

ABBREVIATIONS table listing electrical symbols and their corresponding terms such as AMP, AMPERES, ALTERNATING CURRENT, etc.

GENERAL ELECTRICAL NOTES section containing various instructions and regulations regarding electrical work, including notes on drawings, permits, and materials.

Continuation of GENERAL ELECTRICAL NOTES, detailing specific requirements for conduit, raceway, and equipment installation.

ELECTRICAL SYMBOL LIST

ANNOTATIONS & CALLOUTS section defining symbols for electrical fixtures, conduits, and wiring.

CONDUIT & WIRING SYMBOLS section defining symbols for various types of conduits and wiring configurations.

LIGHTING FIXTURE SYMBOLS section defining symbols for different lighting fixtures and their mounting options.

CIRCUIT BREAKERS AND FUSES section defining symbols for various types of circuit breakers and fuses.

VOICE/DATA SYSTEM section defining symbols for communication system components.

FIRE ALARM SYMBOLS section defining symbols for fire alarm system components.

POWER section defining symbols for power distribution and control components.

SWITCHES section defining symbols for various types of electrical switches.

Continuation of SWITCHES section, detailing specific switch types and ratings.

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U.L. STANDARD 486B TORQUING RECOMMENDATIONS

Table providing torque specifications for various wire sizes and conductor configurations, including columns for wire size, torque, and conductor type.

Textual notes explaining the torque recommendations and providing additional safety instructions.

CBC ART. 310 CONDUCTOR DERATING

Table detailing conductor derating factors based on ambient temperature and number of conductors.

Textual notes regarding conductor derating and installation requirements.

CBC WIRE FILL TABLE 370-16

Table showing wire fill capacities for various conduit and raceway types, including columns for conduit size, wire size, and number of wires.

APPLICABLE CODES AND REGULATIONS

Table listing applicable codes and regulations, such as California Code of Regulations (C.C.R.), National Fire Protection Association (NFPA) standards, and International Building Code (IBC).

SHEET INDEX

Table listing the sheet index, including sheet numbers and descriptions of the content on each sheet.

AGENCY INFORMATION section containing project details, contact information for Bessie Owens E.S. Temporary Modular Buildings, and a large 'E100' graphic.

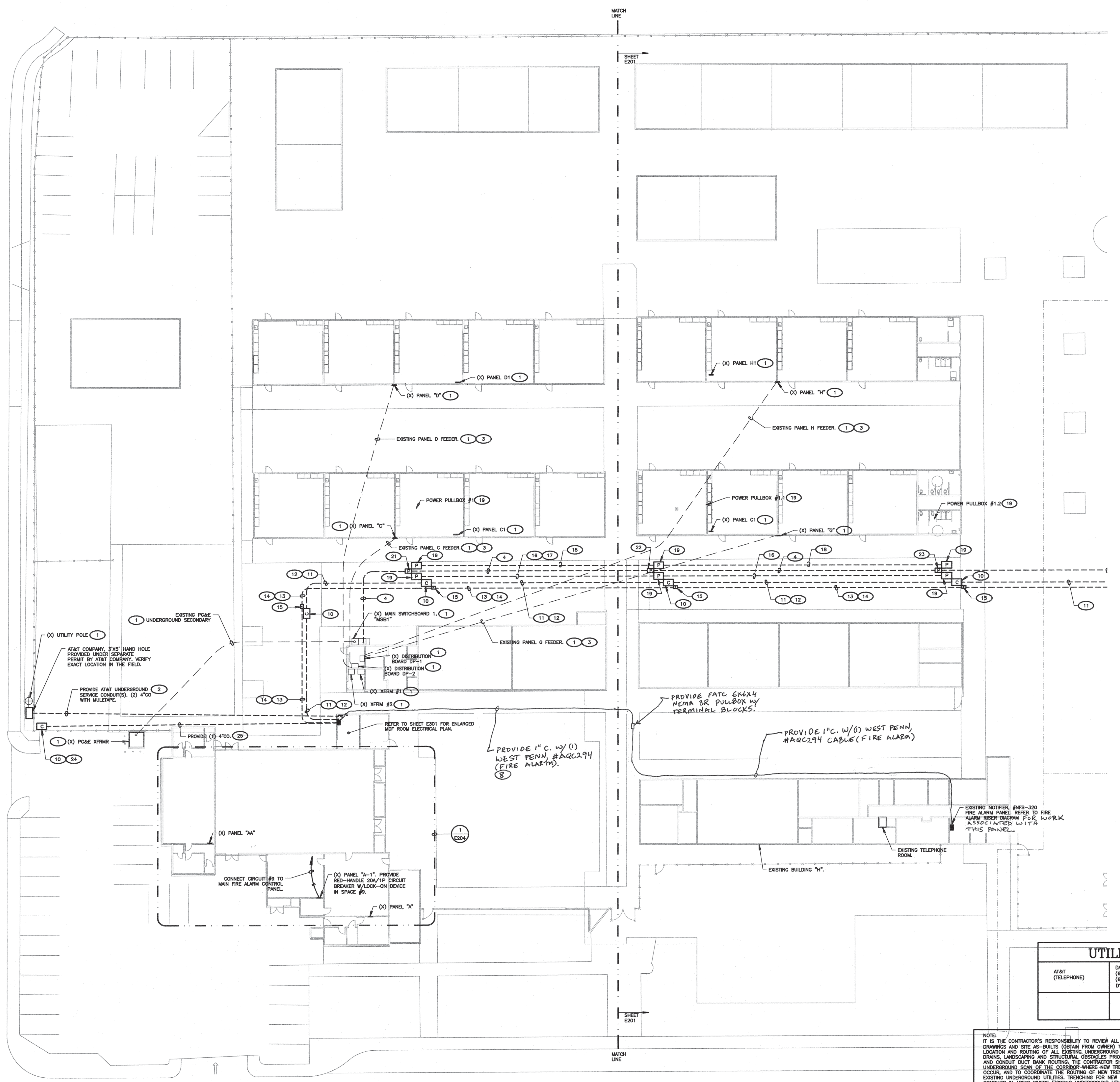
CONSTRUCTION DOCUMENTS

SHEET NOTES

- CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT AT 811 TO LOCATE UNDERGROUND UTILITIES AT LEAST 2 WORKING DAYS PRIOR TO DIGGING. CONTRACTOR SHALL FIELD VERIFY LOCATION AND DEPTH OF EXISTING IMPROVEMENTS PRIOR TO START OF CONSTRUCTION.
- VERIFY LOCATION OF ALL BUILDINGS AND APPENDICES ON ARCHITECTURAL AND CIVIL PLANS.
- FIELD VERIFY LOCATION ON ALL UNDERGROUND UTILITIES PRIOR TO TRENCHING. SCHEDULE AND COORDINATE ALL SITE WORK WITH OWNER PRIOR TO ANY TRENCHING.
- CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES/EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN, AND FINISH.
- CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUIT & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWINGS. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
- ALL 90 DEGREE CONDUIT BENDS AND RISERS SHALL BE PVC COATED RIGID STEEL.
- CONTRACTOR SHALL COORDINATE AND PROVIDE ALL SITE ELECTRICAL SERVICE REQUIREMENTS WITH SERVING UTILITY.
- ALL SERVICE ENTRANCE EQUIPMENT SHOP DRAWINGS SHALL BE SUBMITTED TO THE LOCAL UTILITY COMPANY FOR APPROVAL, WITH WRITTEN APPROVAL RECEIVED PRIOR TO SUBMISSION TO ELECTRICAL ENGINEER FOR APPROVAL.
- VERIFY LOCATION OF ALL EQUIPMENT ON ARCHITECTURAL AND CIVIL PLANS.
- MINIMUM CONDUIT BURIAL DEPTH IS 24", 36" MINIMUM BELOW STREETS AND PARKING LOTS, FOR 0-600 VOLT SYSTEMS.
- PROVIDE CODE SIZED EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
- 1" CONDUIT MINIMUM UNDERGROUND.
- COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED, WHETHER SHOWN ON THE ELECTRICAL DRAWINGS OR NOT.
- CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUIT MANUFACTURER'S RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE, AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
- FIELD CONDITIONS GOVERN DEMOLITION AND NEW CONSTRUCTION. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS PRIOR TO START OF WORK. THE ARCHITECT/ENGINEER SHALL BE NOTIFIED OF POSSIBLE FIELD PROBLEMS PRIOR TO DEMOLITION. CONTRACTOR SHALL NOTIFY DISTRICT REPRESENTATIVE OF WORK BEING PERFORMED. COORDINATE WITH DISTRICT REPRESENTATIVE.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH DIMENSIONED NYLON PULL STRING.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR TRENCHING. CONTRACTOR SHALL PROTECT ALL EXISTING/REMAINING UTILITIES IN PLACE. CONTRACTOR, AT HIS SOLE EXPENSE, SHALL REPAIR ANY UTILITY SYSTEMS DAMAGED DURING CONSTRUCTION.
- VERIFY AND PROVIDE ALL UTILITY SYSTEMS PER SERVING UTILITY STANDARD REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE CONCRETE ENCASUREMENT AT ALL VERIZON COMPANY CONDUIT BENDS PER VERIZON COMPANY REQUIREMENTS.

KEY NOTES

- (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
- PROTECT IN PLACE.
 - VERIFY & PROVIDE PER UTILITY COMPANY REQUIREMENTS. SHOWN DIAGRAMATIC. EXACT ROUTING IS UNKNOWN.
 - REFER TO PROPOSED SINGLE LINE DIAGRAM FOR FEEDER INFORMATION.
 - REFER TO PROPOSED SINGLE LINE DIAGRAM.
 - PROVIDE 10"x17" TRAFFIC RATED PULLBOX WITH STEEL CHECKERED PLATE COVER ENGRAVED WITH "FIRE ALARM", #B101780X, WITH #B1017-51H COVER BY, CHRISTY CONCRETE.
 - PROVIDE 17"x30" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "COMMUNICATION", #B173080X WITH #B1730-51H COVER BY, CHRISTY CONCRETE.
 - ROUTE ON TOP OF COVERED WALKWAY.
 - ROUTE ALONG SIDE EXISTING BANK OF CONDUITS.
 - PROVIDE 24"x36" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "COMMUNICATION", #B243680X WITH #B2436-51H COVER BY, CHRISTY CONCRETE.
 - PROVIDE 3" W/(3) 12 STRAND MULTIMODE FIBER & (5) 12-PAR 24 AWG. PROVIDE 3" CO (SPARE).
 - PROVIDE (3) 3" CO (SPARE) COMMUNICATIONS.
 - PROVIDE 2" W/(3) WEST PENN. #ACC284 CABLES (2) 1A 2 FOR ANNUNCIATOR & (1) #ACC285 CABLE(1A) & (1) #ACC227 (POWER ANNUNCIATOR).
 - PROVIDE (4) 2" CO (SPARE) FIRE ALARM.
 - PROVIDE 17"x30" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "FIRE ALARM", #B173080X WITH #B1730-51H COVER BY, CHRISTY CONCRETE.
 - PROVIDE (4) 3" CO (SPARE FOR FUTURE K1,K2,K3, & K4).
 - PROVIDE (4) 2" CO (SPARE FOR (4) CLASSROOM BLDG. ROOF PANELS).
 - PROVIDE (8) 3" CO (SPARE FOR FUTURE 21 CLASSROOMS).
 - PROVIDE 30"x48" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "ELECTRIC", #B304880X WITH #B3048-51H COVER BY, CHRISTY CONCRETE.
 - PROVIDE (2) 2" CO (SPARE) FIRE ALARM.
 - POWER PULLBOX #1. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 - POWER PULLBOX #1.1. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 - POWER PULLBOX #1.2. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 - COORDINATE EXACT LOCATION WITH BCSD PRIOR TO ROUGH-IN.
 - STUB-UP AT MAIN TELEPHONE BACKBOARD LOCATION.



UTILITY CONTACTS

AT&T (TELEPHONE)	DALE YOUNGBLOOD (861) 546-8252 (OFFICE) (861) 330-4274 (CELL) DY2482@ATT.COM (E-MAIL)
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NOTE:
IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CIVIL ENGINEERING DRAWINGS AND SITE AS-BUILTS (OBTAIN FROM OWNER) TO IDENTIFY THE LOCATION AND ROUTING OF ALL EXISTING UNDERGROUND UTILITIES, METERS, DRAINS, LANDSCAPING AND STRUCTURAL OBSTACLES PRIOR TO TRENCHING AND CONDUIT DUCT BANK ROUTING. THE CONTRACTOR SHALL CONDUCT AN UNDERGROUND SCAN OF THE CONSTRUCTION WHERE NEW TRENCHING SHALL OCCUR, AND TO COORDINATE THE ROUTING OF NEW TRENCHING IN AREAS OF EXISTING UNDERGROUND UTILITIES. TRENCHING FOR NEW UNDERGROUND CONDUITS IN AREAS WHERE EXISTING UNDERGROUND UTILITIES ARE PRESENT, WHETHER SHOWN ON THESE PLANS OR NOT, SHALL BE EXCAVATED BY HAND AND WITH EXTREME CAUTION SO AS NOT TO DISTURB EXISTING UTILITIES. CONTRACTOR SHALL PROMPTLY REPAIR DAMAGE TO OWNER'S SATISFACTION. UNDERGROUND POWER AND COMMUNICATION PULL BOXES WHERE SHOWN ON THE SITE PLAN TO BE RELOCATED TO A POSITION AS CLOSE AS POSSIBLE TO THE LOCATION SHOWN ON THE DRAWING. CONTRACTOR SHALL PROMPTLY NOTIFY OWNER IF ANY EXISTING UTILITY OR IRRIGATION LINE IS DAMAGED, AND SHALL PROMPTLY REPAIR DAMAGE TO OWNER'S SATISFACTION.



AGENCY INFORMATION:

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FILE NO.

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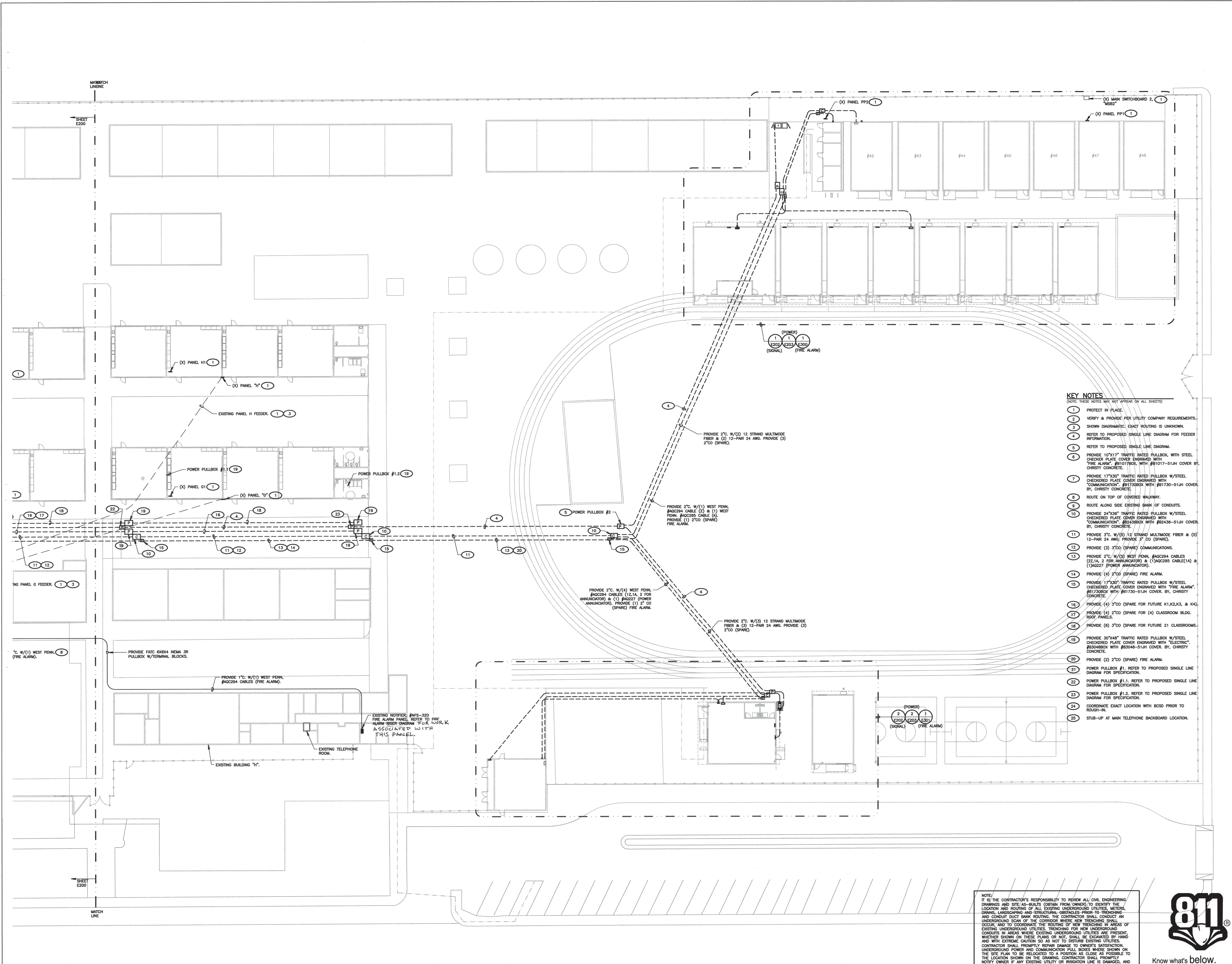
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PROJECT NO: 118932
DRAWN BY: V.Z.
CHKD BY: D.F.
ISSUE DATE: 8/19/2019
SHEET TITLE

PARTIAL SITE ELECTRICAL PLAN (WEST)

SHEET NUMBER

E200

CONSTRUCTION DOCUMENTS



- KEY NOTES**
 (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
1. PROTECT IN PLACE.
 2. VERIFY & PROVIDE PER UTILITY COMPANY REQUIREMENTS.
 3. SHOWN DIAGRAMATIC. EXACT ROUTING IS UNKNOWN.
 4. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR FEEDER INFORMATION.
 5. REFER TO PROPOSED SINGLE LINE DIAGRAM.
 6. PROVIDE 10"x17" TRAFFIC RATED PULLBOX WITH STEEL CHECKER PLATE COVER ENGRAVED WITH "FIRE ALARM", #81730BOX WITH #81730-51.H COVER BY, CHRISTY CONCRETE.
 7. PROVIDE 17"x30" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "COMMUNICATION", #81730BOX WITH #81730-51.H COVER BY, CHRISTY CONCRETE.
 8. ROUTE ON TOP OF COVERED WALKWAY.
 9. ROUTE ALONG SIDE EXISTING BANK OF CONDUITS.
 10. PROVIDE 24"x36" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "COMMUNICATION", #82436BOX WITH #82436-51.H COVER BY, CHRISTY CONCRETE.
 11. PROVIDE 3" C, W/6) 12 STRAND MULTIMODE FIBER & (5) 12-PAR 24 AWG. PROVIDE 3" CO (SPARE).
 12. PROVIDE (3) 2" CO (SPARE) COMMUNICATIONS.
 13. PROVIDE 2" C, W/3) WEST PENN. #40224 CABLES (2) 12.1A, 2 FOR ANNUNCIATOR) & (1) #40227 (POWER ANNUNCIATOR). PROVIDE (1) 2" CO (SPARE) FIRE ALARM.
 14. PROVIDE (4) 2" CO (SPARE) FIRE ALARM.
 15. PROVIDE 17"x30" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "FIRE ALARM", #81730BOX WITH #81730-51.H COVER BY, CHRISTY CONCRETE.
 16. PROVIDE (4) 3" CO (SPARE FOR FUTURE K1,K2,K3, & K4).
 17. PROVIDE (4) 2" CO (SPARE FOR (4) CLASSROOM BLDG. ROOF PANELS).
 18. PROVIDE (8) 3" CO (SPARE FOR FUTURE 21 CLASSROOMS).
 19. PROVIDE 30"x48" TRAFFIC RATED PULLBOX W/STEEL CHECKERED PLATE COVER ENGRAVED WITH "ELECTRIC", #83048BOX WITH #83048-51.H COVER BY, CHRISTY CONCRETE.
 20. PROVIDE (2) 2" CO (SPARE) FIRE ALARM.
 21. POWER PULLBOX #1. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 22. POWER PULLBOX #1.1. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 23. POWER PULLBOX #1.2. REFER TO PROPOSED SINGLE LINE DIAGRAM FOR SPECIFICATION.
 24. COORDINATE EXACT LOCATION WITH BCSD PRIOR TO ROUGH-IN.
 25. STUB-UP AT MAIN TELEPHONE BACKBOARD LOCATION.

NOTE:
 IT IS THE CONTRACTOR'S RESPONSIBILITY TO REVIEW ALL CIVIL ENGINEERING DRAWINGS AND SITE AS-BUILTS (OBTAIN FROM OWNER) TO IDENTIFY THE LOCATION AND ROUTING OF ALL EXISTING UNDERGROUND UTILITIES, METERS, DRAINS, LANDSCAPING AND STRUCTURAL OBSTACLES PRIOR TO TRENCHING AND CONDUIT BANK ROUTING. THE CONTRACTOR SHALL CONDUCT AN UNDERGROUND SCAN OF THE CORRIDOR WHERE NEW TRENCHING SHALL OCCUR, AND TO COORDINATE THE ROUTING OF NEW UNDERGROUND UTILITIES WITH EXISTING UNDERGROUND UTILITIES. TRENCHING FOR NEW UNDERGROUND CONDUITS IN AREAS WHERE EXISTING UNDERGROUND UTILITIES ARE PRESENT, WHETHER SHOWN ON THESE PLANS OR NOT, SHALL BE LOCATED BY HAND AND WITH EXTREME CAUTION SO AS NOT TO DISTURB EXISTING UTILITIES. CONTRACTOR SHALL PROMPTLY REPAIR DAMAGE TO OWNER'S SATISFACTION. UNDERGROUND POWER AND COMMUNICATION PULL BOXES WHERE SHOWN ON THE SITE PLAN TO BE RELOCATED TO A POSITION AS CLOSE AS POSSIBLE TO THE LOCATION SHOWN ON THE DRAWING. CONTRACTOR SHALL PROMPTLY NOTIFY OWNER IF ANY EXISTING UTILITY OR OBSTACLE IS DAMAGED, AND SHALL PROMPTLY REPAIR DAMAGE TO OWNER'S SATISFACTION.

