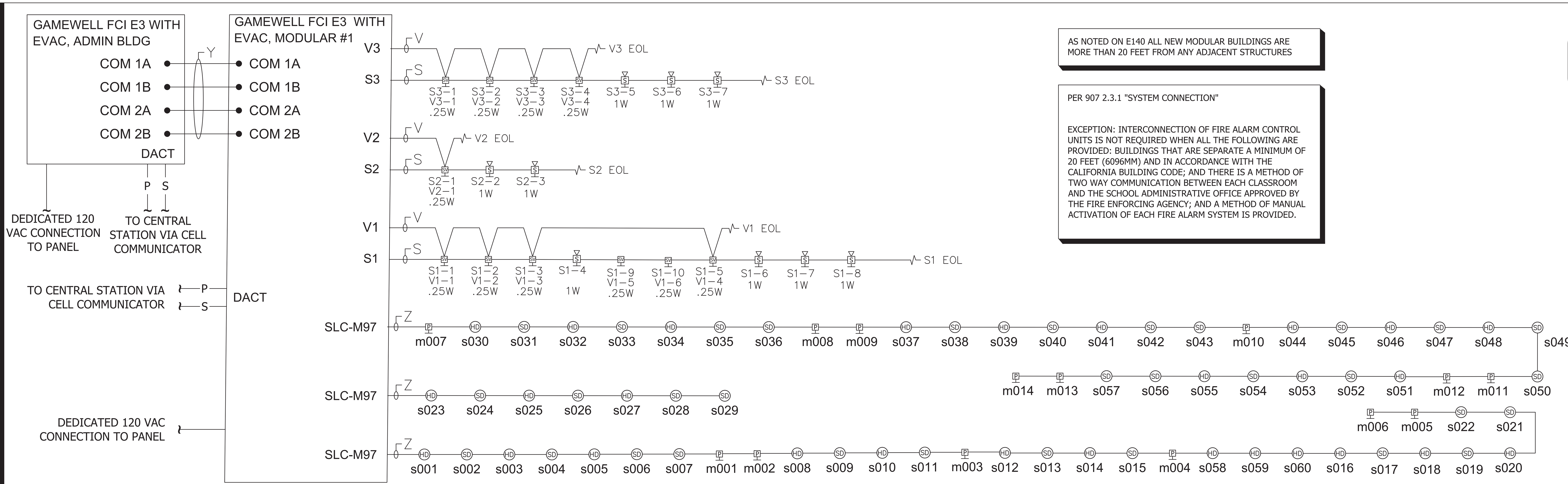
XREF: G:\20\120\AR\Xrefs\24x36 - TB - NO STAMP Oxnard College.DWG



AS NOTED ON E140 ALL NEW MODULAR BUILDINGS ARE MORE THAN 20 FEET FROM ANY ADJACENT STRUCTURES

PER 907 2.3.1 "SYSTEM CONNECTION"

EXCEPTION: INTERCONNECTION OF FIRE ALARM CONTROL UNITS IS NOT REQUIRED WHEN ALL THE FOLLOWING ARE PROVIDED: BUILDINGS THAT ARE SEPARATE A MINIMUM OF 20 FEET (6096MM) AND IN ACCORDANCE WITH THE CALIFORNIA BUILDING CODE; AND THERE IS A METHOD OF TWO WAY COMMUNICATION BETWEEN EACH CLASSROOM AND THE SCHOOL ADMINISTRATIVE OFFICE APPROVED BY THE FIRE ENFORCING AGENCY; AND A METHOD OF MANUAL ACTIVATION OF EACH FIRE ALARM SYSTEM IS PROVIDED.

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-121326 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 05/03/2021

VOLTAGE DROP CALCULATIONS - VISUAL APPLIANCE CIRCUITS

PANEL ID	CKT #	15cd STROBE 0.043 QTY.	AMP	30cd STROBE 0.063 QTY.	AMP	75cd STROBE 0.107 QTY.	AMP	110cd STROBE 0.148 QTY.	AMP	15cd HORN-STROBE 0.054 QTY.	AMP	30cd HORN-STROBE 0.071 QTY.	AMP	75cd HORN-STROBE 0.137 QTY.	AMP	110cd HORN-STROBE 0.185 QTY.	AMP	- 0.000 QTY.	AMP	(I) TOTAL CURRENT	x	LENGTH FT.	x	21.6	÷	CIR MILS 14awg	=	VOLTS DROPPED	÷	24(V)	x	100	% VOLTAGE DROP
RPS	S1		0.000	2	0.126		0.000		0.000		0.000		0.000	2	0.274	2	0.370		0.000	0.770	x	350	x	21.6	x	4110	=	1.416	÷	24	x	100	**5.9**
RPS	S2		0.000		0.000		0.000		0.000		0.000		0.000		0.000	1	0.185		0.000	0.185	x	140	x	21.6	x	4110	=	0.136	÷	24	x	100	**0.6**
RPS	S3		0.000		0.000		0.000		0.000		0.000		0.000		0.000	4	0.740		0.000	0.740	x	500	x	21.6	x	4110	=	1.945	÷	24	x	100	**8.1**

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 - SPEAKER APPLIANCE CIRCUITS