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OPSC or OSHPD PROJ. NO. N/A
 PROJECT NO. 118932
 DRAWN BY: V.Z.
 CHK'D BY: D.F.
 ISSUE DATE: 8/19/2019
 SHEET TITLE

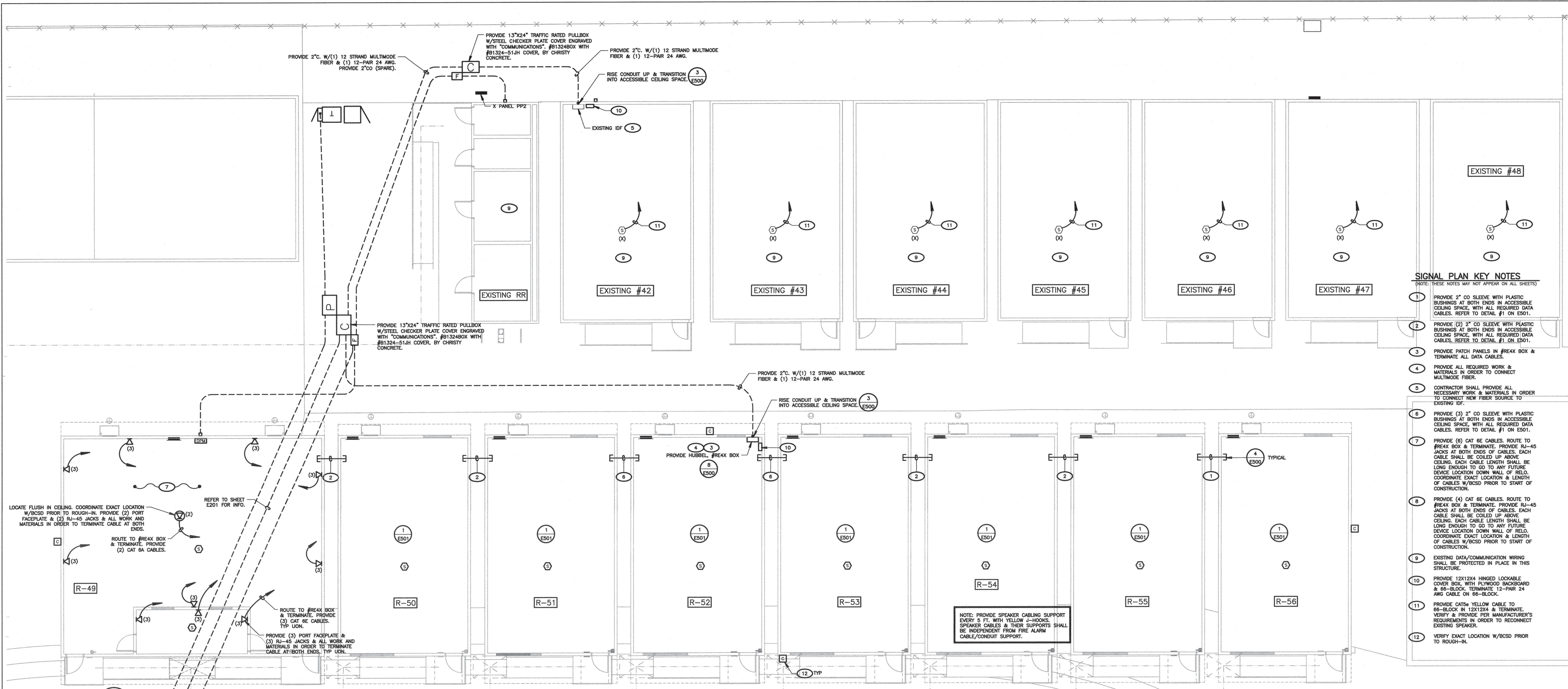
PARTIAL SITE ELECTRICAL PLAN (EAST)

SHEET NUMBER
E201

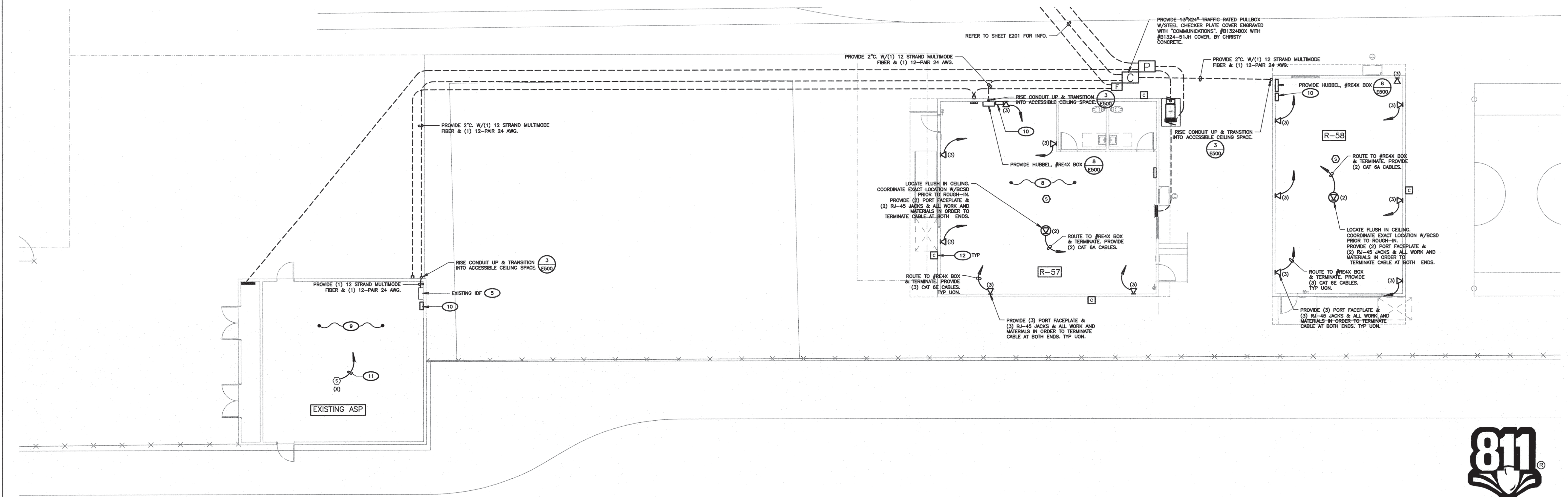
1 PARTIAL SITE ELECTRICAL PLAN (EAST)
 SCALE: 1" = 20'-0"



CONSTRUCTION DOCUMENTS



1 SIGNAL PLAN (TEMP CLASSROOM)
SCALE: 1/8"=1'-0"



2 SIGNAL PLAN (TEMP ADMIN./PARENT CENTER)
SCALE: 1/8"=1'-0"

SIGNAL PLAN KEY NOTES

- (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
- 1 PROVIDE 2" CO SLEEVE WITH PLASTIC BUSHINGS AT BOTH ENDS IN ACCESSIBLE CEILING SPACE, WITH ALL REQUIRED DATA CABLES. REFER TO DETAIL #1 ON E201.
 - 2 PROVIDE (2) 2" CO SLEEVE WITH PLASTIC BUSHINGS AT BOTH ENDS IN ACCESSIBLE CEILING SPACE, WITH ALL REQUIRED DATA CABLES. REFER TO DETAIL #1 ON E201.
 - 3 PROVIDE PATCH PANELS IN #REAX BOX & TERMINATE ALL DATA CABLES.
 - 4 PROVIDE ALL REQUIRED WORK & MATERIALS IN ORDER TO CONNECT MULTIMODE FIBER.
 - 5 CONTRACTOR SHALL PROVIDE ALL NECESSARY WORK & MATERIALS IN ORDER TO CONNECT NEW FIBER SOURCE TO EXISTING IDF.
 - 6 PROVIDE (2) 2" CO SLEEVE WITH PLASTIC BUSHINGS AT BOTH ENDS IN ACCESSIBLE CEILING SPACE, WITH ALL REQUIRED DATA CABLES. REFER TO DETAIL #1 ON E201.
 - 7 PROVIDE (6) CAT 6E CABLES. ROUTE TO #REAX BOX & TERMINATE. PROVIDE RJ-45 JACKS AT BOTH ENDS OF CABLES. EACH CABLE SHALL BE COILED UP ABOVE CEILING. EACH CABLE LENGTH SHALL BE LONG ENOUGH TO GO TO ANY FUTURE DEVICE LOCATION DOWN WALL OF FIELD. COORDINATE EXACT LOCATION & LENGTH OF CABLES W/BCSD PRIOR TO START OF CONSTRUCTION.
 - 8 PROVIDE (4) CAT 6E CABLES. ROUTE TO #REAX BOX & TERMINATE. PROVIDE RJ-45 JACKS AT BOTH ENDS OF CABLES. EACH CABLE SHALL BE COILED UP ABOVE CEILING. EACH CABLE LENGTH SHALL BE LONG ENOUGH TO GO TO ANY FUTURE DEVICE LOCATION DOWN WALL OF FIELD. COORDINATE EXACT LOCATION & LENGTH OF CABLES W/BCSD PRIOR TO START OF CONSTRUCTION.
 - 9 EXISTING DATA/COMMUNICATION WIRING SHALL BE PROTECTED IN PLACE IN THIS STRUCTURE.
 - 10 PROVIDE 12X12X4 HINGED LOCKABLE COVER BOX WITH 1/2" WOOD BACKBOARD & 66-BLOCK. TERMINATE 12-PAIR 24 AWG CABLE ON 66-BLOCK.
 - 11 PROVIDE CAT6a YELLOW CABLE TO 66-BLOCK ON 12X12X4 & TERMINATE. VERIFY & PROVIDE PER MANUFACTURER'S REQUIREMENTS IN ORDER TO RECONNECT EXISTING SPEAKER.
 - 12 VERIFY EXACT LOCATION W/BCSD PRIOR TO ROUGH-IN.

AGENCY INFORMATION

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DRAWN BY: V.Z.
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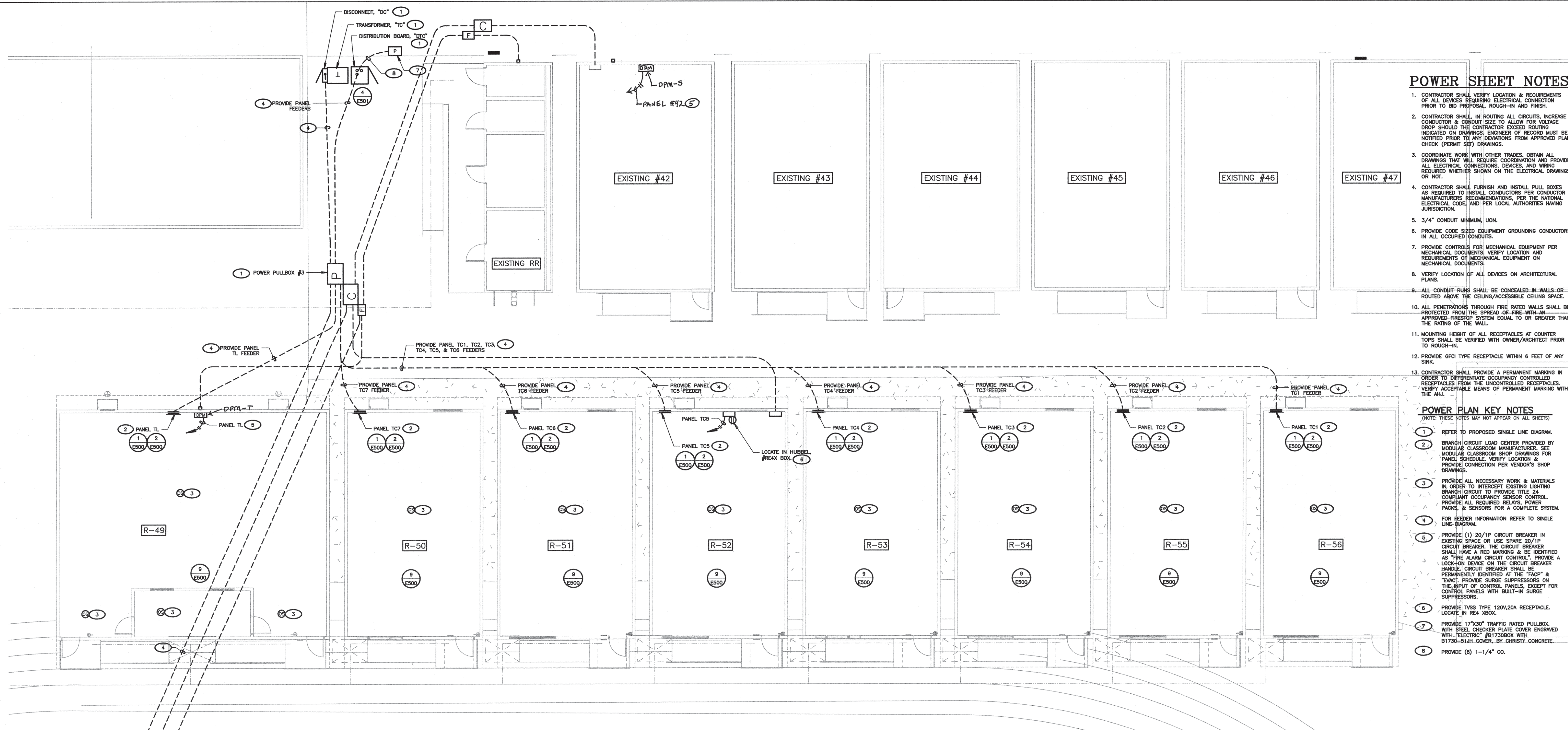
SIGNAL PLAN (TEMP CLASSROOM/ADMIN, & PARENT CENTER)

SHEET NUMBER

E202

811 Know what's below. Call before you dig.

CONSTRUCTION DOCUMENTS



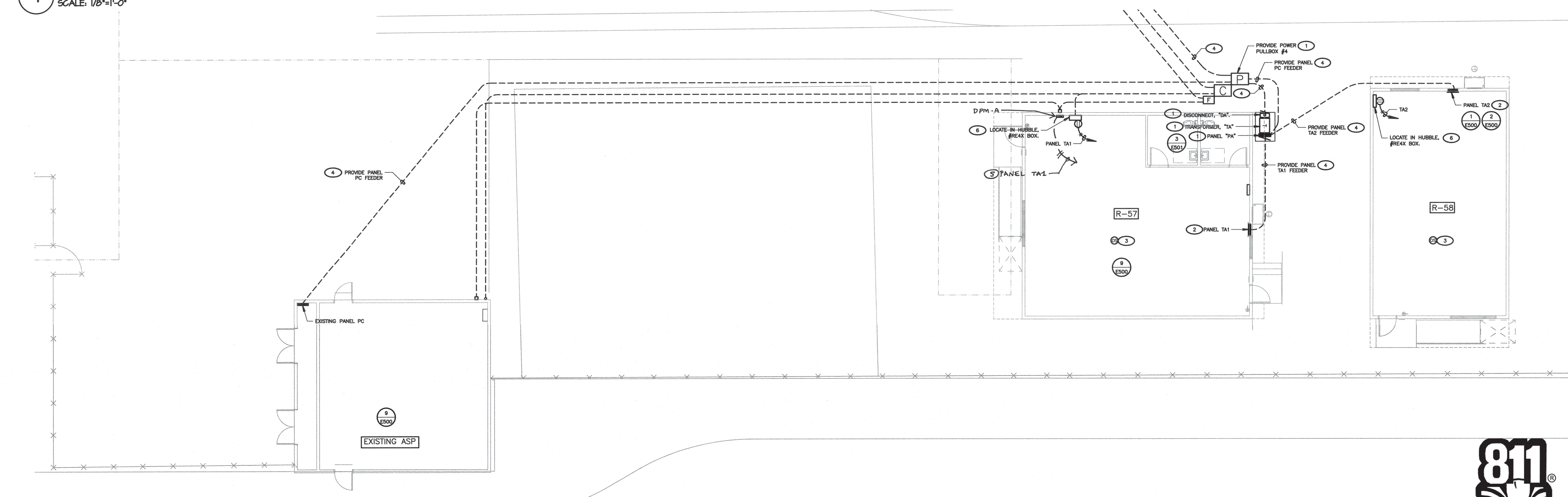
POWER SHEET NOTES

- CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN AND FINISH.
- CONTRACTOR SHALL, IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWINGS. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
- COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON THE ELECTRICAL DRAWINGS OR NOT.
- CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURER'S RECOMMENDATIONS, PER THE NATIONAL ELECTRICAL CODE, AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
- 3/4" CONDUIT MINIMUM, UNLESS NOTED.
- PROVIDE CODE SIZED EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDOLTS.
- PROVIDE CONTROLS FOR MECHANICAL EQUIPMENT PER MECHANICAL DOCUMENTS. VERIFY LOCATION AND REQUIREMENTS OF MECHANICAL EQUIPMENT ON MECHANICAL DOCUMENTS.
- VERIFY LOCATION OF ALL DEVICES ON ARCHITECTURAL PLANS.
- ALL CONDUIT RUNS SHALL BE CONCEALED IN WALLS OR ROUTED ABOVE THE CEILING/ACCESSIBLE CEILING SPACE.
- ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL TO OR GREATER THAN THE RATING OF THE WALL.
- MOUNTING HEIGHT OF ALL RECEPTACLES AT COUNTER TOPS SHALL BE VERIFIED WITH OWNER/ARCHITECT PRIOR TO ROUGH-IN.
- PROVIDE GFCI TYPE RECEPTACLE WITHIN 6 FEET OF ANY SINK.
- CONTRACTOR SHALL PROVIDE A PERMANENT MARKING IN ORDER TO DIFFERENTIATE OCCUPANCY CONTROLLED RECEPTACLES FROM THE UNCONTROLLED RECEPTACLES. VERIFY ACCEPTABLE MEANS OF PERMANENT MARKING WITH THE AIA.

POWER PLAN KEY NOTES

- (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
- REFER TO PROPOSED SINGLE LINE DIAGRAM.
 - BRANCH CIRCUIT LOAD CENTER PROVIDED BY MODULAR CLASSROOM MANUFACTURER. SEE MODULAR CLASSROOM SHOP DRAWINGS FOR PANEL SCHEDULE. VERIFY LOCATION & PROVIDE CONNECTION PER VENDOR'S SHOP DRAWINGS.
 - PROVIDE ALL NECESSARY WORK & MATERIALS IN ORDER TO INTERCEPT EXISTING LIGHTING BRANCH CIRCUIT TO PROVIDE TIA 24 COMPLIANT OCCUPANCY SENSOR CONTROL. PROVIDE ALL REQUIRED RELAYS, POWER PACKS & SENSORS FOR A COMPLETE SYSTEM.
 - FOR FEEDER INFORMATION REFER TO SINGLE LINE DIAGRAM.
 - PROVIDE (1) 20/1P CIRCUIT BREAKER IN EXISTING SPACE OR USE SPACE 20/1P CIRCUIT BREAKER. THE CIRCUIT BREAKER SHALL HAVE A RED MARKING BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL". PROVIDE A LOCK-ON DEVICE ON THE CIRCUIT BREAKER HANDLE. CIRCUIT BREAKER SHALL BE PERMANENTLY IDENTIFIED AT THE "TAG" & "TAG" PROVIDE SURGE SUPPRESSORS ON THE INPUT OF CONTROL PANELS, EXCEPT FOR CONTROL PANELS WITH BUILT-IN SURGE SUPPRESSORS.
 - PROVIDE 1755 TYPE 120V/20A RECEPTACLE. LOCATE IN REAR BOX.
 - PROVIDE 17"x30" TRAFFIC RATED PULLBOX WITH STEEL CHECKER PLATE COVER ENGRAVED WITH "ELECTRIC" & "REAR BOX" WITH B1730-514H COVER, BY CHRISTY CONCRETE.
 - PROVIDE (8) 1-1/4" CO.

1 POWER PLAN (TEMP CLASSROOMS)
SCALE: 1/8"=1'-0"



2 POWER PLAN (TEMP ADMIN/PARENT CENTER)
SCALE: 1/8"=1'-0"

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DATE 06/29/21
EXP 06/29/24
ELECTRICAL
STATE OF CALIFORNIA

PRIME CONSULTANT

IBI ARCHITECTURE PLANNING
San Luis Obispo
4119 Broad Street, Suite 210
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BAKERSFIELD CITY SCHOOL DISTRICT

BESSIE OWENS E.S. TEMPORARY MODULAR BUILDINGS
815 POTOMAC AVE. BAKERSFIELD, CA 93307

OPSC or OSHPD PROJ. NO. N/A
PROJECT NO. 118932
DRAWN BY: V.Z.
CHK'D BY: D.F.
ISSUE DATE: 8/19/2019
SHEET TITLE

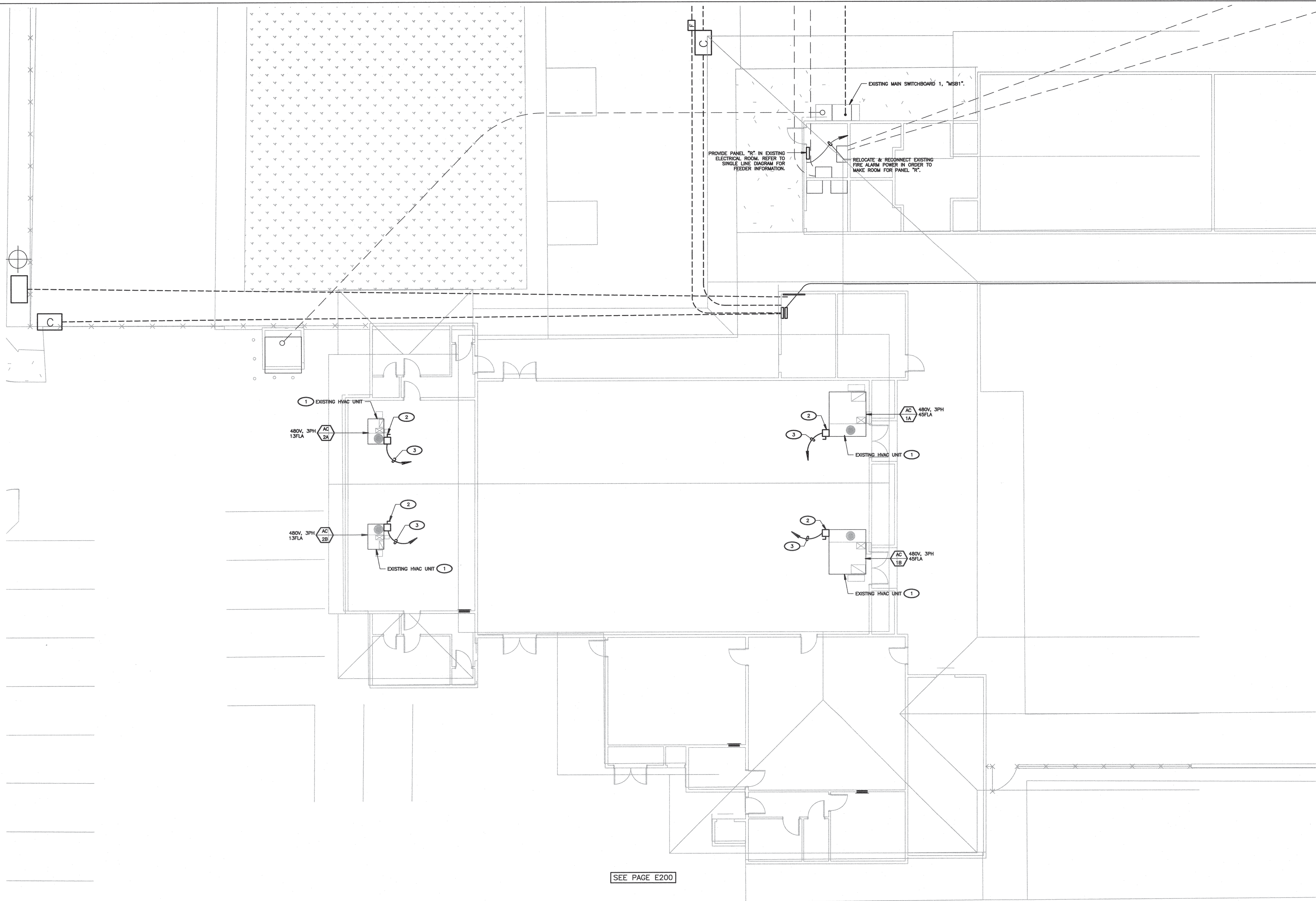
POWER PLAN (TEMP CLASSROOM/ADMIN, & PARENT CENTER)

SHEET NUMBER

E203

811
Know what's below.
Call before you dig.

CONSTRUCTION DOCUMENTS



MECHANICAL PLAN SHEET NOTES

- FIELD VERIFY MECHANICAL EQUIPMENT LOCATIONS.
- ALL WORK SHALL BE COORDINATED WITH OTHER TRADES.
- THE LOCATION OF ALL ROOF PENETRATIONS SHALL BE COORDINATED WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS.
- PROVIDE ROOF JACKS AND PROPERLY SEAL ALL ROOF PENETRATIONS TO A LEAK FREE CONDITION.
- THE FINAL CONNECTIONS TO EQUIPMENT SHALL BE LIQUID TIGHT FLEXIBLE METAL CONDUIT. INSTALL WITH ENOUGH SLACK TO PRECLUDE VIBRATION TRANSMISSION. SUPPORT SHALL BE PER THE NATIONAL ELECTRICAL CODE.
- PROVIDE WEATHERPROOF AND EXTERIOR RATED DEVICES IN ALL EXTERIOR AREAS.
- PROVIDE ALL DEVICES AND CONNECTIONS AS REQUIRED ON MECHANICAL CONTRACTOR SHOP DRAWINGS AND APPROVED SUBMITTALS.
- ALL DISCONNECTS SHALL BE MOUNTED ON UNISTRUT ON MECHANICAL (HVAC) UNIT.
- CONTRACTOR SHALL VERIFY LOCATION AND REQUIREMENTS OF ALL ELECTRICAL DEVICES PRIOR TO BID, ROUGH-IN, AND INSTALLATION.
- CONTRACTOR SHALL IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP. THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWINGS. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
- EACH DISCONNECT OR STARTER AND A SPARE SET OF FUSES SHALL BE CONTRACTOR PROVIDED.
- 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.
- 3/4" CONDUIT MINIMUM, UON.
- PROVIDE CODE SIZED EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
- VERIFY AND PROVIDE CONTROLS TO ALL UNITS, PER MECHANICAL CONTRACTOR APPROVED SHOP DRAWINGS AND SUBMITTALS.

KEY NOTES

- (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
- APPROXIMATE LOCATION. VERIFY EXACT LOCATION IN THE FIELD.
 - EXISTING SAFETY SWITCH. REFER TO SINGLE LINE DIAGRAM FOR WORK.
 - PROVIDE FEEDER TO PANEL "R". REFER TO SINGLE LINE DIAGRAM FOR FEEDER INFORMATION.

AGENCY INFORMATION:
 AGENCY TRACKING NO. 63321-355
 FILE NO.
 IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 OFFICE OF REGULATION SERVICES
 03-120134
 AC FLR 1 (CP) SS 2
 DATE SEP 30 2019

SEAL

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BAKERSFIELD CITY SCHOOL DISTRICT

BESSIE OWENS E.S. TEMPORARY MODULAR BUILDINGS
 815 POTOMAC AVE, BAKERSFIELD, CA 93307

OPSC or OSHPD PROJ. NO. N/A
 PROJECT NO: 118932
 DRAWN BY: V.Z.
 CHK'D BY: D.F.
 ISSUE DATE: 8/19/2019
 SHEET TITLE

MULTI-PURPOSE BUILDING ROOF POWER PLAN

SHEET NUMBER

E204

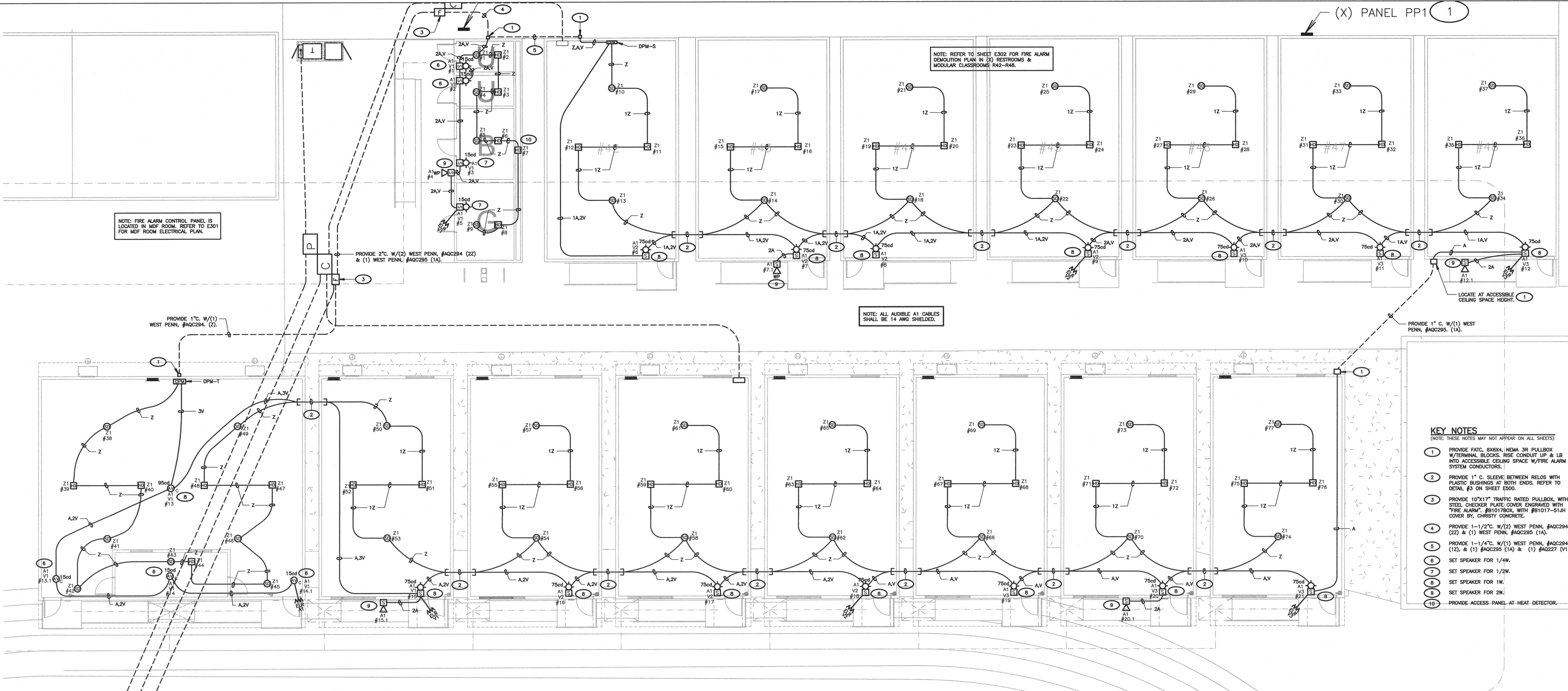
1 MULTI-PURPOSE BUILDING ROOF POWER PLAN
 SCALE: 1/8"=1'-0"

SEE PAGE E200

PANEL R		VOLTAGE	480V	PHASE	3	WIRE	3	MAIN	225A MCB							
SOURCE		MSB1	A.I.C.	14,000			ENCLOSURE	NEMA 1								
PANEL LOC./BLDG		SEE PLAN	BUS AMPERE RATING	225			MOUNTING	SURFACE								
C	K	VA LOAD	LOAD DESCRIPTION	L	C	OUTLETS	CIRCUIT BREAKER	BUS	CIRCUIT BREAKER	OUTLETS	L	C	LOAD DESCRIPTION	VA LOAD	C	K
LINE A	LINE B	LINE C	EXISTING AC-1A	MID	REC	LTS	POL	TRIP	A	B	C	TRIP	POL	LTS	REC	MS
1	12168		EXISTING AC-1A										EXISTING AC-1B	12168		2
3	12168		EXISTING AC-1A										EXISTING AC-1B	12168		4
5		12168	EXISTING AC-1A				3						EXISTING AC-1B	12168		6
7	3742		EXISTING AC-2A					30					EXISTING AC-2B	3742		8
9		3742	EXISTING AC-2A										EXISTING AC-2B	3742		10
11		3742	EXISTING AC-2A				3						EXISTING AC-2B	3742		12
13																14
15																16
17																18
19																20
21																22
23																24
25																26
27																28
29																30
31																32
33																34
35																36
37																38
39																40
41																42
15908	15908	15908														15908
SUBTOTALS												15908	15908	15908		
NOTES:												LINE TOTALS	31,816	31,816	31,816	
REFER TO SINGLE LINE DIAGRAM FOR SPEC.												LOC. ADJER	31,816	31,816	31,816	
												TOTAL VAPR	115	115	115	
												LINE AMPS	115	115	115	



CONSTRUCTION DOCUMENTS



AGENCY INFORMATION:

AGENCY TRACKING NO. 63321-355
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OPSC or OSHPD PROJ. NO. N/A
PROJECT NO. 118932
DRAWN BY: V.Z.
CHKD BY: D.F.
ISSUE DATE: 8/19/2019

FIRE ALARM PLAN (TEMP CLASSROOMS & EXISTING RESTROOM & MODULAR CLASSROOMS R42-R48)

SHEET NUMBER

E300

1 FIRE ALARM PLAN (TEMP CLASSROOMS & EXISTING RESTROOM & MODULAR CLASSROOMS R42-R48)
SCALE: 1/8" = 1'-0"

CODE, RULES & REGULATIONS

ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST REGULATIONS OF THE STATE FIRE MARSHAL, CALIFORNIA CODE OF REGULATIONS, SERVING UTILITY COMPANIES AND OTHER APPLICABLE STATE ORDINANCES. NOTHING IN THESE PLANS OR SPECIFICATIONS IS TO BE CONSIDERED AS TO PREVENT WORK NOT CONFORMING TO THESE CODES, WHERE WORK OF A HIGHER DEGREE IS INDICATED IN THE PLANS OR SPECIFICATIONS THIS REQUIREMENT SHALL COVER.

FIRE ALARM LEVEL OF AUDIBILITY

ALARM INDICATING DEVICES OF A FIRE ALARM SYSTEM INTENDED TO ALERT ALL OCCUPANTS SHALL BE SO LOCATED AND UNOBSTRUCTED AS TO CAUSE A LEVEL OF AUDIBILITY OF NOT LESS THAN 15dB ABOVE AMBIENT NOISE LEVELS MEASURED FOUR FEET ABOVE THE FLOOR IN THE BUILDING.

AMBIENT NOISE LEVELS SHALL BE CONTROLLED TO MEAN THAT WHICH CAN NORMALLY BE EXPECTED TO EXIST WHEN THE FACILITY, BUILDING, ROOM OR AREA IS FUNCTIONING UNDER NORMAL OPERATIVE OR WORKING CONDITIONS.

THE FIRE ALARM SIGNAL SHALL COMPLY WITH THE CALIFORNIA EDUCATION CODE, SECTIONS 30200 AND 30200A, AND BE A TONE/PATTERN, CODE 3.

FIRE ALARM MONITORING NOTE

AUTOMATIC FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY ARTICLE 91. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UL94X OR UL94X BY UNDERWRITERS LABORATORY OF SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY OWNER.

COMPLETE AUTOMATIC FIRE ALARM PLAN SUBMITTAL

THE FIRE ALARM SYSTEM SHOWN ON THESE PLANS HAS BEEN SUBMITTED AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT. ANY SUBSTITUTION OF THE FIRE ALARM SYSTEM SHALL BE RESUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL PAY ANY ADDITIONAL FEES THAT ARE INCURRED DUE TO THIS SUBSTITUTION.

THE FIRE ALARM SYSTEM SHALL BE A TOTAL (COMPLETE) AUTOMATIC HEAT AND SMOKE DETECTION SYSTEM, PER C.F.C. SECTION 907.2.3.6, AND SHALL COVER EVERY ROOM AND/OR AREA. UPON THE ACTIVATION OF ANY INITIATION DEVICE THE FIRE ALARM SYSTEM SHALL ALERT ALL OCCUPANTS AND TRANSMIT THE ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION (C.F.C. SECTION 907.2.3.5).

SCHOOLS FIRE ALARM REQUIREMENTS

THE FIRE ALARM SYSTEM SHALL CONFORM TO CALIFORNIA BUILDING CODE, SECTION 907.2.3 CALIFORNIA ELECTRICAL CODE, ARTICLE 780 AND CALIFORNIA FIRE CODE, CHAPTER 9, SECTION 907.

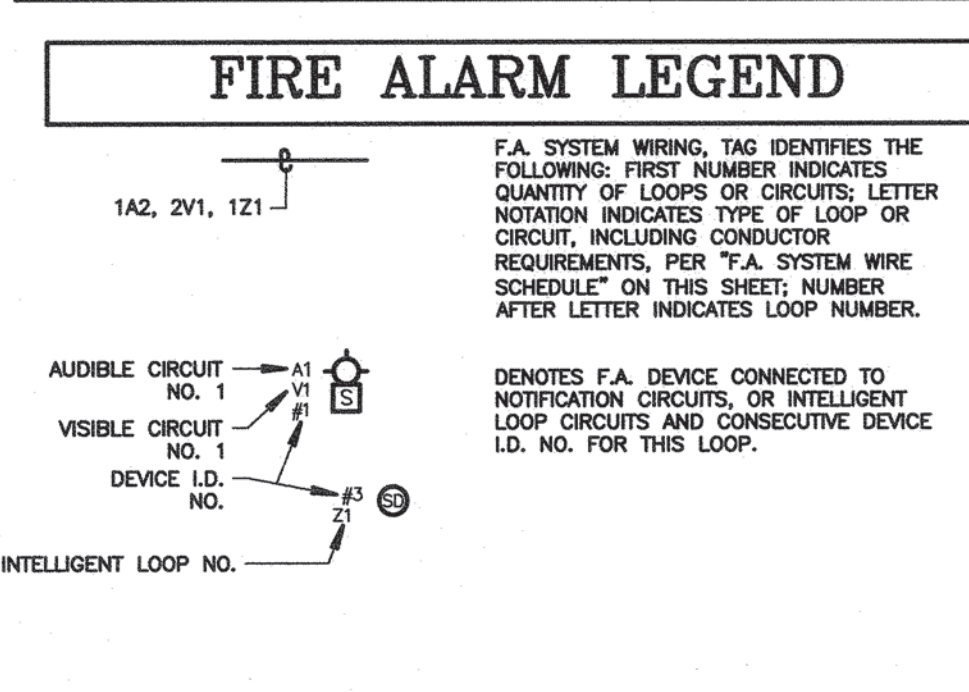
UPON COMPLETION OF THE INSTALLATION OF THE FIRE PROTECTIVE SIGNALING EQUIPMENT, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE AUTHORITY HAVING JURISDICTION, NFPA 72. IF TESTING RESULTS INDICATE THE FIRE ALARM SYSTEM DOES NOT MEET 15db OVER AMBIENT NOISE LEVELS, ADDITIONAL FIRE ALARM SIGNALING DEVICES MAY BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

FIRE ALARM SYSTEM IDENTIFICATION AND DESCRIPTION SHALL BE PROVIDED FOR TESTING AND A PLASTIC LAMINATED COPY SHALL REMAIN (WITH INSTRUCTIONS) AT THE FIRE ALARM CONTROL PANEL PER NFPA 72.

THE FIRE ALARM "RECORD OF COMPLETION" FORM, FIGURE 10, 16, 2, 1 IN NFPA 72, SHALL BE COMPLETED, SIGNED AND SUBMITTED TO THE SCHOOL DISTRICT AND THE LOCAL AUTHORITY (X.C.F.D.) HAVING JURISDICTION AT THE COMPLETION OF THE TEST.

F.A. SYSTEM WIRE SCHEDULE

TAG	CONDUCTORS	DEVICE/FUNCTION
V	2#12, THHN/THWN	VISIBLE NOTIFICATION DEVICES-STROBE LIGHTS
W	1-PAIR #18 TWISTED, SHIELDED PAIR WEST PENN. #AC294 (BLDG. EXTERIOR & UNDERGROUND)	CAMPUS/BLDG. SLC INTELLECTUAL LOOP NOTIFICATION DEVICES (SMALL STATIONS, SMOKE AND HEAT DETECTORS, WATER FLOW AND TAMPER SWITCHES, MONITOR AND CONTROL MODULES, ETC.)
Z	1-PAIR #18 TWISTED, WEST PENN. #990	DEVICE POWER-24VDC
P	2#14, THHN/THWN	AUDIBLE NOTIFICATION DEVICES-SPEAKERS
A	1-PAIR #18 TWISTED SHIELDED PAIR, WEST PENN. #AC294 (BLDG. EXTERIOR & UNDERGROUND) 1-PAIR #18 TWISTED SHIELDED PAIR, WEST PENN. #991 (BLDG. INTERIOR).	



NOTES (FIRE ALARM EQUIPMENT SPECIFICATIONS SCHEDULE)

(NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)

- END OF LINE RESISTORS SHALL BE 10K FOR NOTIFICATION APPLIANCE CIRCUITS FEEDING FROM FIRE ALARM CONTROL PANEL AND 2.2K FOR NOTIFICATION APPLIANCE CIRCUITS FEEDING FROM FIRE ALARM POWER EXPANDER PANELS.
- SET FOR 194 DEGREES.
- THIS EQUIPMENT IS EXISTING. REFER TO FIRE ALARM RISER DIAGRAM.
- PROVIDE TRIM RING, #TRC-2
- PROVIDE TRANSIENT SUPPRESSORS.

FIRE ALARM EQUIPMENT SPECIFICATIONS SCHEDULE

SYMBOL	MODEL NO.	DESCRIPTION	MANUFACTURER	CSFM. LISTING #	BACKBOX REQUIREMENTS	MOUNTING HEIGHT (TO CENTER U.O.N.)	REMARKS
[Symbol]	NFS2-3030 UDACT-2 DVC-EM DVC-KD CMIC-1 DAA2-7525 ACPS-610 SBB-D4R DR-D4R	FIRE ALARM CONTROL PANEL	NOTIFIER	7165-0028-0224	EQUIPMENT CABINET	+60	[5]
[Symbol]	ACPS-610 CAB-PS1	FIRE ALARM REMOTE POWER SUPPLY	NOTIFIER	7315-0028-0248	EQUIPMENT CABINET	+60	
[Symbol]	FSP-951	ADDRESSABLE SMOKE DETECTOR W/BASE, #B300-6	NOTIFIER	7272-0028-0503	4" SQ. X 2 1/8" DP. OUTLET BOX WITH S.G. RAISED RING		
[Symbol]	FST-951H	ADDRESSABLE HEAT DETECTOR W/BASE, #B300-6	NOTIFIER	7270-0028-0502	4" SQ. X 2 1/8" DP. OUTLET BOX WITH S.G. RAISED RING		[2]
[Symbol]	SPRK(A)	OUTDOOR WALL MOUNT SPEAKER	SYSTEM SENSOR	7320-1653-0201	MWB(A) OUTDOOR BACKBOX		
[Symbol]	SPSRL(A)	WALL MOUNTED COMBINATION SPEAKER & STROBE LIGHT (CANDELA VALUE AS SHOWN ON PLANS)	SYSTEM SENSOR	7320-1653-0505	4" SQ. X 2 1/8" DP. OUTLET BOX		
[Symbol]	LCD-160	REMOTE ANNUNCIATOR	NOTIFIER	7120-0028-0227			
[Symbol]		END OF LINE RESISTOR []			4" SQ. X 2 1/8" DP. OUTLET BOX		[3]
[Symbol]					4" SQ. X 2 1/8" DP. OUTLET BOX		
[Symbol]	SPSCL(A)	CEILING MOUNTED COMBINATION SPEAKER & STROBE LIGHT(CANDELA) VALVE AS SHOWN ON PLANS	SYSTEM SENSOR	7320-1653-0505	4" SQ. X 2 1/8" DP. OUTLET BOX		[4]
[Symbol]		SIX ZONE INTERFACE MODULE	NOTIFIER	7300-0028-0219	LOCATE IN FIRE ALARM REMOTE POWER SUPPLY		[3]

GENERAL NOTES

- SMOKE DETECTORS SHALL BE INSTALLED 3' AWAY FROM SUPPLY AND RETURN AIR GRILLES.
- FINAL FIRE ALARM TEST OF ALL DEVICES SHALL BE WITNESSED BY THE PROJECT INSPECTOR. TEST SHALL INCLUDE ALL INFORMATION PER NFPA 72, FIGURE 14.6.2.4 AND READ OUT VERIFICATION FORM FROM CENTRAL STATION. TEST SHALL BE WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION (A.H.J.).
- UNDERGROUND AND EXTERIOR CONDUITS WILL HAVE WATER-TIGHT FITTINGS (C.E.C. 110.11 AND 300.6).
- AUDIBLE DEVICES (S) SHALL BE AT LEAST 15DB ABOVE AMBIENT SOUND LEVEL, BUT NOT LESS THAN 70DBA AT 15' OR MORE THAN 110 dBA IN TOTAL, THROUGHOUT (NFPA 72 18.4.1 AND C.F.C. 907.8.2).
- AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA CODE IN TEMPORAL PATTERN, CODE 3.
- VISUAL DEVICES SHALL NOT EXCEED TWO FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH PER SECOND. (NFPA 72 18.5.2.1).
- PROVIDE AN ENGRAVED MAGAZINE INDICATING THE U.S.A. APPLICATION NUMBER, FILE NUMBER AND DATE OF INSTALLATION AT FIRE ALARM POWER EXPANDER PANEL. WHITE LETTERS ON A RED BACKGROUND.
- PROVIDE A COPY OF THE BATTERY CALCULATION IF THE FIRE ALARM POWER EXPANDER PANEL. BATTERY CALCULATION SHALL CONTAIN INFORMATION AS NOTED ON SCHEDULES AND BE PLASTIC LAMINATED. MOUNT ONTO INSIDE FACE OF DOOR.
- MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES OR GROUPS OF SYNCHRONIZED APPLIANCES IN THE SAME ROOM OR ADJACENT SPACE WITHIN THE FIELD OF VIEW SHALL FLASH IN SYNCHRONIZATION (NFPA 72 18.5.4.3.2(4)).
- THE AUTOMATIC ALARM SYSTEM SHALL BE INSTALLED, TESTED AND MAINTAINED IN ACCORDANCE WITH THE STATE FIRE MARSHAL'S REGULATIONS (C.F.C. 907.9).
- THE FIRE ALARM SYSTEM SHALL CONFORM TO ARTICLE 780 OF THE CALIFORNIA ELECTRICAL CODE, CURRENT CALIFORNIA TITLE 24 REQUIREMENTS, CALIFORNIA FIRE CODE, NFPA 72 AND 101 STANDARDS, AMERICAN WITH DISABILITY ACT (ADA) REQUIREMENTS.
- DRAWINGS DO NOT SHOW ALL THE NECESSARY J-BOXES AND PULL BOXES WHICH WILL BE REQUIRED THROUGHOUT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL THESE BOXES AS NECESSARY TO TERMINATE CONDUITS AND PROVIDE INDICATOR BOXES TO MATCH COLOR OF THE FINISHED BUILDING WALLS.
- ALL JUNCTIONS BOXES AND DEVICES INDICATED ON BUILDING EXTERIORS SHALL BE WEATHERPROOF.
- FIRE ALARM WIRES SHALL BE COPPER TYPE THHN/THWN.
- ALL SIGNAL WIRING IN UNDERGROUND CONDUITS SHALL BE WET LOCATION TYPE.
- WHEN ALL FIRE ALARM DEVICES ARE INSTALLED AND PROGRAMMING IS COMPLETE, PROVIDE A FIRE ALARM DEVICE MAP IN THE SCHOOL MAIN OFFICE TO INDICATE TO SCHOOL PERSONNEL THE LOCATIONS OF THE NEW DEVICES.
- JUNCTION BOXES SHALL NOT CONTAIN SPLICES. CONDUCTORS SHALL BE PULLED THROUGH. TERMINATIONS SHALL BE PERFORMED.
- ALL EXPOSED CONDUITS AND BOXES SHALL BE PAINTED TO MATCH THE SURFACE WHERE INSTALLED.

FIRE ALARM SYSTEM INSTALLATION NOTES

ALL DRAWINGS ARE DIAGRAMMATIC ONLY, AND SHALL NOT BE USED IN DETERMINING ACTUAL CONDUIT ROUTING. THE CONTRACTOR SHALL VERIFY ALL CONDUIT ROUTING CONDITIONS AT THE PROJECT SITE AS CONSTRUCTION PROGRESSES.

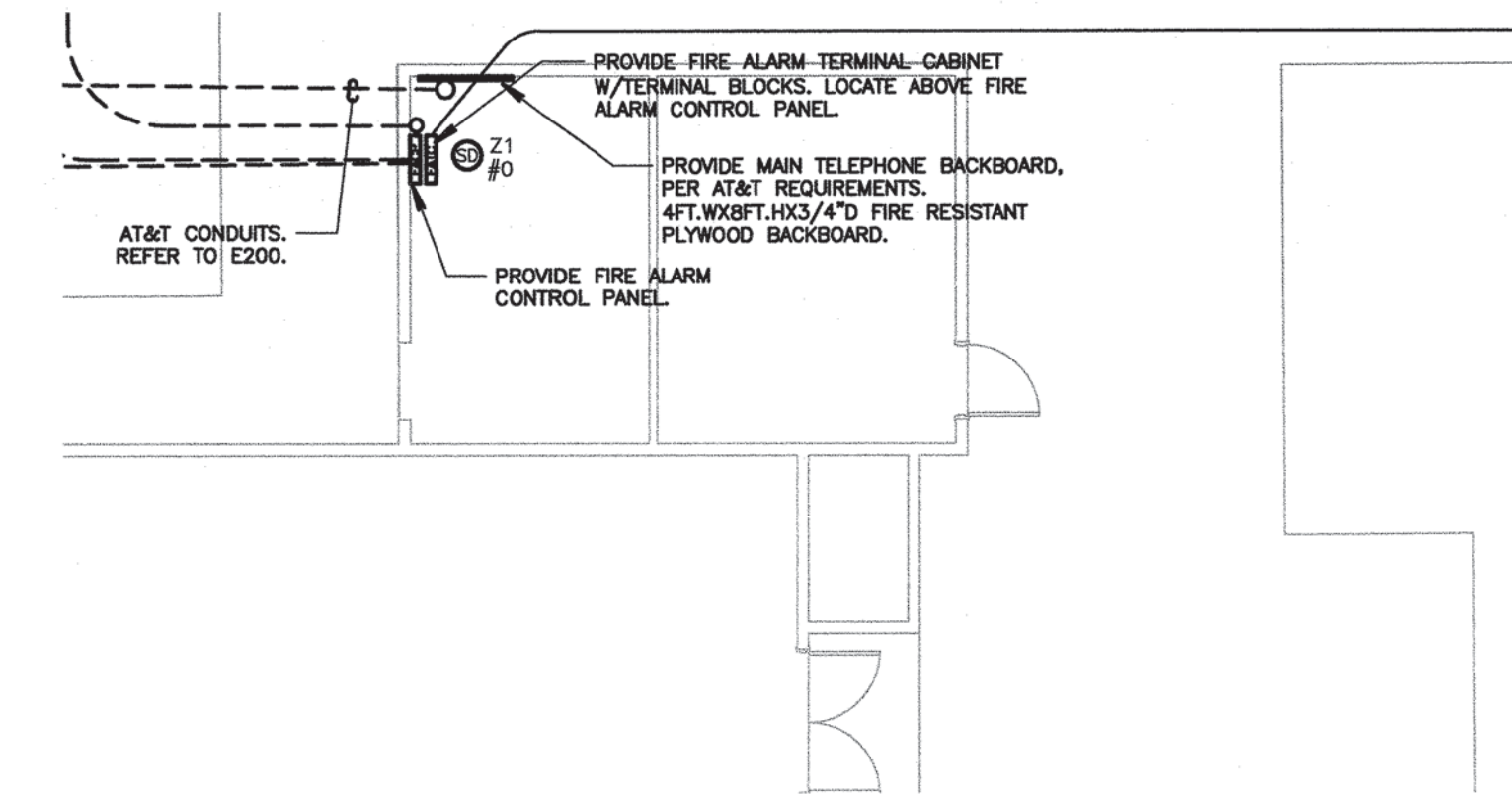
ALL FIRE ALARM DATA COMMUNICATIONS AND INITIATING CIRCUITS SHALL BE INSTALLED UTILIZING SOLID COPPER CONDUCTORS WITH OUTER COVERING COLORS PER THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS. ALL SMOKE DAMPER AND REMOTE TROUBLE INDICATOR CIRCUITS SHALL BE YELLOW. ALL CIRCUITS SHALL BE INDIVIDUALLY LABELED, BOTH AT THE DEVICE END AND AT THE SIGNAL TERMINAL CABINET AND/OR FIRE ALARM MASTER PANEL TERMINATION POINT.