PANEL ID	CKT #	1/4 WATT 0.017 QTY.	AMP	1/2 WATT 0.034 QTY.	AMP	1 WATT 0.068 QTY.	AMP	2 WATT 0.132 QTY.	AMP	- 0.000 QTY.	AMP	- 0.000 QTY.	AMP	- 0.000 QTY.	AMP	- 0.000 QTY.	AMP	- 0.000 QTY.	AMP	(I) TOTAL CURRENT	x	LENGTH FT.	x	21.6	÷	CIR MILS 14awg	=	VOLTS DROPPED	÷	24(V)	x	100	% VOLTAGE DROP
AMP	V1	5	0.085		0.000	1	0.068		0.000		0.000		0.000		0.000		0.000		0.000	0.153	x	350	x	21.6	x	2580	=	0.448	÷	24	x	100	**1.9**
AMP	V2	1	0.017		0.000	1	0.068		0.000		0.000		0.000		0.000		0.000		0.000	0.085	x	140	x	21.6	x	2580	=	0.100	÷	24	x	100	**0.4**
AMP	V3	4	0.068		0.000	1	0.068		0.000		0.000		0.000		0.000		0.000		0.000	0.136	x	500	x	21.6	x	2580	=	0.569	÷	24	x	100	**2.4**

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

FCI E3
Version 04.16.18

Global Project Values:
Project Name:
Project ID:
Prepared By:
Date:
Standby Hours: 24
Alarm Mins: 15
Derating Factor: 1.2
Voltage Drop Warning Threshold % : 10

Panel ID: FACP - MODULARS
Location:
Model: IFP-300/ECS Fire Alarm Control Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 6.0 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
FCI-E3	Fire Alarm Control Unit	1	0.190	0.250	#REF!					
MS-7AF	Smoke detector	16	0.0048	0.0048						
ASD-LS3	Fire-CO detector	32	0.0096	0.2304						
ATD-L3H	Heat detector	28	0.0084	0.0084						
NAC #1	Notification Appl Circuit	cfg.	0.000	0.644	#12 Solid	1.59		0.00	20.40	0.00%
NAC #2	Notification Appl Circuit	cfg.	0.000	0.185	#12 Solid	1.59		0.00	20.40	0.00%
NAC #3	Notification Appl Circuit	cfg.	0.000	0.740	#12 Solid	1.59		0.00	20.40	0.00%
NAC #4	Notification Appl Circuit	cfg.	0.000	0.000	#12 Solid	1.59		0.00	20.40	0.00%
	Total Standby Current (Amps)		0.213	2.063	Total Alarm Current (Amps)					
	Standby Time In Hours		24	0.250	Alarm Time In Minutes / 60 (15 Mins)					
	Total Standby AH Required		5.107	0.516	Total Alarm AH Required					
	Total Combined AH Required		5.62							
	Multiply By The Derating Factor		1.20							
	Minimum Battery AmpHours Required		**6.75**							
	Battery size to be supplied		**18 Ah**							

Configure Circuits
Print Page

FCI E3
Version 04.16.18

Global Project Values:
Project Name:
Project ID:
Prepared By:
Date:
Standby Hours: 24
Alarm Mins: 15
Derating Factor: 1.2
Voltage Drop Warning Threshold % : 10

Panel ID: FACP ADMIN
Location: FRONT DESK ADMIN
Model: IFP-300/ECS Fire Alarm Control Panel
Volts: 24 VDC
Max NAC Current: 3.0 Amps
Max Panel Current: 6.0 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
FCI-E3	Fire Alarm Control Unit	1	0.190	0.250	#REF!					
					#12 Solid (Amps)					
					Alarm Time In Minutes / 60 (15 Mins)					
	Total Standby Current (Amps)		0.190	0.250	Total Alarm AH Required					
	Standby Time In Hours		24	0.250						
	Total Standby AH Required		4.560	0.063						
	Total Combined AH Required		4.62							
	Multiply By The Derating Factor		1.20							
	Minimum Battery AmpHours Required		**5.55**							
	Battery size to be supplied		**18 Ah**							

Configure Circuits
Print Page

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REGISTERED PROFESSIONAL ENGINEER
KENNETH W. LUCCI
Exp. 09/30/2022
ELECTRICAL
STATE OF CALIFORNIA

RASMUSSEN & ASSOCIATES
Architecture
Planning
Interiors
21 S. California Street
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Ventura, California 93001
(805) 648-1234

FIRE ALARM RISER DIAGRAM, VOLTAGE DROP, AND BATTERY CALCULATION

Revisions

R&A No. A162002
Date: 4/19/2021
Drawn: LK/DS
Checked: KL
Consult. No:

ART/DESIGN COMPLEX MODULAR CLASSROOMS

OXNARD COLLEGE
4000 SOUTH ROSE AVENUE
OXNARD, CALIFORNIA 93033

Sheet No.
E511

DRAFTER: CM02
DRAWING FILENAME: 20-120E511
PATHNAME: G:\20\120\EL\Sheets
DATE: 19 April 2021
TIME: 12:18 pm
PLOTTED: 12:18 PM
FILE PATH & NAME: G:\20\120\EL\SHEETS\20-120E511.DWG
THIS SHEET WAS ORIGINALLY PRINTED ON A 24"x36" SHEET.