ALL FIRE ALARM CIRCUITS SHALL BE CONTINUOUS FROM DEVICE TO DEVICE. SPLICES ARE NOT ALLOWED UNLESS IN COVERED JUNCTION BOXES OR APPROVED TERMINAL BLOCKS. TAPPING IS ALLOWED ONLY UNDER THESE CONDITIONS.

SEQUENCE OF OPERATIONS

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1. MANUAL PULL STATIONS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
2. SMOKE DETECTORS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
3. FIRE ALARM SYSTEM AC POWER (FAL)	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
4. FIRE ALARM SYSTEM LOW BATTERY	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
5. OPEN CIRCUIT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
6. GROUND FAULT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
7. HEAT DETECTORS	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
8. NOTIFICATION CIRCUIT SHORT	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
9.																		
10.																		

CONSTRUCTION DOCUMENTS



2 MDF ROOM ELECTRICAL PLAN
SCALE: 1/8" = 1'-0"

- ### GENERAL NOTES
- SMOKE DETECTORS SHALL BE INSTALLED 3' AWAY FROM SUPPLY AND RETURN AIR GRILLES.
 - FINAL FIRE ALARM TEST OF ALL DEVICES SHALL BE WITNESSED BY THE PROJECT INSPECTOR. TEST SHALL INCLUDE ALL INFORMATION PER NFPA 72, FIGURE 14.8.2.4 AND READ OUT VERIFICATION FORM FROM CENTRAL STATION. TEST SHALL ALSO BE WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION (A.H.J.).
 - UNDERGROUND AND EXTERIOR CONDUITS WILL HAVE WATER-TIGHT FITTINGS (C.F.C. 110.11 AND 300.8).
 - AUDIBLE DEVICE(S) SHALL BE AT LEAST 15DBA ABOVE AVERAGE AMBIENT SOUND LEVEL BUT NOT LESS THAN 75DBA AT 10' OR MORE THAN 110 DBA IN TOTAL. (SOUNDING) (NFPA 72 18.5.1 AND C.F.C. 907.8.2).
 - AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA CODE IN TEMPORAL PATTERN, CODE 3.
 - VISUAL DEVICES SHALL NOT EXCEED TWO FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH PER SECOND. (NFPA 72 18.5.2.1).
 - PROVIDE AN ENGRAVED NAMEPLATE INDICATING THE D.S.A. APPLICATION NUMBER, FILE NUMBER AND DATE OF INSTALLATION AT FIRE ALARM POWER EXPANDER PANEL. WHITE LETTERS ON A RED BACKGROUND.
 - PROVIDE A COPY OF THE BATTERY CALCULATION AT THE FIRE ALARM POWER EXPANDER PANEL. BATTERY CALCULATION SHALL CONTAIN INFORMATION AS NOTED ON SCHEDULES AND BE PLASTIC LAMINATED. MOUNT ONTO INSIDE FACE OF DOOR.
 - MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES OR GROUPS OF SYNCHRONIZED APPLIANCES IN THE SAME ROOM OR ADJACENT SPACE WITHIN THE FIELD OF VIEW SHALL FLASH IN SYNCHRONIZATION (NFPA 72 18.5.3.3.4(f)).
 - THE AUTOMATIC ALARM SYSTEM SHALL BE INSTALLED, TESTED AND MAINTAINED IN ACCORDANCE WITH THE STATE FIRE MARSHAL'S REGULATIONS (C.F.C. 907.9).
 - THE FIRE ALARM SYSTEM SHALL CONFORM TO ARTICLE 760 OF THE CALIFORNIA ELECTRICAL CODE, CURRENT CALIFORNIA TITLE 24 REQUIREMENTS, CALIFORNIA FIRE CODE, NFPA 72 AND 101 STANDARDS, AMERICAN WITH DISABILITY ACT (ADA) REQUIREMENTS.
 - DRAWINGS DO NOT SHOW ALL THE NECESSARY J-BOXES AND PULL BOXES WHICH WILL BE REQUIRED THROUGHOUT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL THESE BOXES AS NECESSARY TO TERMINATE CONDUITS AND RACEWAYS. PAINT BOXES TO MATCH COLOR OF THE FINISHED BUILDING WALLS.
 - ALL JUNCTIONS BOXES AND DEVICES INDICATED ON BUILDING EXTERIORS SHALL BE WEATHERPROOF TYPE.
 - FIRE ALARM WIRES SHALL BE COPPER TYPE THIN/THIN.
 - ALL SIGNAL WIRING IN UNDERGROUND CONDUITS SHALL BE WET LOCATION TYPE.
 - WHEN ALL FIRE ALARM DEVICES ARE INSTALLED AND PROGRAMMING IS COMPLETE, PROVIDE A FIRE ALARM DEVICE MAP IN THE SCHOOL MAIN OFFICE TO INDICATE TO SCHOOL PERSONNEL THE LOCATIONS OF THE NEW DEVICES.
 - JUNCTION BOXES SHALL NOT CONTAIN SPLICES. CONDUCTORS SHALL BE PULLED THROUGH. TERMINATIONS SHALL BE PERFORMED.
 - ALL EXPOSED CONDUITS AND BOXES SHALL BE PAINTED TO MATCH THE SURFACE WHERE INSTALLED.

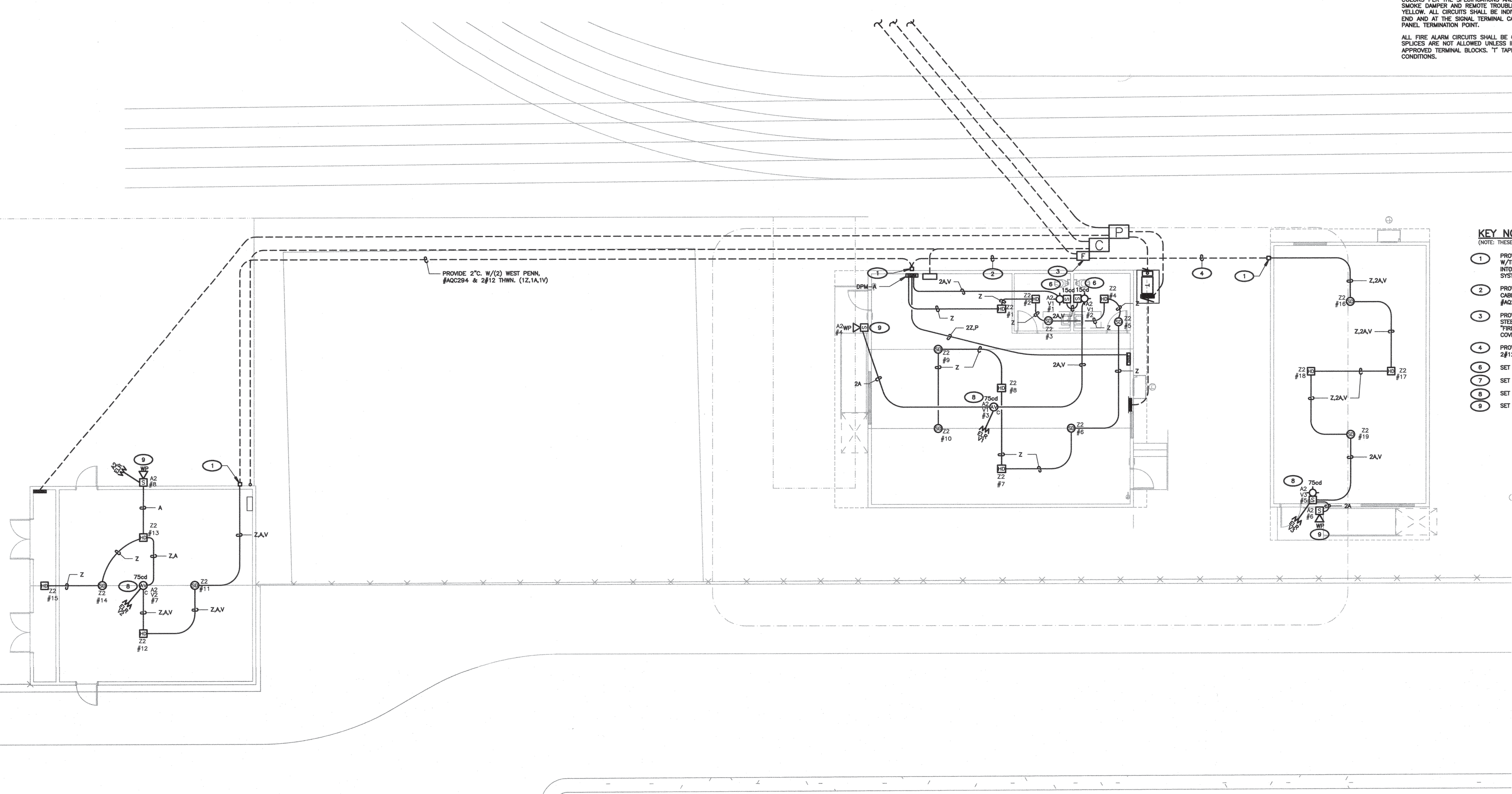
FIRE ALARM SYSTEM INSTALLATION NOTES

ALL DRAWINGS ARE DIAGNOSTIC ONLY, AND SHALL NOT BE USED IN DETERMINING ACTUAL CONDUIT ROUTING. THE CONTRACTOR SHALL VERIFY ALL CONDUIT ROUTING CONDITIONS AT THE PROJECT SITE AS CONSTRUCTION PROGRESSES.

ALL FIRE ALARM DATA COMMUNICATIONS AND INITIATING CIRCUITS SHALL BE INSTALLED UTILIZING SOLID COPPER CONDUCTORS WITH OUTER COATING COLORS PER THE SPECIFICATIONS AND AS SHOWN ON THE DRAWINGS. ALL SMOKE DAMPER AND REMOTE TROUBLE INDICATOR CIRCUITS SHALL BE YELLOW. ALL CIRCUITS SHALL BE INDIVIDUALLY LABELED, BOTH AT THE DEVICE END AND AT THE SIGNAL TERMINAL CABINET AND/OR FIRE ALARM MASTER PANEL TERMINATION POINT.

ALL FIRE ALARM CIRCUITS SHALL BE CONTINUOUS FROM DEVICE TO DEVICE. SPLICES ARE NOT ALLOWED UNLESS IN COVERED JUNCTION BOXES ON APPROVED TERMINAL BLOCKS. T TAPPING IS ALLOWED ONLY UNDER THESE CONDITIONS.

- ### KEY NOTES
- (NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)
- PROVIDE FATC, 6X6X4, NEMA 3R PULLBOX W/TERMINAL BLOCKS. RISE CONDUIT UP & LB INTO ACCESSIBLE CEILING SPACE W/FIRE ALARM SYSTEM CONDUCTORS.
 - PROVIDE 2" C. W/ (7) WEST PENN. #60294 CABLES (22,2A, 2 FOR ANNUNCIATOR) & (2) #60227 (1V, POWER ANNUNCIATOR).
 - PROVIDE 10"X17" TRAFFIC RATED PULLBOX, WITH STEEL CHECKER PLATE COVER ENGRAVED WITH "FIRE ALARM", #8101780X, WITH #81017-51J COVER BY, CARRY CONDUITS.
 - PROVIDE 2" C. W/ (3) WEST PENN. #60294, & 2#12 THIN (12,2A,1V).
 - SET SPEAKER FOR 1/4W.
 - SET SPEAKER FOR 1/2W.
 - SET SPEAKER FOR 1W.
 - SET SPEAKER FOR 2W.



1 FIRE ALARM PLAN (TEMP. ADMIN. & PARENT CENTER)
SCALE: 1/8" = 1'-0"

AGENCY INFORMATION:

AGENCY TRACKING NO. 63321-355
FILE NO.

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BAKERSFIELD CITY SCHOOL DISTRICT

BESSIE OWENS E.S. TEMPORARY MODULAR BUILDINGS
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OPSC or OSHPD PROJ. NO.	N/A
PROJECT NO.	118932
DRAWN BY:	V.Z.
CHK'D BY:	D.F.
ISSUE DATE:	8/19/2019

SHEET TITLE

FIRE ALARM PLAN (TEMP ADMIN & PARENT CENTER)

SHEET NUMBER

E301

CONSTRUCTION DOCUMENTS

GENERAL NOTES

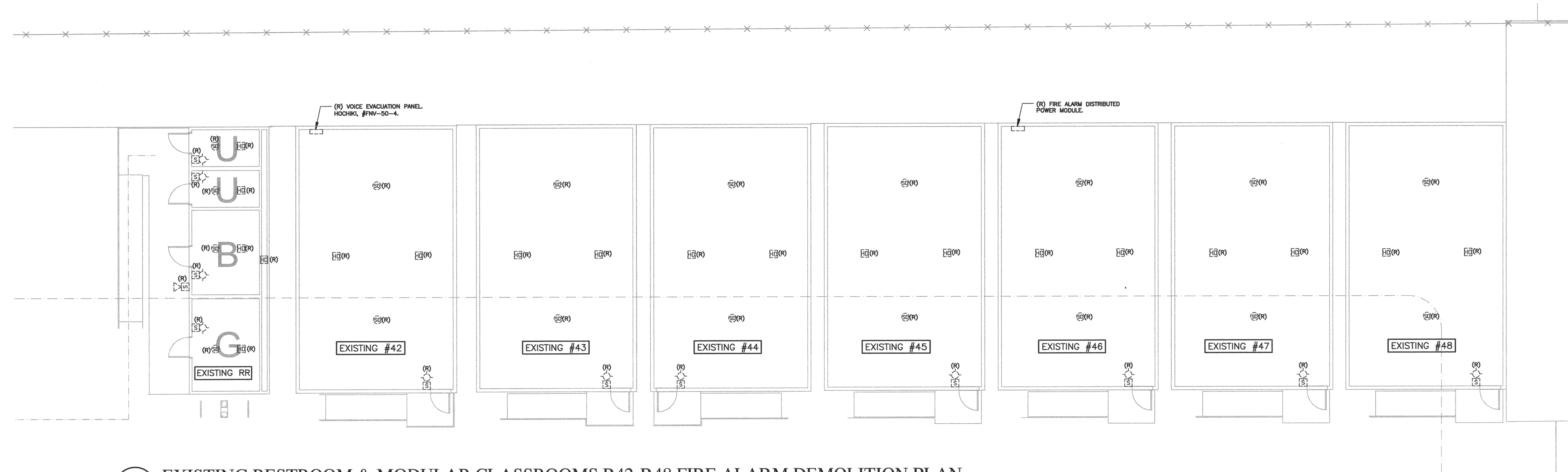
- SMOKE DETECTORS SHALL BE INSTALLED 3' AWAY FROM SUPPLY AND RETURN AIR GRILLES.
- FINAL FIRE ALARM TEST OF ALL DEVICES SHALL BE WITNESSED BY THE PROJECT INSPECTOR. TEST SHALL INCLUDE ALL INFORMATION PER NFPA 72, FIGURE 14.6.2.4 AND READ OUT VERIFICATION FORM FROM CENTRAL STATION. TEST SHALL ALSO BE WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION (A.H.J.).
- UNDERGROUND AND EXTERIOR CONDUITS WILL HAVE WATER-TIGHT FITTINGS (C.E.C. 110.11 AND 300.6).
- AUDIBLE DEVICES SHALL BE AT LEAST 15dBA ABOVE AVERAGE AMBIENT SOUND LEVEL, BUT NOT LESS THAN 75dBA AT 10' OR MORE THAN 110 dBA IN TOTAL, THROUGHOUT (NFPA 72 18.4.1 AND C.F.C. 907.6.2).
- AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA CODE IN TEMPORAL PATTERN, CODE 3.
- VISUAL DEVICES SHALL NOT EXCEED TWO FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN ONE FLASH PER SECOND. (NFPA 72 18.5.2.1).
- PROVIDE AN ENGRAVED NAMEPLATE INDICATING THE U.S.A. APPLICATION NUMBER, FILE NUMBER AND DATE OF INSTALLATION AT FIRE ALARM POWER EXPANDER PANEL, WHITE LETTERS ON A RED BACKGROUND.
- PROVIDE A COPY OF THE BATTERY CALCULATION AT THE FIRE ALARM POWER EXPANDER PANEL. BATTERY CALCULATION SHALL CONTAIN INFORMATION AS NOTED ON SCHEDULES AND BE PLASTIC LAMINATED. MOUNT ONTO INSIDE FACE OF DOOR.
- MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES OR GROUPS OF SYNCHRONIZED APPLIANCES IN THE SAME ROOM OR ADJACENT SPACE WITHIN THE FIELD OF VIEW SHALL FLASH IN SYNCHRONIZATION (NFPA 72 18.5.4.2.2(4)).
- THE AUTOMATIC ALARM SYSTEM SHALL BE INSTALLED, TESTED AND MAINTAINED IN ACCORDANCE WITH THE STATE FIRE MARSHAL'S REGULATIONS (C.F.C. 907.9).
- THE FIRE ALARM SYSTEM SHALL CONFORM TO ARTICLE 780 OF THE CALIFORNIA ELECTRICAL CODE, CURRENT CALIFORNIA TITLE 24 REQUIREMENTS, CALIFORNIA FIRE CODE, NFPA 72 AND 101 STANDARDS, AMERICAN WITH DISABILITY ACT (ADA) REQUIREMENTS.
- DRAWINGS DO NOT SHOW ALL THE NECESSARY J-BOXES AND PULL BOXES WHICH WILL BE REQUIRED THROUGHOUT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL THESE BOXES AS NECESSARY TO TERMINATE CONDUITS AND RACEWAYS. PAINT BOXES TO MATCH COLOR OF THE FINISHED BUILDING WALLS.
- ALL JUNCTION BOXES AND DEVICES INDICATED ON BUILDING EXTERIORS SHALL BE WEATHERPROOF TYPE.
- FIRE ALARM WIRES SHALL BE COPPER TYPE THINW/THIN.
- ALL SIGNAL WIRING IN UNDERGROUND CONDUITS SHALL BE WET LOCULATION TYPE.
- WHEN ALL FIRE ALARM DEVICES ARE INSTALLED AND PROGRAMMING IS COMPLETE, PROVIDE A FIRE ALARM DEVICE MAP IN THE SCHOOL MAIN OFFICE TO INDICATE TO SCHOOL PERSONNEL THE LOCATIONS OF THE NEW DEVICES.
- JUNCTION BOXES SHALL NOT CONTAIN SPLICES. CONDUCTORS SHALL BE PULLED THROUGH. TERMINATIONS SHALL BE PERFORMED.
- ALL EXPOSED CONDUITS AND BOXES SHALL BE PAINTED TO MATCH THE SURFACE WHERE INSTALLED.

FIRE ALARM SYSTEM INSTALLATION NOTES

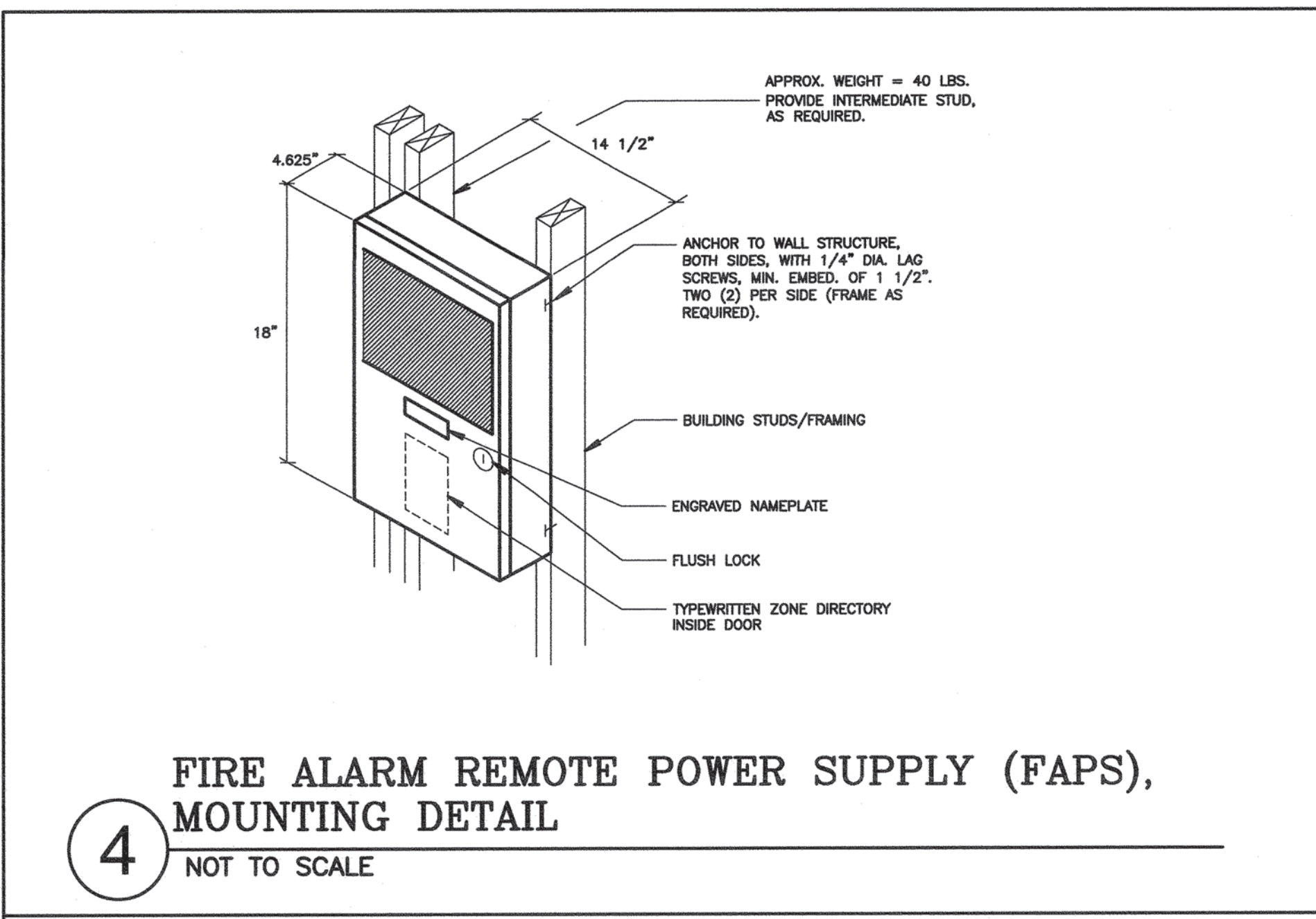
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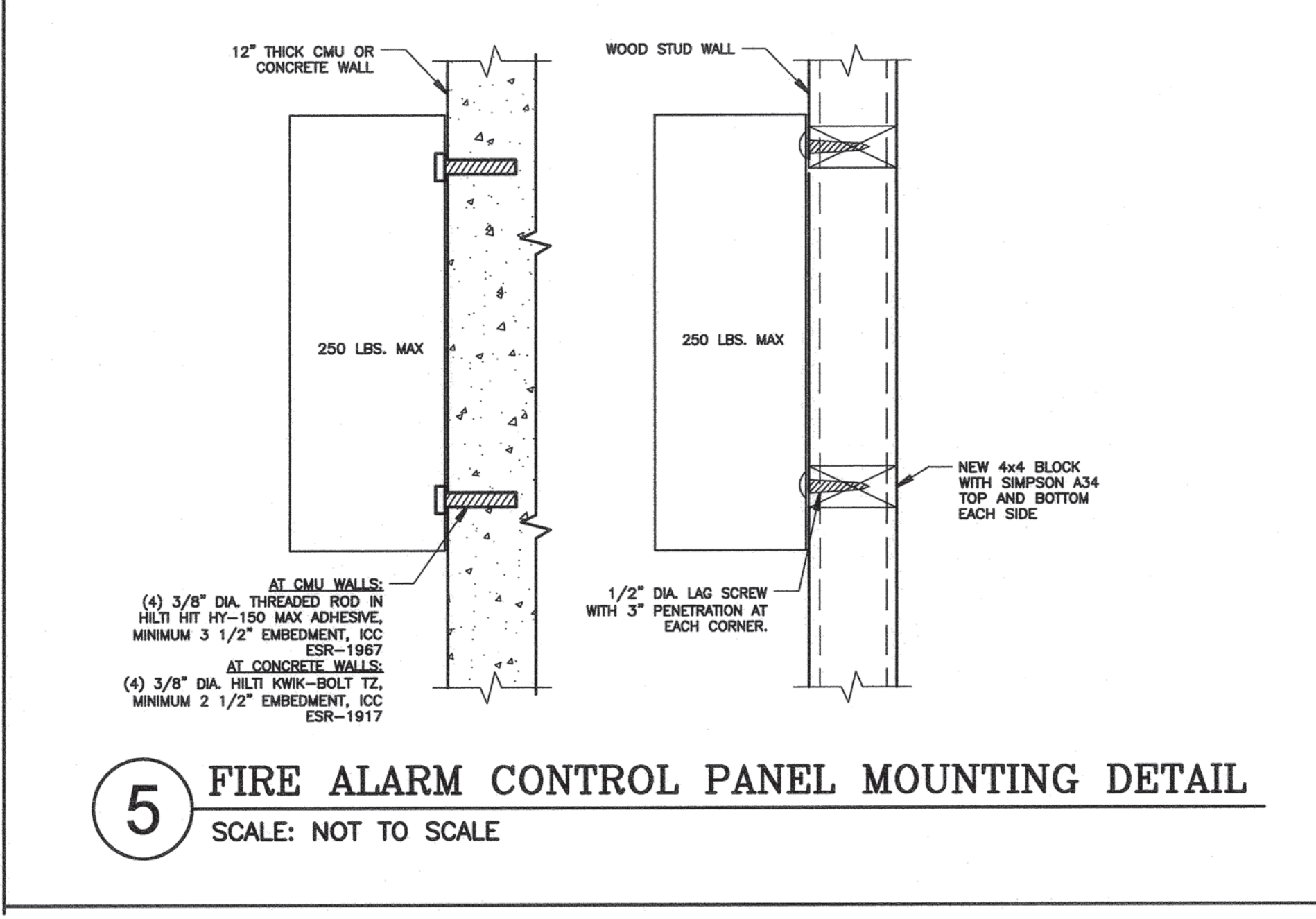
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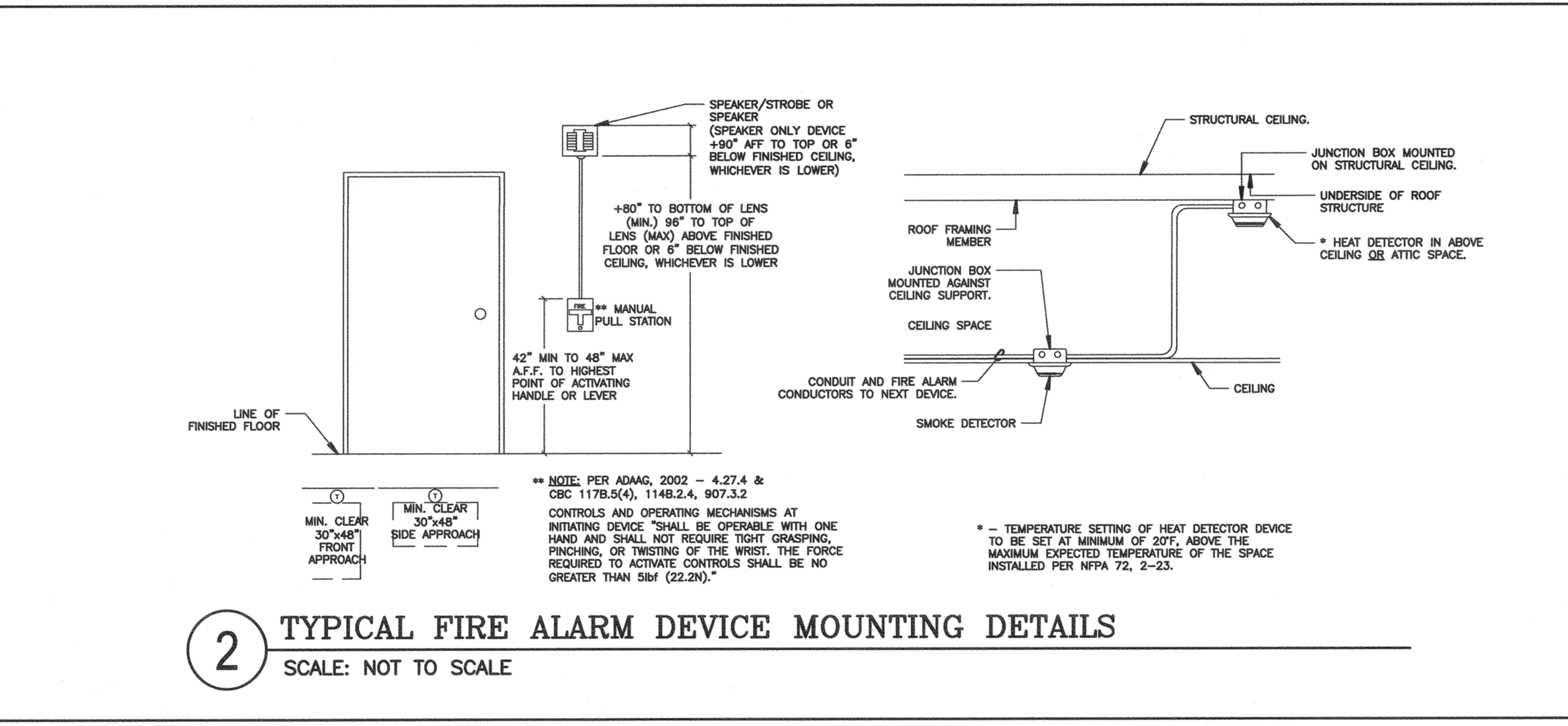
1 EXISTING RESTROOM & MODULAR CLASSROOMS R42-R48 FIRE ALARM DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



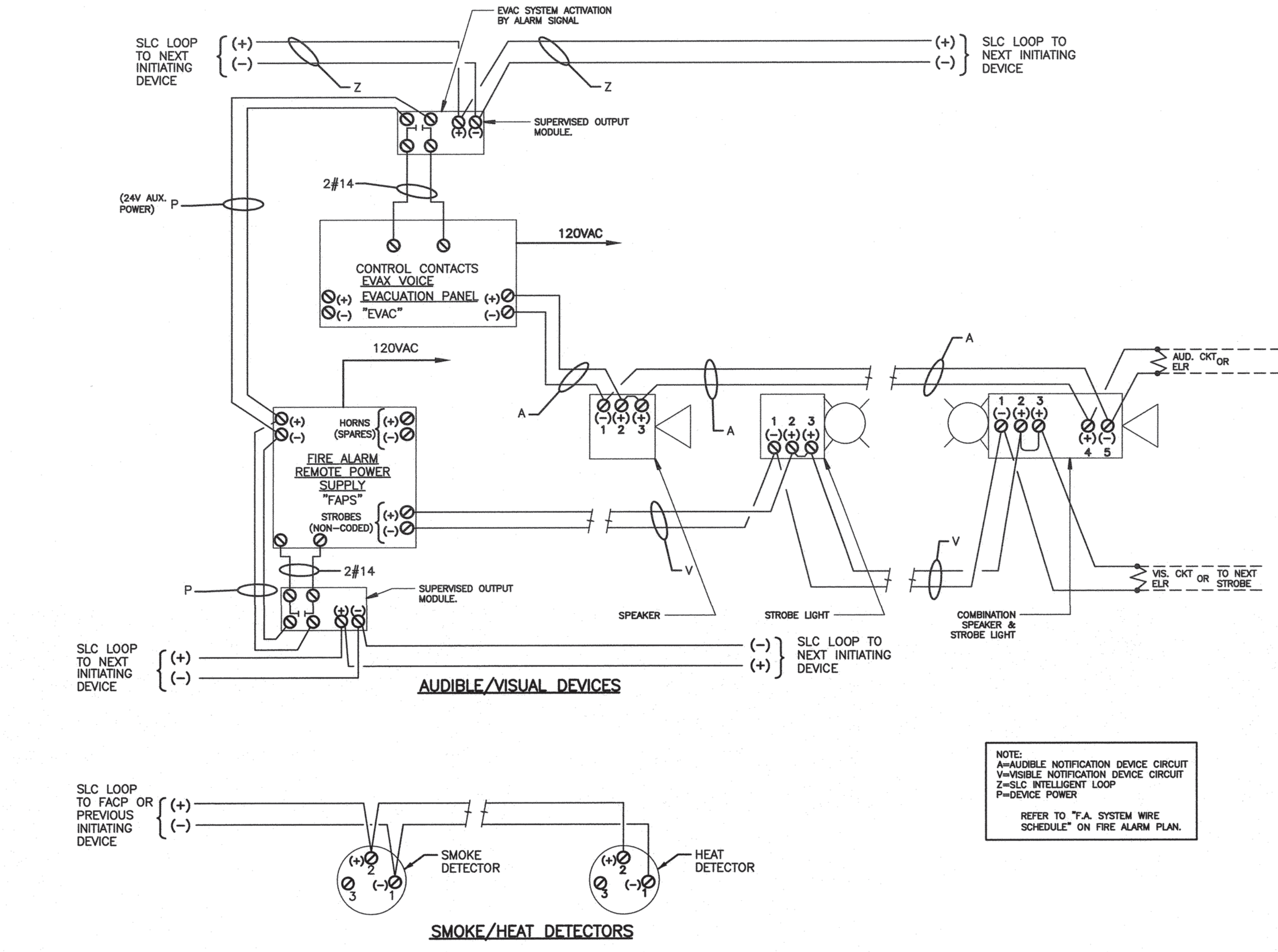
4 FIRE ALARM REMOTE POWER SUPPLY (FAPS), MOUNTING DETAIL
NOT TO SCALE



5 FIRE ALARM CONTROL PANEL MOUNTING DETAIL
SCALE: NOT TO SCALE



2 TYPICAL FIRE ALARM DEVICE MOUNTING DETAILS
SCALE: NOT TO SCALE



3 TYPICAL DEVICES WIRING DIAGRAMS DETAIL
NOT TO SCALE

AGENCY INFORMATION:

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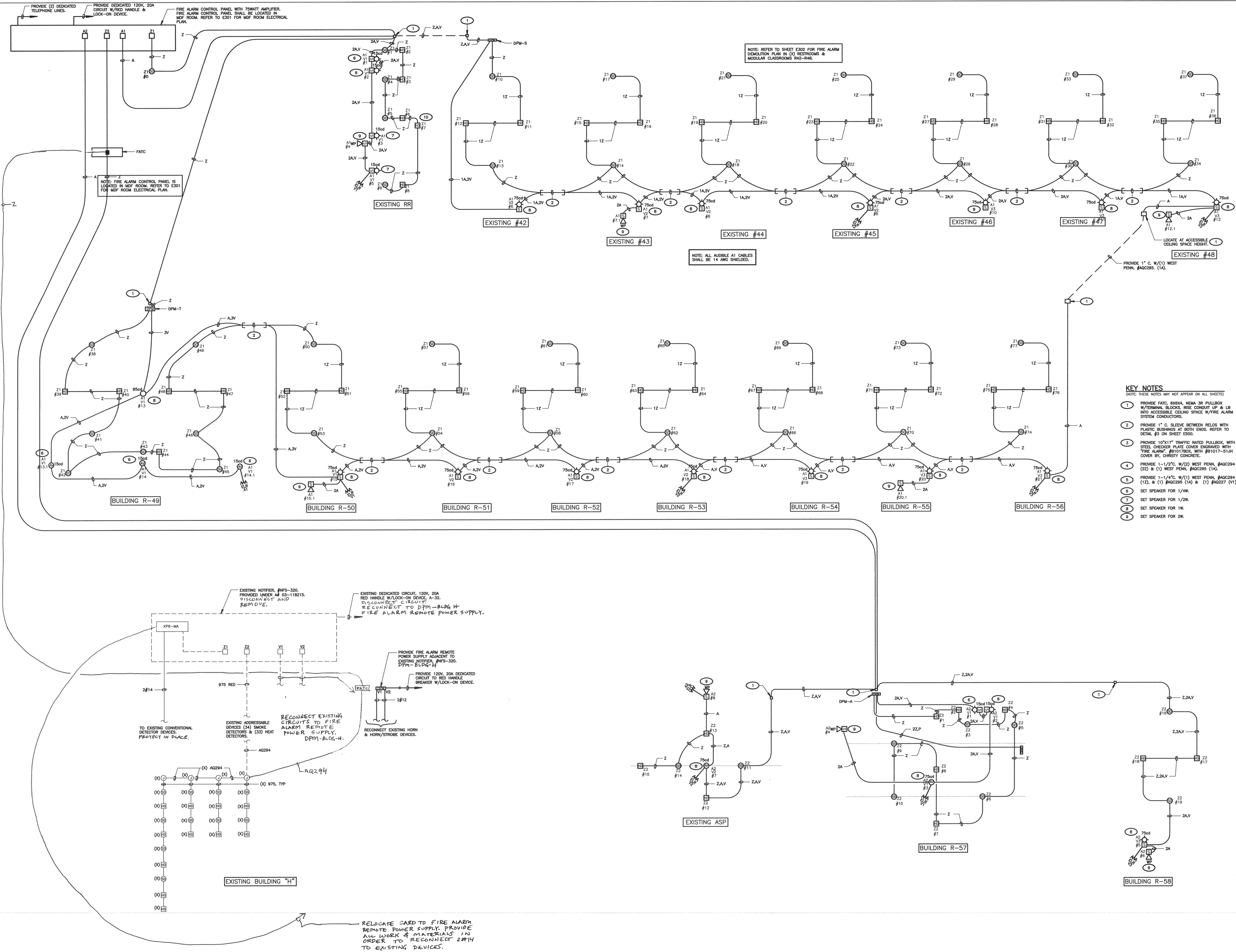
OPSC or OSHPD PROJ. NO. N/A
PROJECT NO. 118932
DRAWN BY: V.Z.
CHKD BY: D.F.
ISSUE DATE: 8/19/2019
SHEET TITLE

EXISTING RESTROOM & MODULAR CLASSROOMS R42-R48 FIRE ALARM DEMOLITION PLAN, FIRE ALARM DETAILS

SHEET NUMBER

E302

CONSTRUCTION DOCUMENTS



AGENCY INFORMATION:
 AGENCY TRACKING NO. 63321-355
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OPSC or OSHPD PROJ. NO: N/A
 PROJECT NO: 118932
 DRAWN BY: V.Z.
 CHKD BY: D.F.
 ISSUE DATE: 8/19/2019
 SHEET TITLE

FIRE ALARM RISER DIAGRAM

SHEET NUMBER

E303

CONSTRUCTION DOCUMENTS

1 FIRE ALARM RISER DIAGRAM
 SCALE: NOT TO SCALE

STROBE CIRCUIT VOLTAGE DROP CALCULATIONS

POWER SUPPLY #	LOCATED IN	LOOP TYPE & No.	DEVICES								WIRE		ONE-WAY LOOP LENGTH FROM POWER SUPPLY TO MIDDLE OF	TOTAL VD	VOLTAGE DROP	MINIMUM BATTERY SIZE	BATTERY SELECTED	
			FA BELL	DOOR HOLDER	WALL 15cd	WALL 75cd	STROBES 15cd	STROBES 30cd	STROBES 75cd	STROBES 95cd	SIZE	DC RESIST /1000'						TOTAL ALARM CURRENT
			0.03	0.02	0.043	0.107	0.041	0.093	0.111	0.134	AWG	OHMS						AMPS
FCPS	V1									12	1.93	0.172	88	0.028	0.24	SEE		
	V2									12	1.93	0.428	177	0.292	1.22	DPM-S BATTERY CALCS		
	V3									12	1.93	0.221	273	0.358	1.41			
	V4									12	1.93							
										12	1.93					1.87	4.0	

STROBE CIRCUIT VOLTAGE DROP CALCULATIONS

POWER SUPPLY #	LOCATED IN	LOOP TYPE & No.	DEVICES								WIRE		ONE-WAY LOOP LENGTH FROM POWER SUPPLY TO MIDDLE OF	TOTAL VD	VOLTAGE DROP	MINIMUM BATTERY SIZE	BATTERY SELECTED	
			FA BELL	DOOR HOLDER	WALL 15cd	WALL 75cd	STROBES 15cd	STROBES 30cd	STROBES 75cd	STROBES 95cd	SIZE	DC RESIST /1000'						TOTAL ALARM CURRENT
			0.03	0.02	0.043	0.107	0.041	0.093	0.111	0.134	AWG	OHMS						AMPS
DPM-T	V1									12	1.93	0.394	273	0.394	1.80	SEE		
	V2									12	1.93	0.321	213	0.394	1.10	DPM-T BATTERY CALCS		
	V3									12	1.93	0.321	297	0.368	1.53			
	V4									12	1.93							
										12	1.93					1.87	4.0	

STROBE CIRCUIT VOLTAGE DROP CALCULATIONS

POWER SUPPLY #	LOCATED IN	LOOP TYPE & No.	DEVICES								WIRE		ONE-WAY LOOP LENGTH FROM POWER SUPPLY TO MIDDLE OF	TOTAL VD	VOLTAGE DROP	MINIMUM BATTERY SIZE	BATTERY SELECTED	
			FA BELL	DOOR HOLDER	WALL 15cd	WALL 75cd	STROBES 15cd	STROBES 30cd	STROBES 75cd	STROBES 95cd	SIZE	DC RESIST /1000'						TOTAL ALARM CURRENT
			0.03	0.02	0.043	0.107	0.041	0.093	0.111	0.134	AWG	OHMS						AMPS
DPM-A	V1									12	1.93	0.197	85	0.085	0.27	SEE		
	V2									12	1.93	0.111	215	0.092	0.38	DPM-A BATTERY CALCS		
	V3									12	1.93	0.107	169	0.070	0.29			
	V4									12	1.93							
										12	1.93					1.87	4.0	

FORMULAS USED FOR CALCULATIONS:
 FORMULA FOR BATTERY SIZING:
 FOR FACP/FAPS/DPM - 24 HOURS STANDBY & 15 MIN IN ALARM:
 AMP HOUR = 1.20 [(24 HOURS X (S)) + (15/60 HOUR X (A))]
 WHERE:
 1.20 = BATTERY DERATING VALUE
 (S) = TOTAL SUPERVISORY CURRENT (0 FOR NOTIFICATION DEVICES AND 48 mA FOR FCPS-24)
 (A) = TOTAL ALARM CURRENT

FORMULA FOR VOLTAGE DROP CALCULATIONS:
 TOTAL DC RESISTANCE = # OF WIRES X Rdc/1000 X ONE-WAY LOOP LENGTH FROM POWER SUPPLY TO MIDDLE OF LOAD
 TOTAL VD = TOTAL DC RESISTANCE X TOTAL ALARM CURRENT
 MINIMUM VOLTAGE AT DEVICES = 20.4V - TOTAL VD
 20.4V = MINIMUM VOLTAGE AT END OF USEFUL BATTERY LIFE (85% OF 24VDC)

NOTE:
 THE MANUFACTURER'S OPERATING VOLTAGE IS BETWEEN 18VDC AND 33 VDC (FOR 24VDC NOMINAL)

BCSD OWENS PRIMARY()
 "DPM-BLGD" POWER & BATTERY CALCULATION

DEVICE	PANEL		FACP	
	STAND-BY (mA)	ALARM (mA)	QUANTITY	ALARM (mA)
FIRE ALARM REMOTE POWER SUPPLY	130	130	1	130
SPEAKER/STROBE INTERIOR CEILING 95cd			1	134
SPEAKER/STROBE INTERIOR CEILING 75cd			1	111
SPEAKER/STROBE INTERIOR CEILING 30cd			3	63
SPEAKER/STROBE INTERIOR CEILING 15cd			4	41
SPEAKER/STROBE INTERIOR WALL MOUNT 15cd			4	43
SPEAKER/STROBE INTERIOR WALL MOUNT 75cd			7	107
TOTALS (AMPS):				I(g) I(g)
				0.130 1.051
Amp Hour:				4.06
Battery to be provided -				7.0

Application Drawing APP-02
0102R2

Field Wiring Guidelines

Wire Type:
 The speaker circuits of most voice evacuation systems will typically be classified as power limited wiring. As such, these speaker circuits can be run with other fire alarm wiring without ill effects.

No special cabling is required for the speaker circuits. Standard FPL or FPLP wire is sufficient. Twisted pair or shielding twisted pair wiring is not necessary.

There is one exception, however. Certain addressable systems may generate extraneous noise from their addressable loop, and cannot be run using shielded cable. In this case, shielding of the evacuation speaker circuit will help to eliminate noise picked up by and heard in speakers during standby operation, and possible interference with the addressable loop.

Wire Gauge:
 Generally, #18 AWG will be adequate for speaker circuits. The only time that heavier wire is needed is when load is high, and wire runs are long. But remember, it never hurts to go with heavier wire. So if a #16 or #14 AWG pair is being pulled for strobes, it is often easier and less costly to pull the same wire for the evacuation speaker circuits.

The table below illustrates typical wire lengths for specific wire gauge and speaker load.*

At 25VRMS Output:				
Power	#18 AWG	#16AWG	#14 AWG	#12AWG
10W	1,900	3,050	4,850	7,700
15W	1,280	2,030	3,230	5,140
25W	760	1,220	1,930	3,080

At 70VRMS Output:				
Power	#18 AWG	#16AWG	#14 AWG	#12AWG
10W	15,200	24,200	38,360	61,100
15W	10,130	16,130	25,570	40,730
25W	6,080	9,680	15,340	24,440

* This table assumes that there is an even distribution of the speaker load on the speaker circuit, and that a 20% drop at the last device is allowable. If an even distribution of load is not the case, reduce all wire runs by 1/2.

1 SPEAKER CIRCUIT WIRING GUIDELINES
 NOT TO SCALE

SPEAKER CIRCUIT OPERATING VOLTAGE = 25V RMS
 SPEAKER CIRCUIT A1 LOAD = 27.25 WATTS
 APPROXIMATE LENGTH OF SPEAKER CIRCUIT AT 1,803 FEET
 REFER TO SPEAKER CIRCUIT WIRING GUIDELINES. A MAXIMUM SPEAKER CIRCUIT LENGTH OF 1,930 FEET IS ALLOWED FOR #14 AWG CONDUCTORS AT A 25W LOAD.

SPEAKER CIRCUIT A2 LOAD = 9.5 WATTS
 APPROXIMATE LENGTH OF SPEAKER CIRCUIT A2 = 1,500 FEET
 REFER TO SPEAKER CIRCUIT WIRING GUIDELINES. A MAXIMUM SPEAKER CIRCUIT LENGTH OF 3,050 FEET IS ALLOWED FOR #16 AWG CONDUCTORS AT A 10W LOAD.

2 SPEAKER CIRCUIT WATTAGE AND CIRCUIT LENGTH INFORMATION
 NOT TO SCALE

OWENS PRIMARY
"FACP" POWER & BATTERY CALCULATION

DEVICE	PANEL		FACP	
	STAND-BY (mA)	ALARM (mA)	QUANTITY	ALARM (mA)
FIRE ALARM CONTROL PANEL LCD-180 (BACKLIGHT OFF)	120	120	1	120
ACPS-610 KEYBOARD DISPLAY	130	130	1	130
UDACT-2 EXISTING XP6-MA SLC LOOP	52	87	1	90
DVC-EM	300	300	1	300
DVC-KD	60	60	1	60
DAAZ-7525	400	500	1	400
SMOKE DETECTORS	0.2	4.5	48	9.8
HEAT DETECTORS	0.2	4.5	48	9.8
LCM-320	130	130	1	130
LEM-320	100	100	1	100
EXISTING SMOKE DETECTORS	0.2	4.5	34	6.8
EXISTING HEAT DETECTORS	0.2	4.5	32	6.6
TOTALS (AMPS):				I(g) I(g)
				1.820 2.415
Amp Hour:				47.54
Battery to be provided -				55.0

BCSD OWENS PRIMARY()
"DPM-S" POWER & BATTERY CALCULATION

DEVICE	PANEL		FACP	
	STAND-BY (mA)	ALARM (mA)	QUANTITY	ALARM (mA)
FIRE ALARM REMOTE POWER SUPPLY	130	130	1	130
SPEAKER/STROBE INTERIOR CEILING 75cd			1	111
SPEAKER/STROBE INTERIOR CEILING 30cd			6	63
SPEAKER/STROBE INTERIOR CEILING 15cd			4	41
SPEAKER/STROBE INTERIOR WALL MOUNT 15cd			4	43
SPEAKER/STROBE INTERIOR WALL MOUNT 75cd			7	107
TOTALS (AMPS):				I(g) I(g)
				0.130 1.051
Amp Hour:				4.06
Battery to be provided -				7.0

BCSD OWENS PRIMARY()
"DPM-T" POWER & BATTERY CALCULATION

DEVICE	PANEL		FACP	
	STAND-BY (mA)	ALARM (mA)	QUANTITY	ALARM (mA)
FIRE ALARM REMOTE POWER SUPPLY	130	130	1	130
SPEAKER/STROBE INTERIOR CEILING 95cd			1	134
SPEAKER/STROBE INTERIOR CEILING 75cd			1	111
SPEAKER/STROBE INTERIOR CEILING 30cd			3	63
SPEAKER/STROBE INTERIOR CEILING 15cd			4	41
SPEAKER/STROBE INTERIOR WALL MOUNT 15cd			4	43
SPEAKER/STROBE INTERIOR WALL MOUNT 75cd			7	107
TOTALS (AMPS):				I(g) I(g)
				0.130 1.136
Amp Hour:				4.08
Battery to be provided -				7.0

BCSD OWENS PRIMARY()
"DPM-A" POWER & BATTERY CALCULATION

DEVICE	PANEL		FACP	
	STAND-BY (mA)	ALARM (mA)	QUANTITY	ALARM (mA)
FIRE ALARM REMOTE POWER SUPPLY	130	130	1	130
SPEAKER/STROBE INTERIOR CEILING 95cd			1	134
SPEAKER/STROBE INTERIOR CEILING 75cd			2	111
SPEAKER/STROBE INTERIOR CEILING 30cd			6	63
SPEAKER/STROBE INTERIOR CEILING 15cd			4	41
SPEAKER/STROBE INTERIOR WALL MOUNT 15cd			2	43
SPEAKER/STROBE INTERIOR WALL MOUNT 75cd			1	107
TOTALS (AMPS):				I(g) I(g)
				0.130 0.545
Amp Hour:				3.91
Battery to be provided -				7.0

AGENCY INFORMATION:
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 815 POTOMAC AVE, BAKERSFIELD, CA 93307

OPSC or OSHPD PROJ. NO. N/A
 PROJECT NO. 118932
 DRAWN BY: V.Z.
 CHK'D BY: D.F.
 ISSUE DATE: 8/19/2019
 SHEET TITLE

FIRE ALARM VOLTAGE DROP AND BATTERY CALCULATIONS

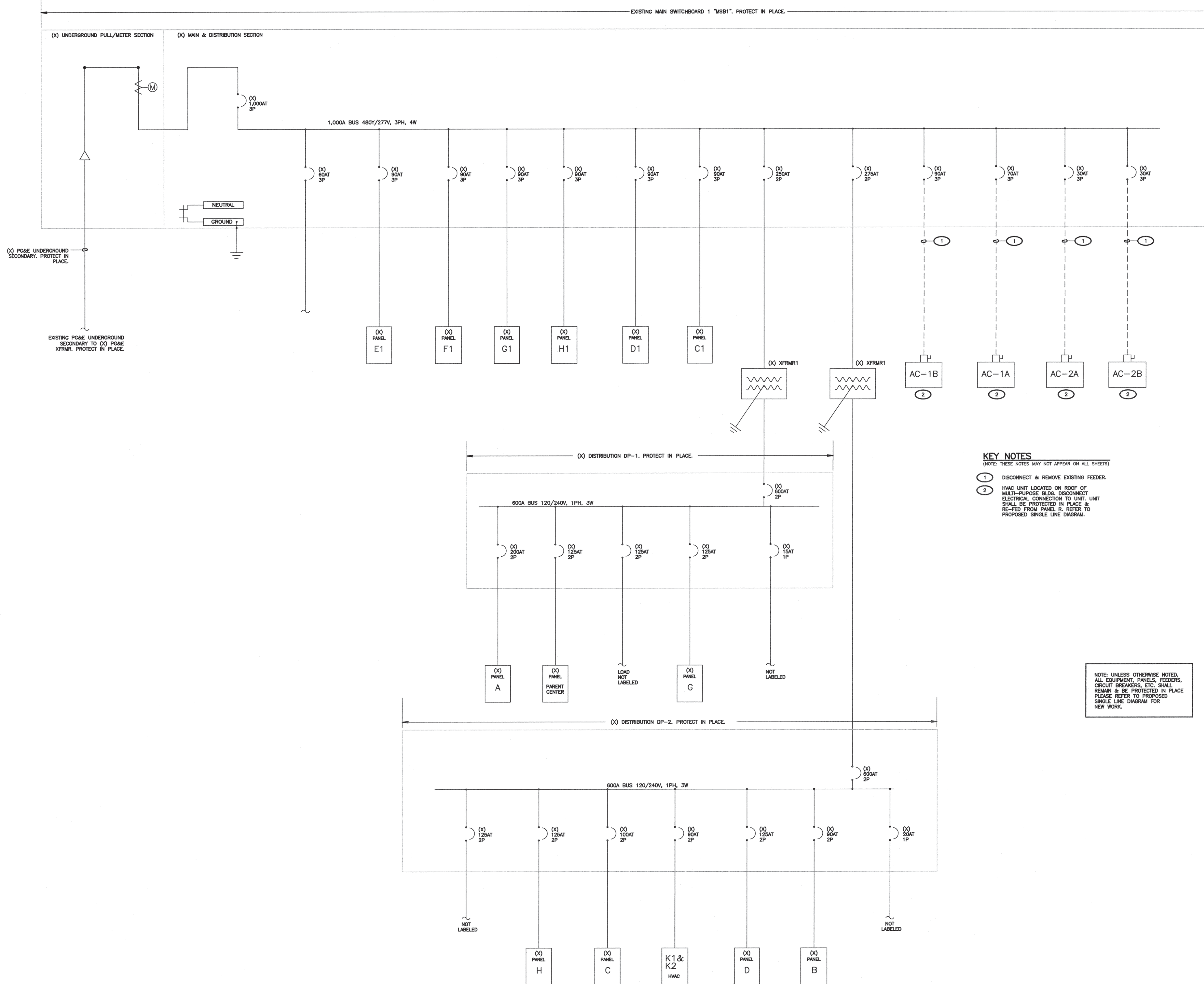
SHEET NUMBER

E304

CONSTRUCTION DOCUMENTS

SHEET NOTES

- VERIFY LOCATION OF ALL BUILDINGS AND APPENDICES ON ARCHITECTURAL AND CIVIL PLANS.
- CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES/EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN, AND FINISH.
- CONTRACTOR SHALL IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWINGS. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEVIATIONS FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
- ALL 90 DEGREE CONDUIT BENDS AND RISERS SHALL BE PVC COATED RIGID STEEL.
- VERIFY LOCATION OF ALL EQUIPMENT ON ARCHITECTURAL AND CIVIL PLANS.
- PROVIDE CODE SIZED EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
- 1" CONDUIT MINIMUM UNDERGROUND.
- COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES, AND WIRING REQUIRED WHETHER SHOWN ON THE ELECTRICAL DRAWINGS OR NOT.
- CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURERS RECOMMENDATIONS FOR THE NATIONAL ELECTRICAL CODE, AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
- FIELD CONDITIONS GOVERN DEMOLITION AND NEW CONSTRUCTION. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS PRIOR TO START OF WORK. THE ARCHITECT/ENGINEER SHALL BE NOTIFIED OF POSSIBLE FIELD PROBLEMS PRIOR TO DEMOLITION.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH DIMENSIONED PULL STRINGS.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR TRENCHING. CONTRACTOR SHALL PROTECT ALL EXISTING/REMAINING UTILITIES IN PLACE. CONTRACTOR AT HIS SOLE EXPENSE SHALL REPAIR ANY UTILITY SYSTEMS DAMAGED DURING CONSTRUCTION.
- UNLESS NOTED OTHERWISE, ALL DEVICES AND TERMINATIONS SHALL BE RATED FOR 75 DEGREES CELSIUS.
- ALL CONDUCTORS #8 AND SMALLER SHALL BE THIN/THIN CU. ALL CONDUCTORS #8 AND LARGER SHALL BE 100%W-2 CU.
- PER NEC 110.24, SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- PER NEC 110.16, ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.



KEY NOTES
(NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)

1 DISCONNECT & REMOVE EXISTING FEEDER.

2 HVAC UNIT LOCATED ON ROOF OF MULTI-PURPOSE BLDG. DISCONNECT ELECTRICAL CONNECTION TO UNIT. UNIT SHALL BE PROTECTED IN PLACE & RE-FED FROM PANEL R. REFER TO PROPOSED SINGLE LINE DIAGRAM.

NOTE: UNLESS OTHERWISE NOTED, ALL EQUIPMENT, PANELS, FEEDERS, CIRCUIT BREAKERS, ETC. SHALL REMAIN & BE PROTECTED IN PLACE. PLEASE REFER TO PROPOSED SINGLE LINE DIAGRAM FOR NEW WORK.

1 EXISTING SINGLE LINE DIAGRAM
SCALE: 1/8" = 1'-0"

AGENCY INFORMATION

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BAKERSFIELD CITY SCHOOL DISTRICT

[Bakersfield City School District Seal: Bakersfield City School District, Where The Child Comes First]

BESSIE OWENS E.S. TEMPORARY MODULAR BUILDINGS
815 POTOMAC AVE, BAKERSFIELD, CA 93307

OPSC or OSHPD PROJ. NO. N/A
PROJECT NO. 118932
DRAWN BY: V.Z.
CHK'D BY: D.F.
ISSUE DATE: 8/19/2019

SHEET TITLE

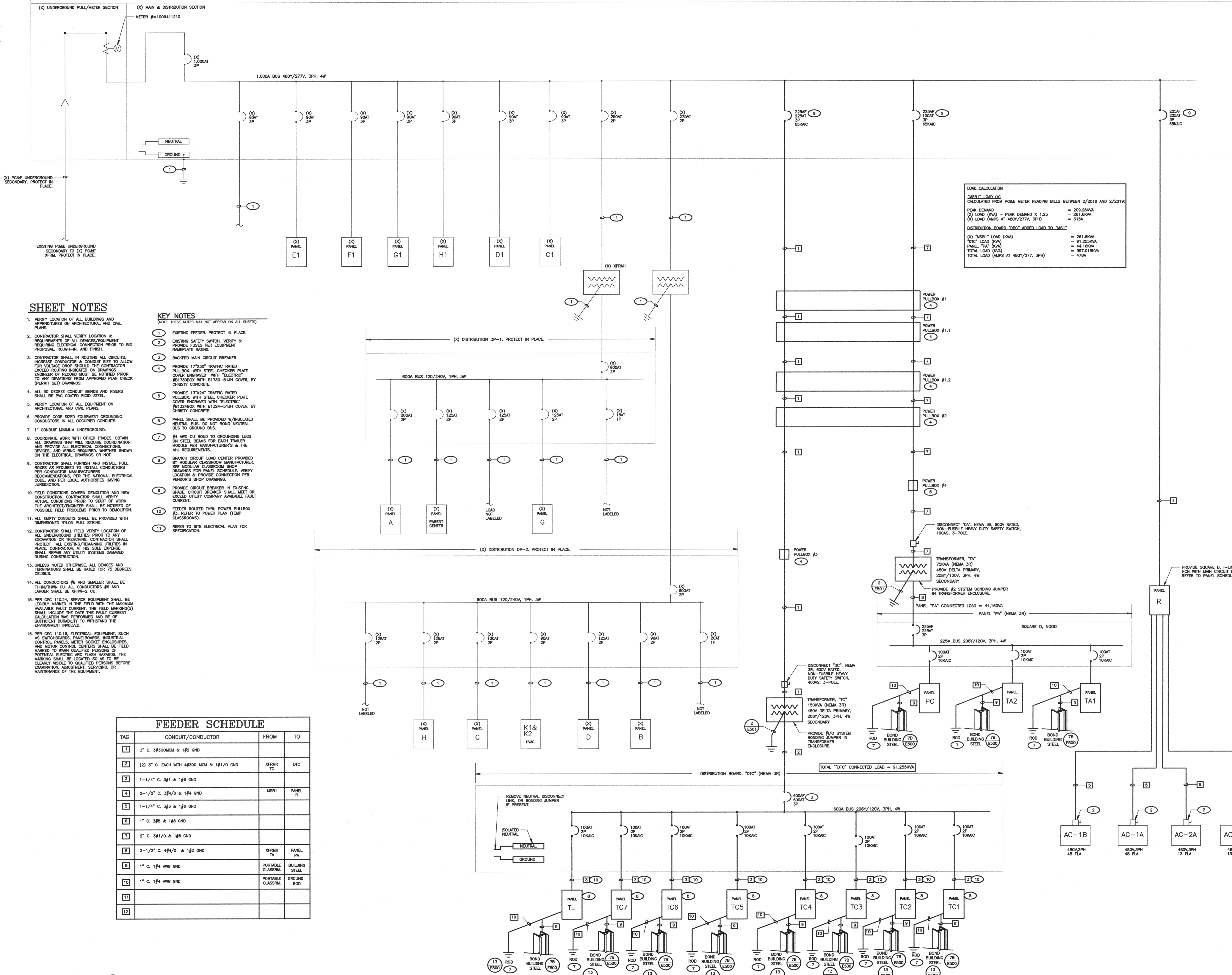
EXISTING SINGLE LINE DIAGRAM

SHEET NUMBER

E400

CONSTRUCTION DOCUMENTS

EXISTING MAIN SWITCHBOARD 1 "MSB1", PROTECT IN PLACE.



LOAD CALCULATION

MSB1 LOAD (A)
CALCULATED FROM PG&E METER READING BILLS BETWEEN 2/2018 AND 2/2019:

PEAK DEMAND = 209.28KVA
 (X) LOAD (KVA) = PEAK DEMAND X 1.25 = 261.60KVA
 (X) LOAD (AMPS AT 480V/277V, 3PH) = 315A

DISTRIBUTION BOARD "DTC" ADDED LOAD TO "MS1"

(X) MSB1 LOAD (KVA) = 261.60KVA
 DTC LOAD (KVA) = 91.25KVA
 PANEL "TA" (KVA) = 44.16KVA
 TOTAL LOAD (KVA) = 397.01KVA
 TOTAL LOAD (AMPS AT 480V/277, 3PH) = 478A

SHEET NOTES

- VERIFY LOCATION OF ALL BUILDINGS AND APPURTENANCES ON ARCHITECTURAL AND CIVIL PLANS.
- CONTRACTOR SHALL VERIFY LOCATION & REQUIREMENTS OF ALL DEVICES/EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO BID PROPOSAL, ROUGH-IN, AND FINISH.
- CONTRACTOR SHALL IN ROUTING ALL CIRCUITS, INCREASE CONDUCTOR & CONDUIT SIZE TO ALLOW FOR VOLTAGE DROP SHOULD THE CONTRACTOR EXCEED ROUTING INDICATED ON DRAWINGS. ENGINEER OF RECORD MUST BE NOTIFIED PRIOR TO ANY DEMONSTRATION FROM APPROVED PLAN CHECK (PERMIT SET) DRAWINGS.
- ALL 90 DEGREE CONDUIT BENDS AND RISERS SHALL BE PVC COATED RIGID STEEL.
- VERIFY LOCATION OF ALL EQUIPMENT ON ARCHITECTURAL AND CIVIL PLANS.
- PROVIDE CODE SIZED EQUIPMENT GROUNDING CONDUCTORS IN ALL OCCUPIED CONDUITS.
- 1" CONDUIT MINIMUM UNDERGROUND.
- COORDINATE WORK WITH OTHER TRADES. OBTAIN ALL DRAWINGS THAT WILL REQUIRE COORDINATION AND PROVIDE ALL ELECTRICAL CONNECTIONS, DEVICES AND WIRING REQUIRED, WHETHER SHOWN ON THE ELECTRICAL DRAWINGS OR NOT.
- CONTRACTOR SHALL FURNISH AND INSTALL PULL BOXES AS REQUIRED TO INSTALL CONDUCTORS PER CONDUCTOR MANUFACTURER'S RECOMMENDATIONS. PER THE NATIONAL ELECTRICAL CODE, AND PER LOCAL AUTHORITIES HAVING JURISDICTION.
- FIELD CONDITIONS GOVERN DEMOLITION AND NEW CONSTRUCTION. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS PRIOR TO START OF WORK. THE ARCHITECT/ENGINEER SHALL BE NOTIFIED OF POSSIBLE FIELD PROBLEMS PRIOR TO DEMOLITION.
- ALL EMPTY CONDUITS SHALL BE PROVIDED WITH DIMENSIONED NYLON PULL STRIPS.
- CONTRACTOR SHALL FIELD VERIFY LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION OR TRENCHING. CONTRACTOR SHALL PROTECT ALL EXISTING/REMAINING UTILITIES IN PLACE. CONTRACTOR, AT HIS SOLE EXPENSE, SHALL REPAIR ANY UTILITY SYSTEMS DAMAGED DURING CONSTRUCTION.
- UNLESS NOTED OTHERWISE, ALL DEVICES AND TERMINATIONS SHALL BE RATED FOR 75 DEGREES CELSIUS.
- ALL CONDUCTORS #8 AND SMALLER SHALL BE THIN WALL CU. ALL CONDUCTORS #6 AND LARGER SHALL BE XHHW-2 CU.
- PER NEC 110.24, SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED IN THE FIELD WITH THE MAXIMUM AVAILABLE FAULT CURRENT. THE FIELD MARKINGS SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED.
- PER NEC 110.16, ELECTRICAL EQUIPMENT, SUCH AS SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS, METER SOCKET ENCLOSURES, AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARDS. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE OF THE EQUIPMENT.

KEY NOTES

(NOTE: THESE NOTES MAY NOT APPEAR ON ALL SHEETS)

- EXISTING FEEDER, PROTECT IN PLACE.
- EXISTING SAFETY SWITCH, VERIFY & PROVIDE FUSES PER EQUIPMENT NAMEPLATE RATING.
- BACKFED MAIN CIRCUIT BREAKER.
- PROVIDE 17"x30" TRAFFIC RATED PULLBOX, WITH STEEL CHECKER PLATE COVER ENGINEERED WITH "ELECTRIC" #1730BOX WITH B1730-51.4H COVER, BY CHRISBY CONCRETE.
- PROVIDE 13"x24" TRAFFIC RATED PULLBOX, WITH STEEL CHECKER PLATE COVER ENGINEERED WITH "ELECTRIC" #1324BOX WITH B1324-51.4H COVER, BY CHRISBY CONCRETE.
- PANEL SHALL BE PROVIDED W/INSULATED NEUTRAL BUS, DO NOT BOND NEUTRAL BUS TO GROUND BUS.
- #4 AWG CU BOND TO GROUNDING LUGS ON STEEL BEAMS FOR EACH TRAILER MODULE PER MANUFACTURER'S & THE AHJ REQUIREMENTS.
- BRANCH CIRCUIT LOAD CENTER PROVIDED BY MODULAR CLASSROOM MANUFACTURER. SEE MODULAR CLASSROOM SHOP DRAWINGS FOR PANEL SCHEDULE, VERIFY LOCATION & PROVIDE CONNECTION PER VENDOR'S SHOP DRAWINGS.
- PROVIDE CIRCUIT BREAKER IN EXISTING SPACE. CIRCUIT BREAKER SHALL MEET OR EXCEED UTILITY COMPANY AVAILABLE FAULT CURRENT.
- FEEDER RATED THRU POWER PULLBOX #2. REFER TO POWER PLAN (TEMP CLASSROOMS).
- REFER TO SITE ELECTRICAL PLAN FOR SPECIFICATION.

FEEDER SCHEDULE

TAG	CONDUIT/CONDUCTOR	FROM	TO
1	3" C. 3#30MCM & 1#2 GND		
2	(2) 3" C. EACH WITH 4#300 MCM & 1#1/0 GND	XFRMR TC	DTC
3	1-1/4" C. 3#1 & 1#6 GND		
4	2-1/2" C. 3#4/0 & 1#4 GND	MSB1	PANEL R
5	1-1/4" C. 3#3 & 1#6 GND		
6	1" C. 3#8 & 1#6 GND		
7	2" C. 3#1/0 & 1#6 GND		
8	2-1/2" C. 4#4/0 & 1#2 GND	XFRMR TA	PANEL PA
9	1" C. 1#4 AWG GND	PORTABLE CLASSRM.	BUILDING STEEL
10	1" C. 1#4 AWG GND	PORTABLE CLASSRM.	GROUND ROD
11			
12			

1 PROPOSED SINGLE LINE DIAGRAM
SCALE: 1/8" = 1'-0"

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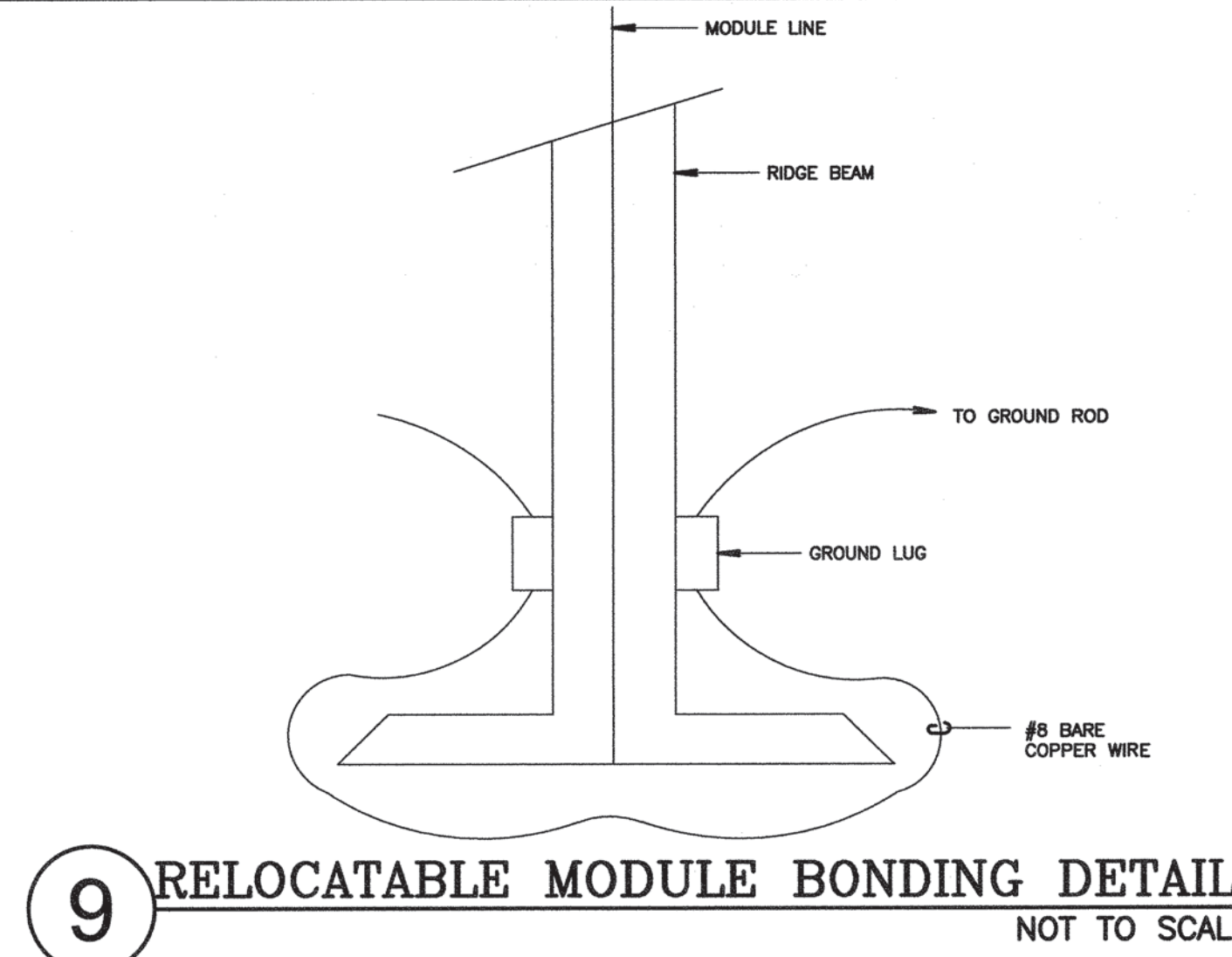
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PROJECT NO. 118932
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ISSUE DATE: 8/19/2019
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PROPOSED SINGLE LINE DIAGRAM

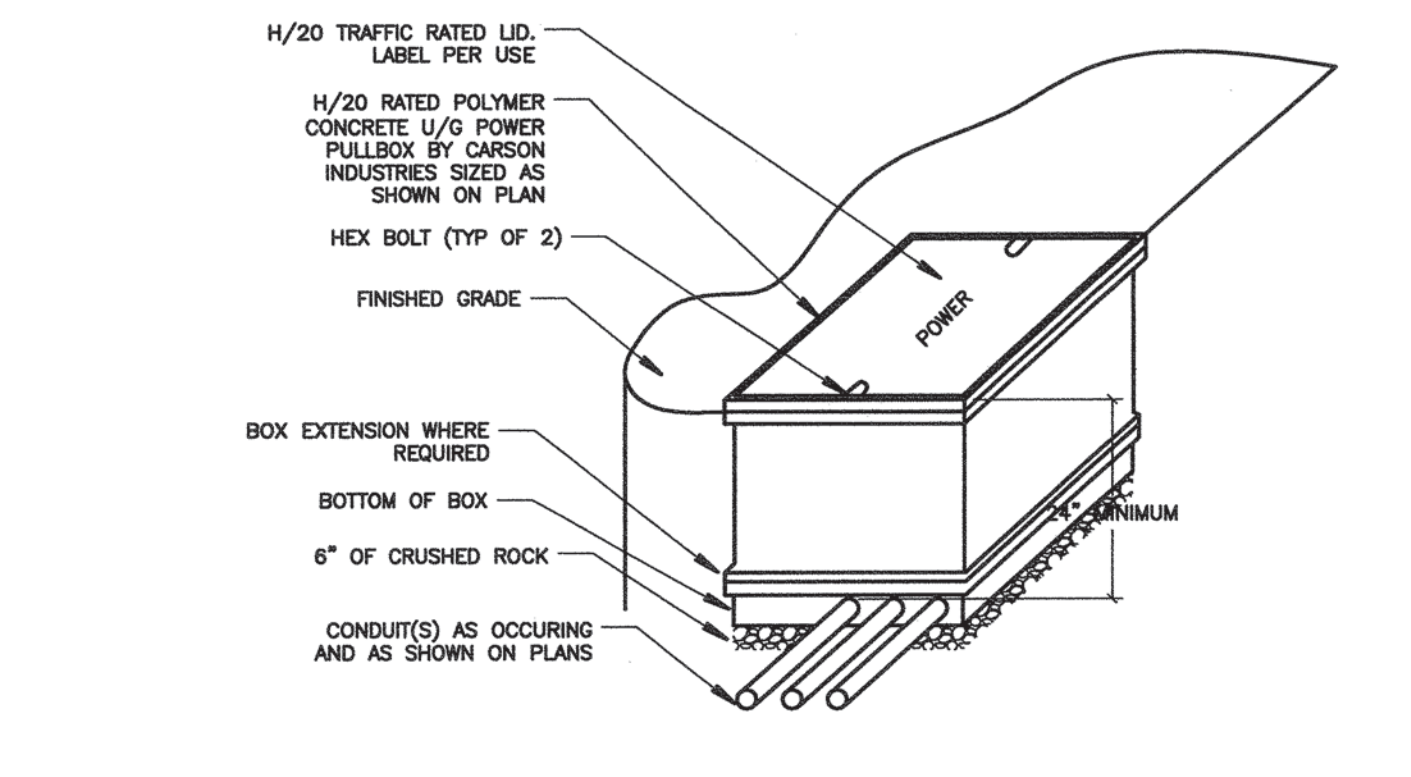
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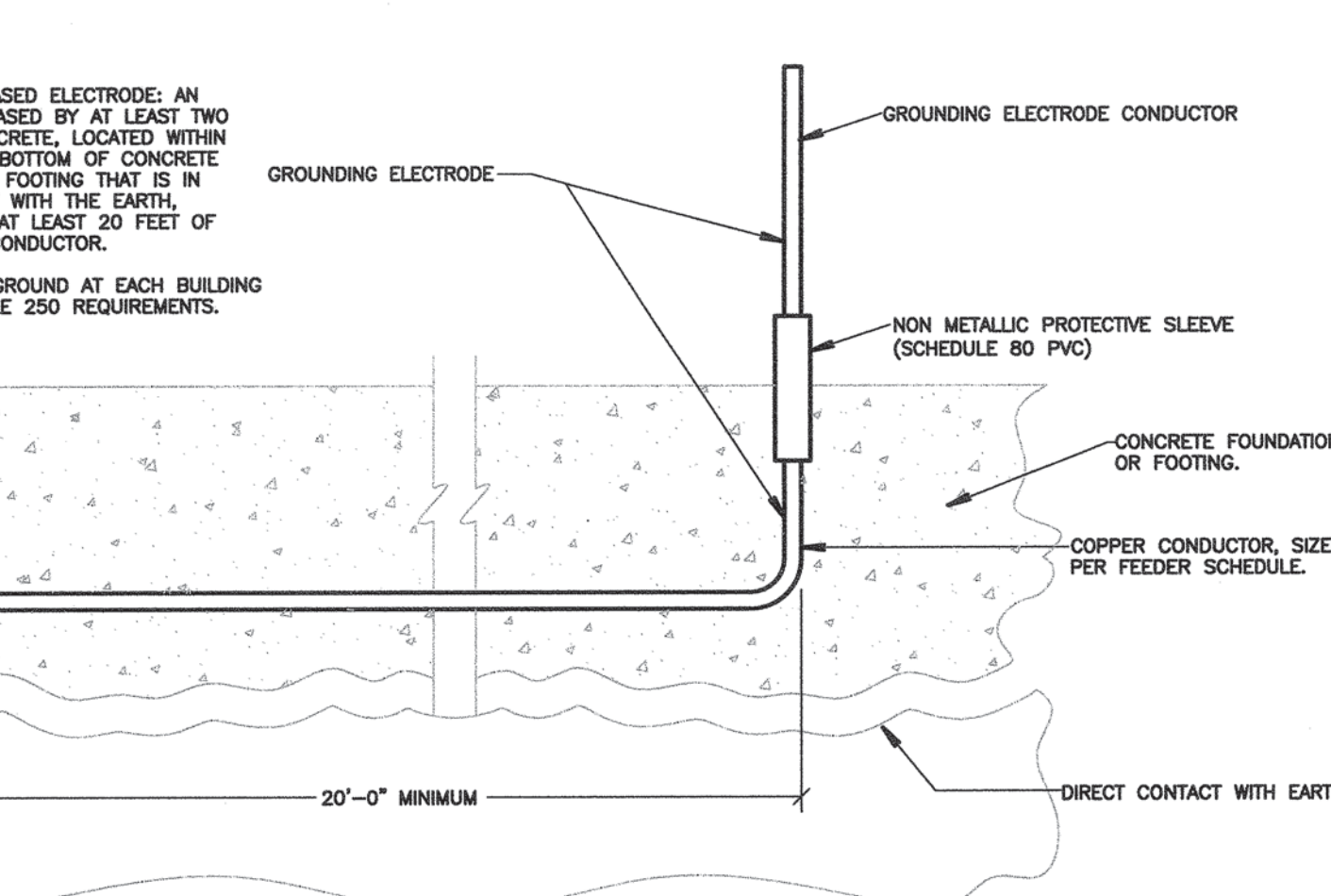
CONSTRUCTION DOCUMENTS



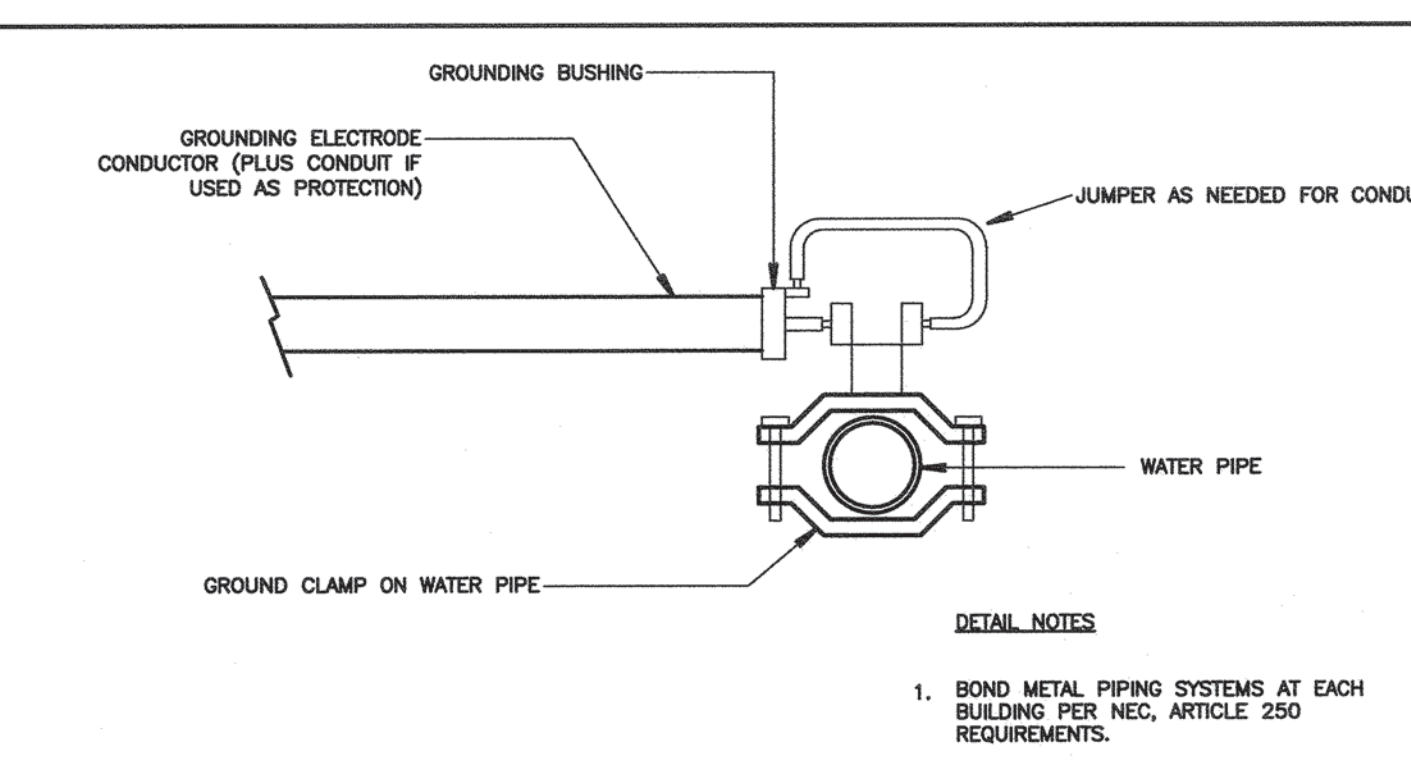
9 RELOCATABLE MODULE BONDING DETAIL
NOT TO SCALE



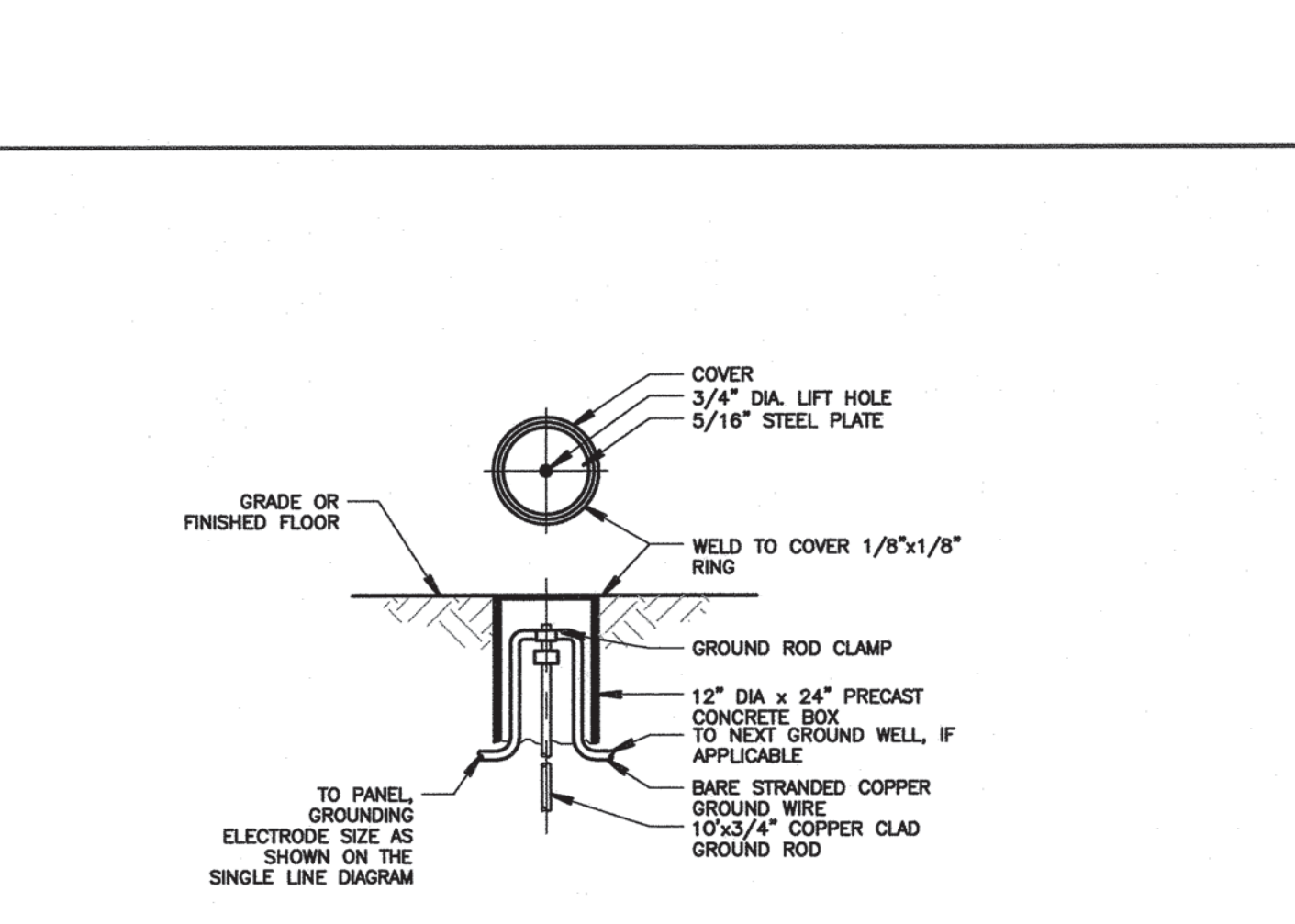
10 TYPICAL PULL BOX DETAIL
SCALE: NOT TO SCALE



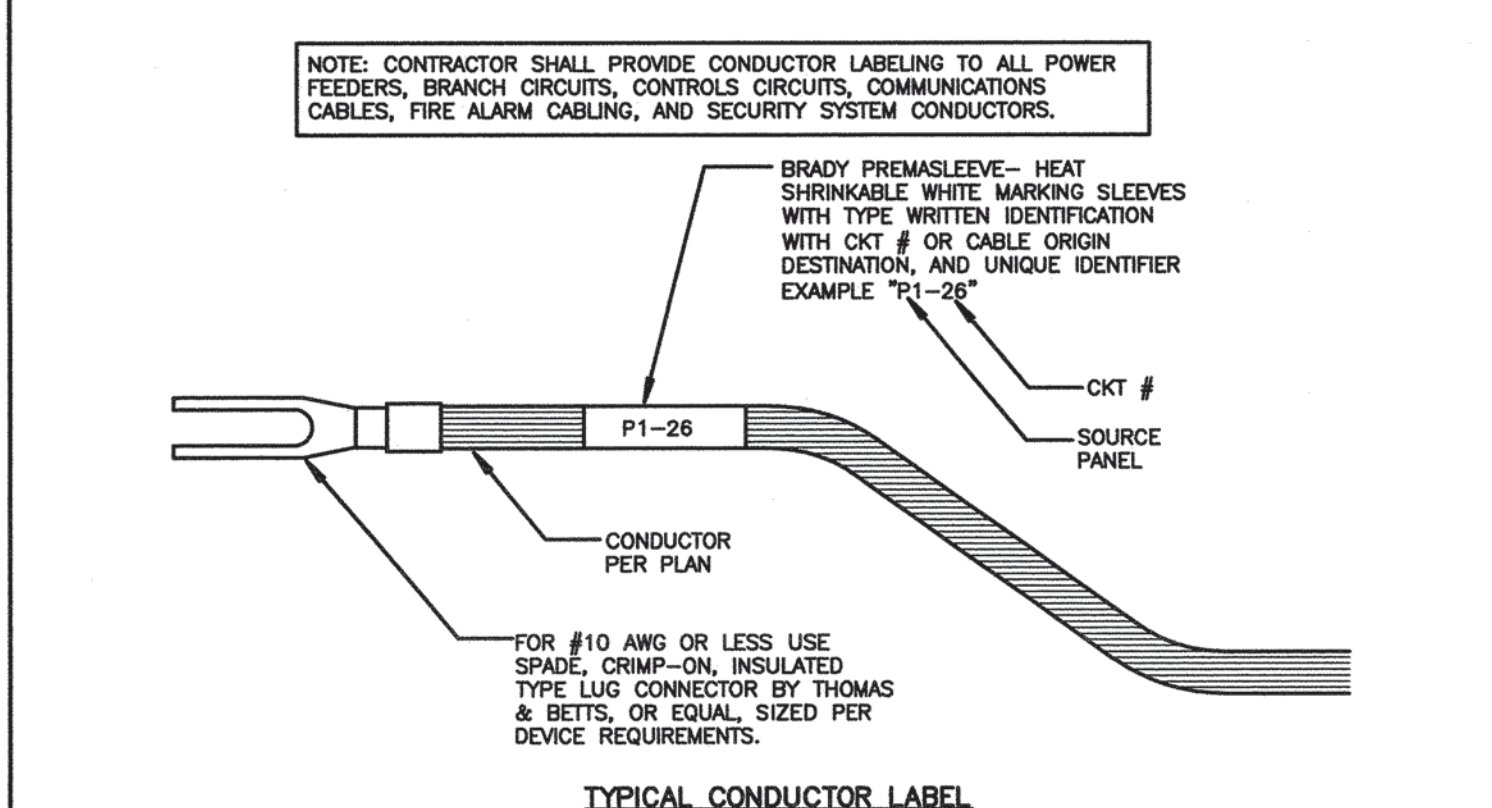
11 UFER GROUND DETAIL
SCALE: NOT TO SCALE



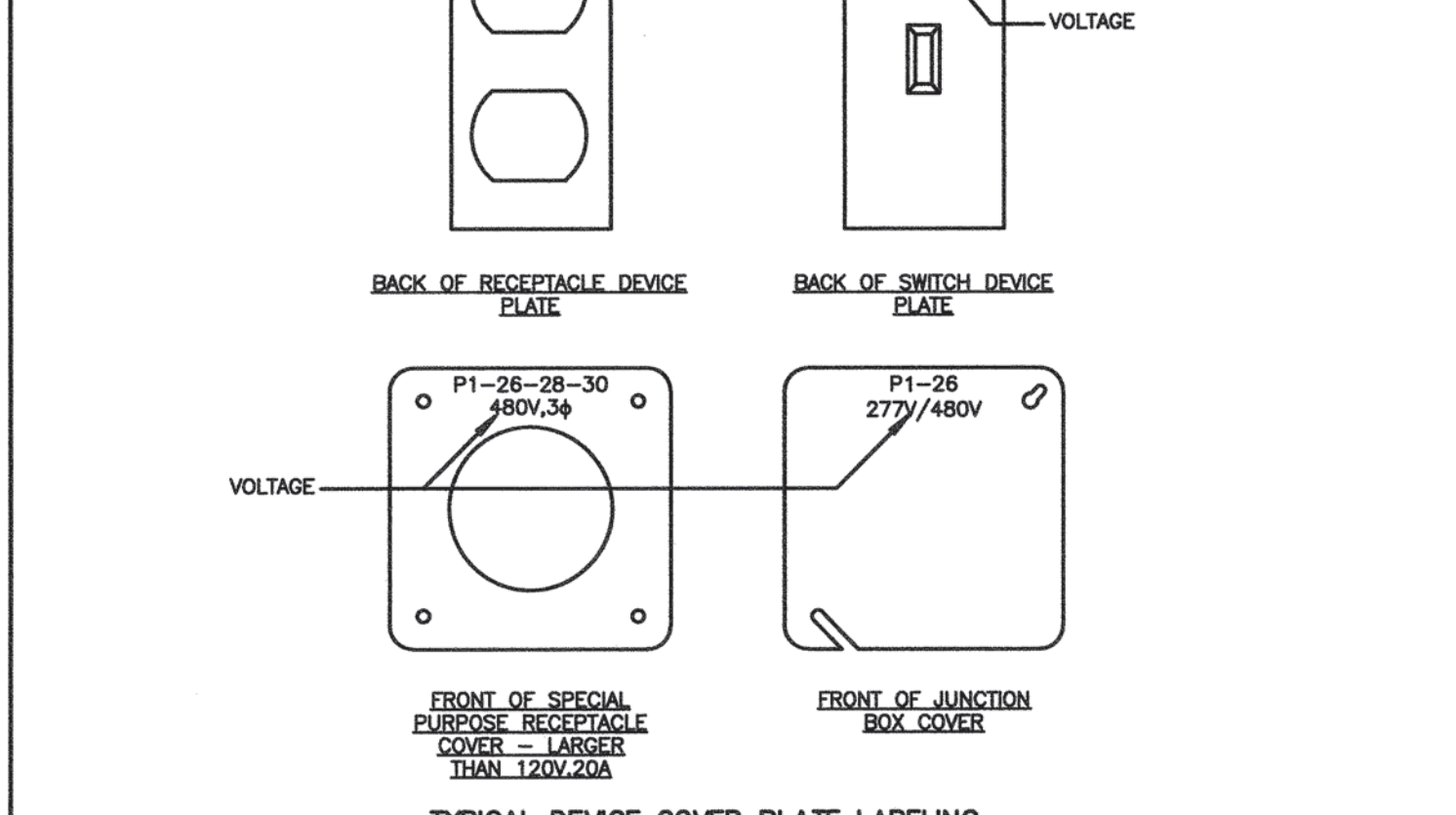
12 COLD WATER GROUND DETAIL
SCALE: NOT TO SCALE



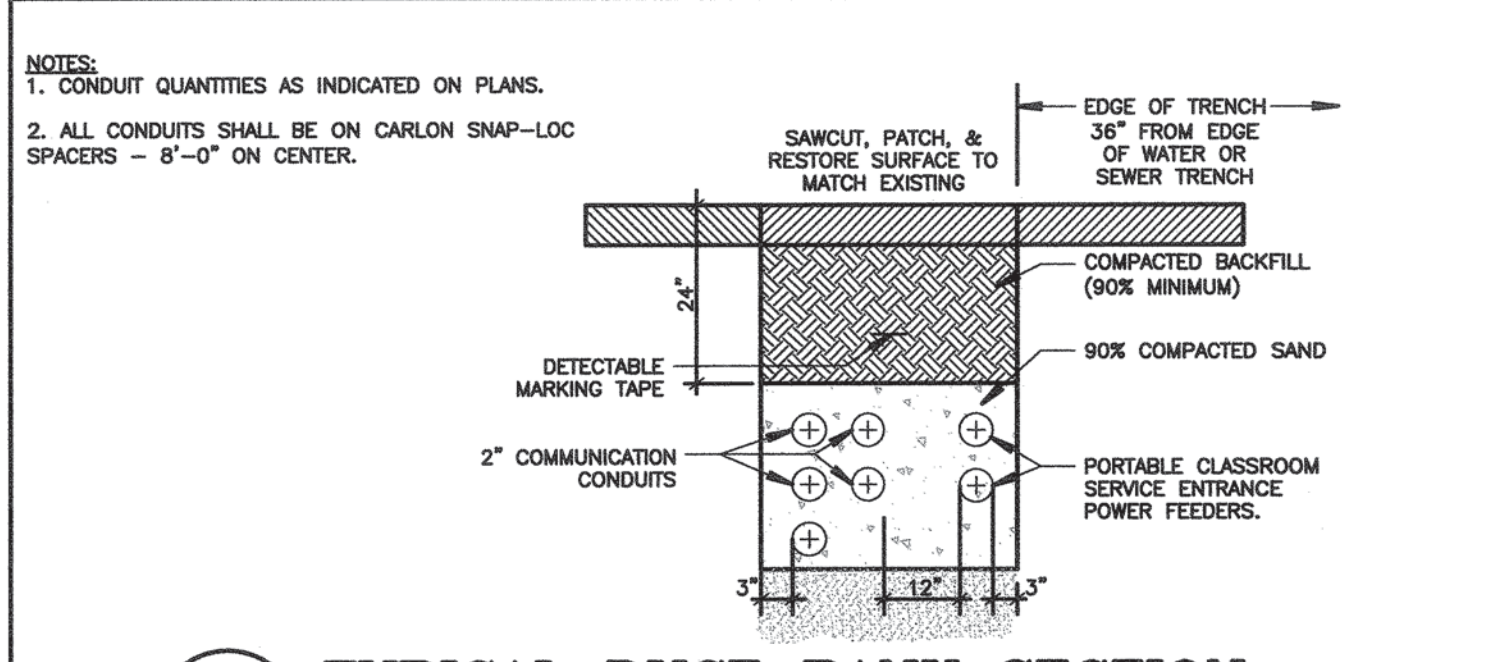
13 GROUND ROD DETAIL
SCALE: NOT TO SCALE



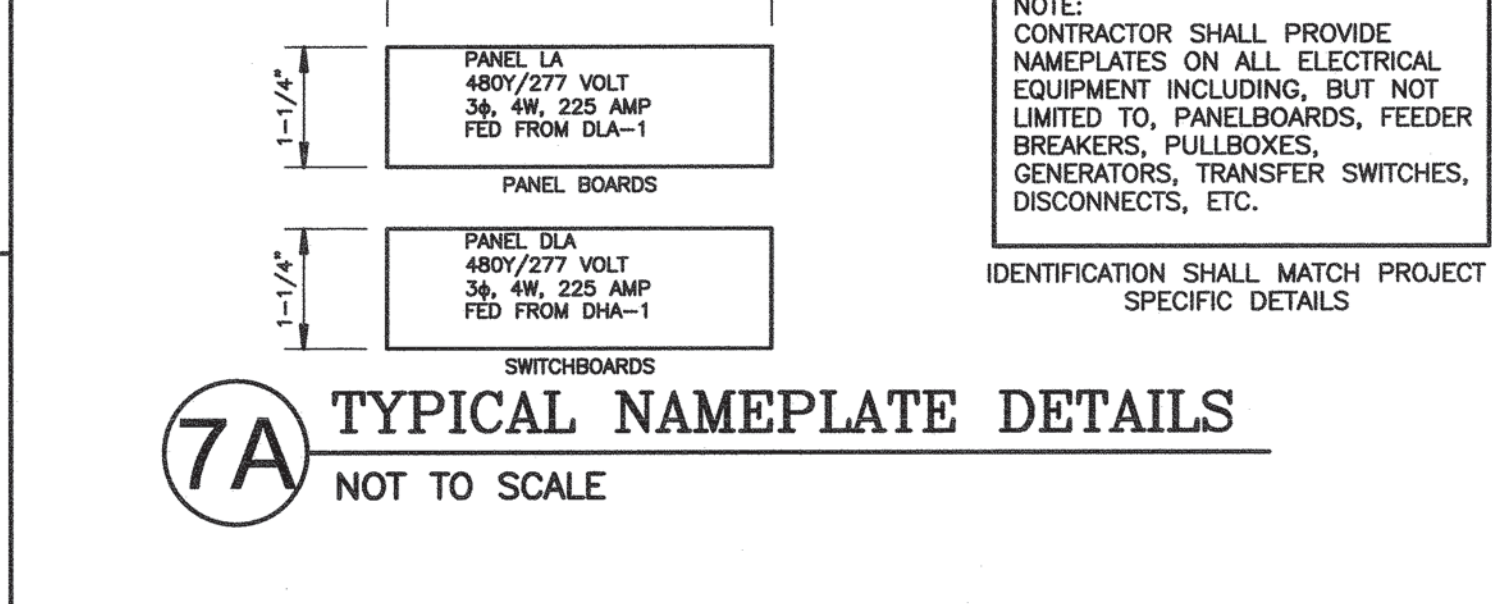
6 TYPICAL LABELING DETAIL
SCALE: NOT TO SCALE



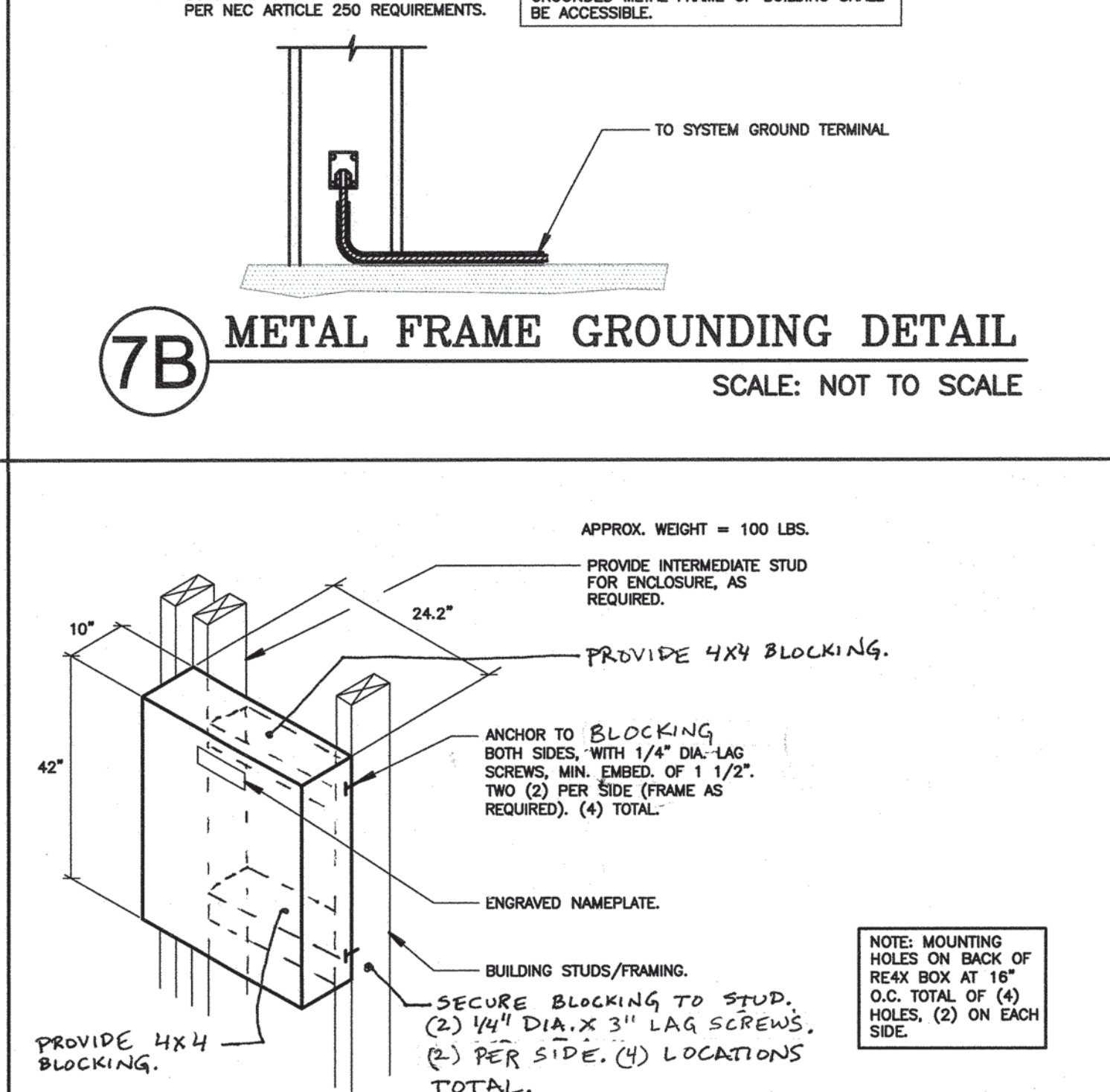
7 TYPICAL DUCT BANK SECTION
SCALE: NOT TO SCALE



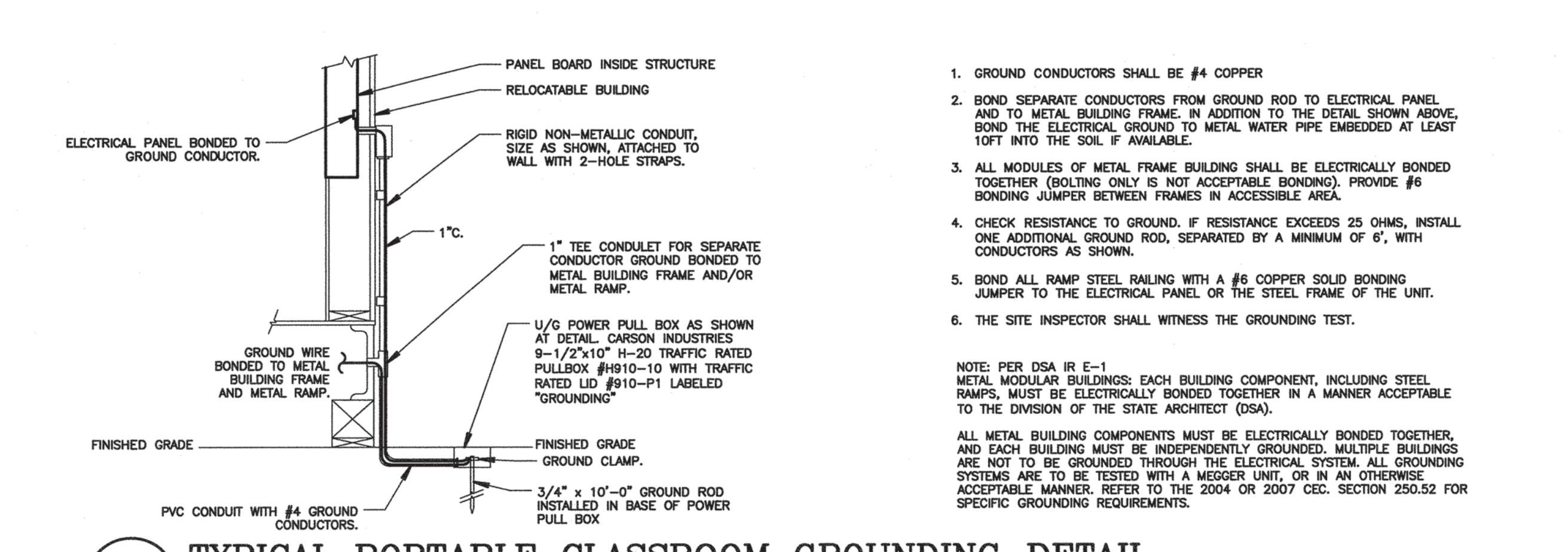
7A TYPICAL NAMEPLATE DETAILS
NOT TO SCALE



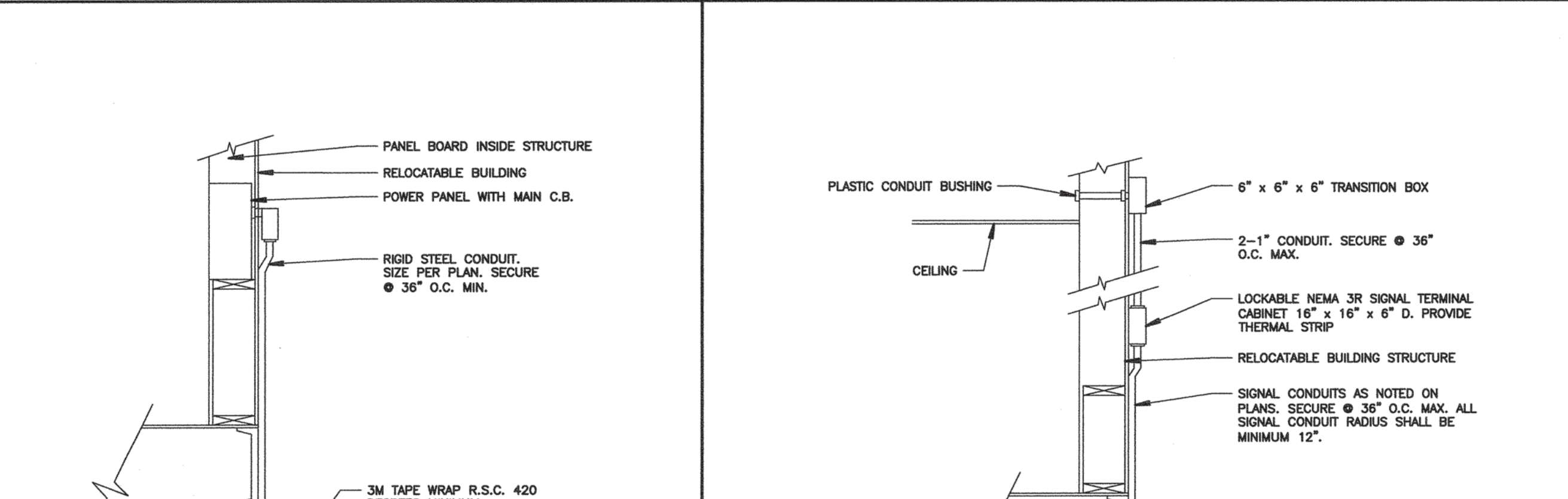
7B METAL FRAME GROUNDING DETAIL
SCALE: NOT TO SCALE



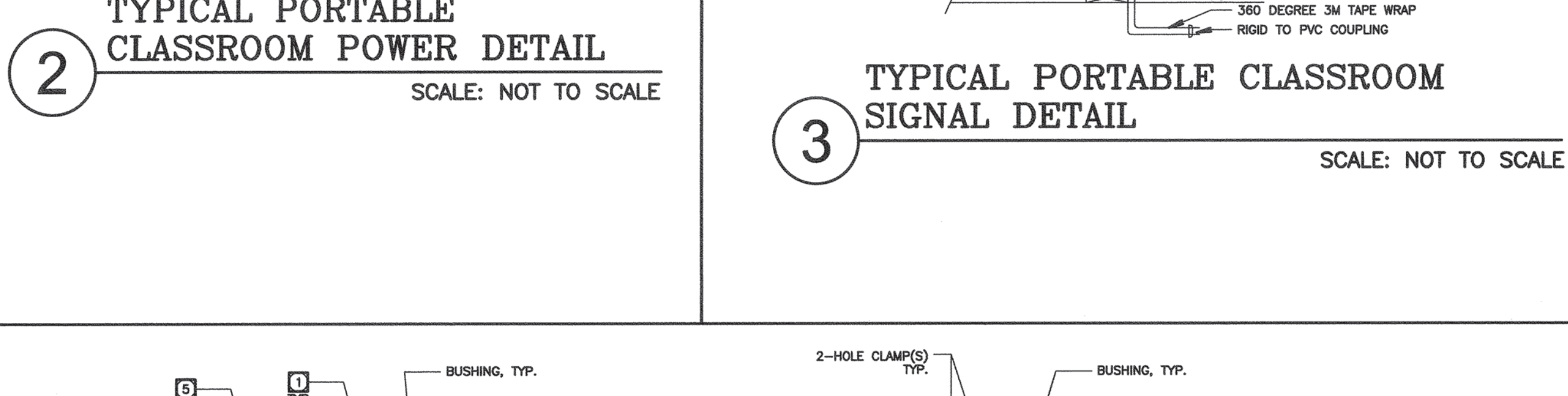
8 HUBBELL RE4X BOX MOUNTING DETAIL
NOT TO SCALE



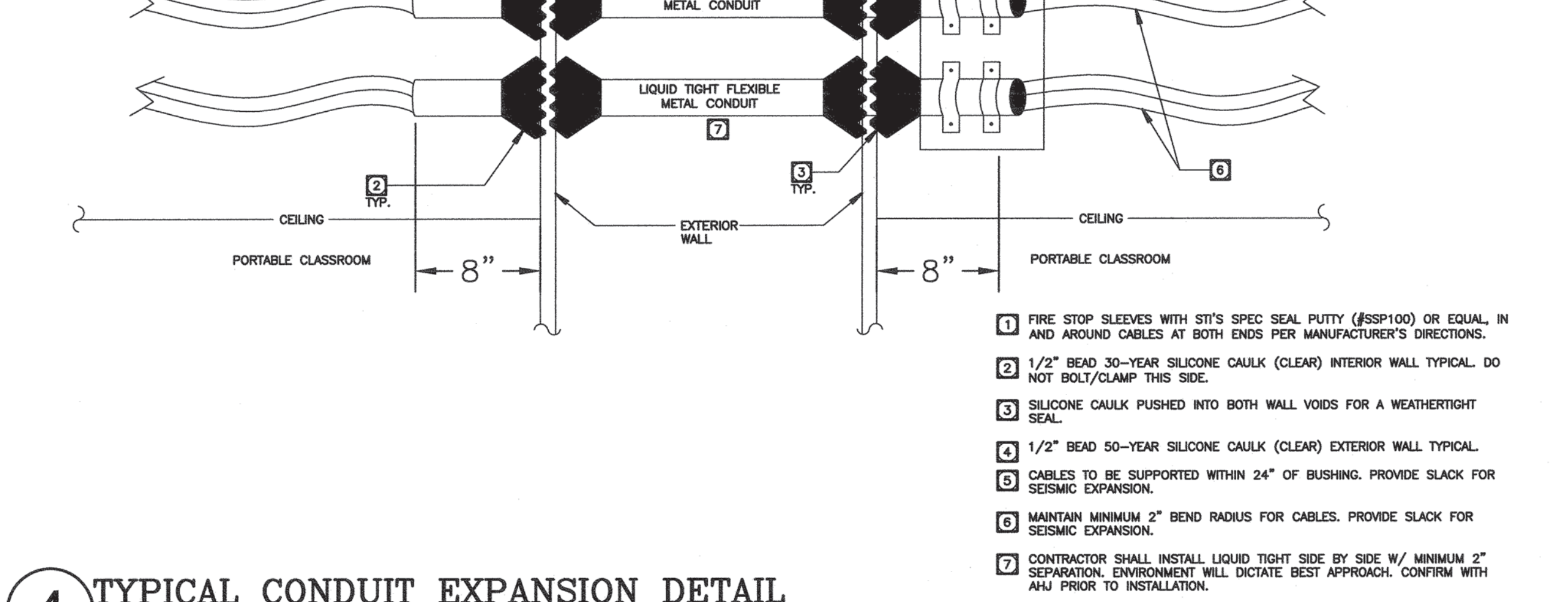
1 TYPICAL PORTABLE CLASSROOM GROUNDING DETAIL
SCALE: NOT TO SCALE



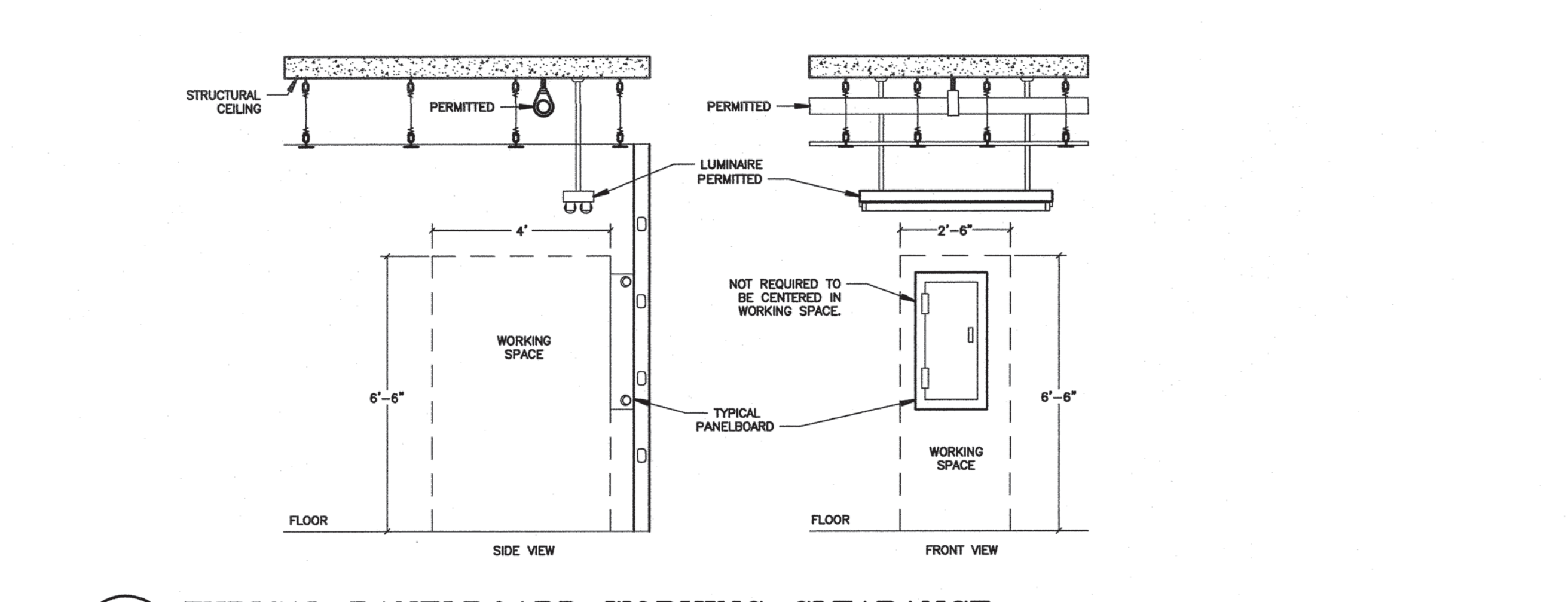
2 TYPICAL PORTABLE CLASSROOM POWER DETAIL
SCALE: NOT TO SCALE



3 TYPICAL PORTABLE CLASSROOM SIGNAL DETAIL
SCALE: NOT TO SCALE



4 TYPICAL CONDUIT EXPANSION DETAIL
NOT TO SCALE



5 TYPICAL PANELBOARD WORKING CLEARANCE
SCALE: NOT TO SCALE

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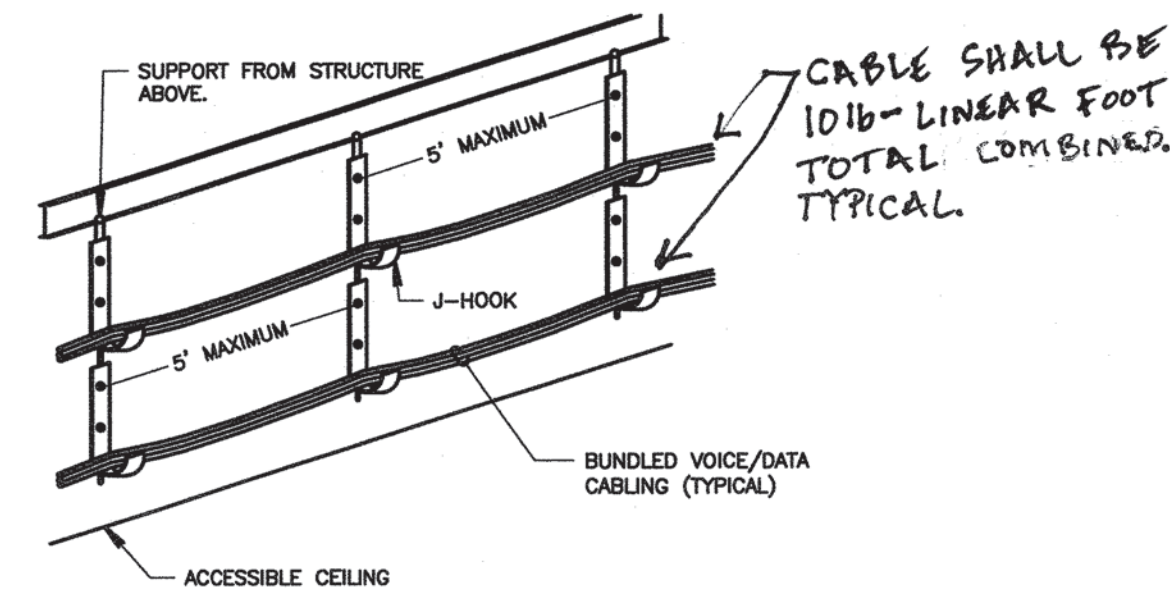


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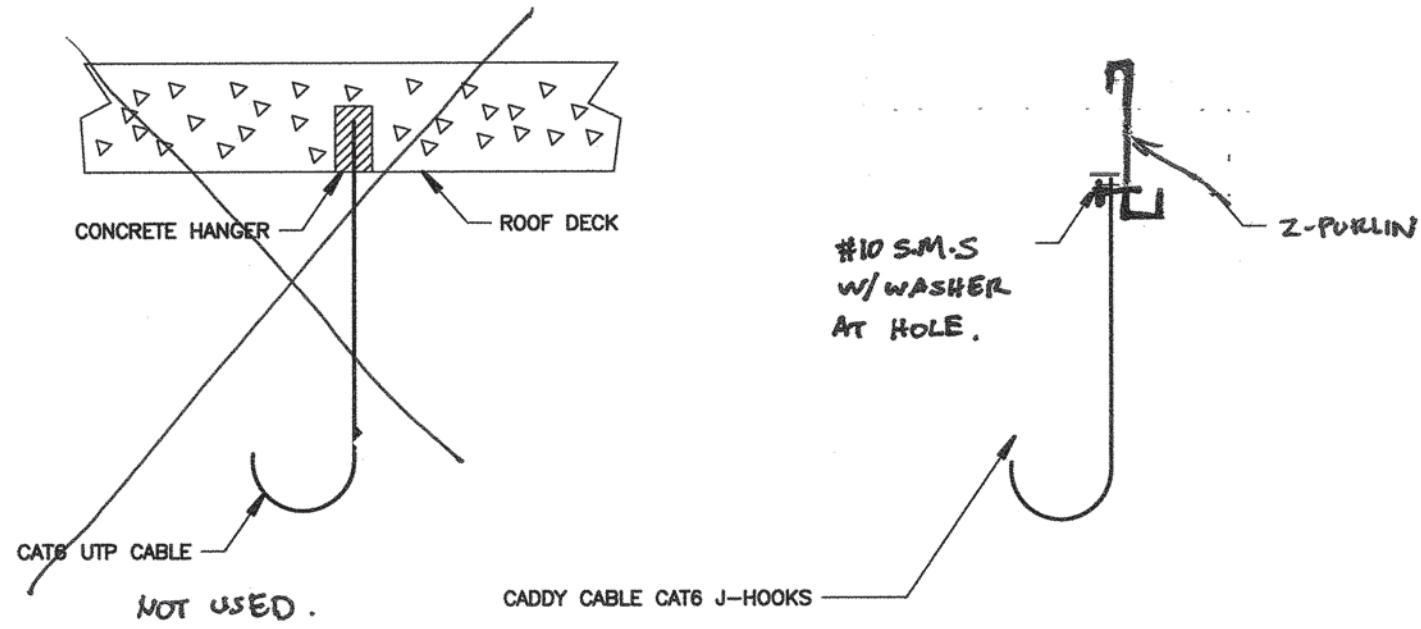
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DRAWN BY: V.Z.
CHK'D BY: D.F.
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ELECTRICAL DETAILS
SHEET NUMBER
E500

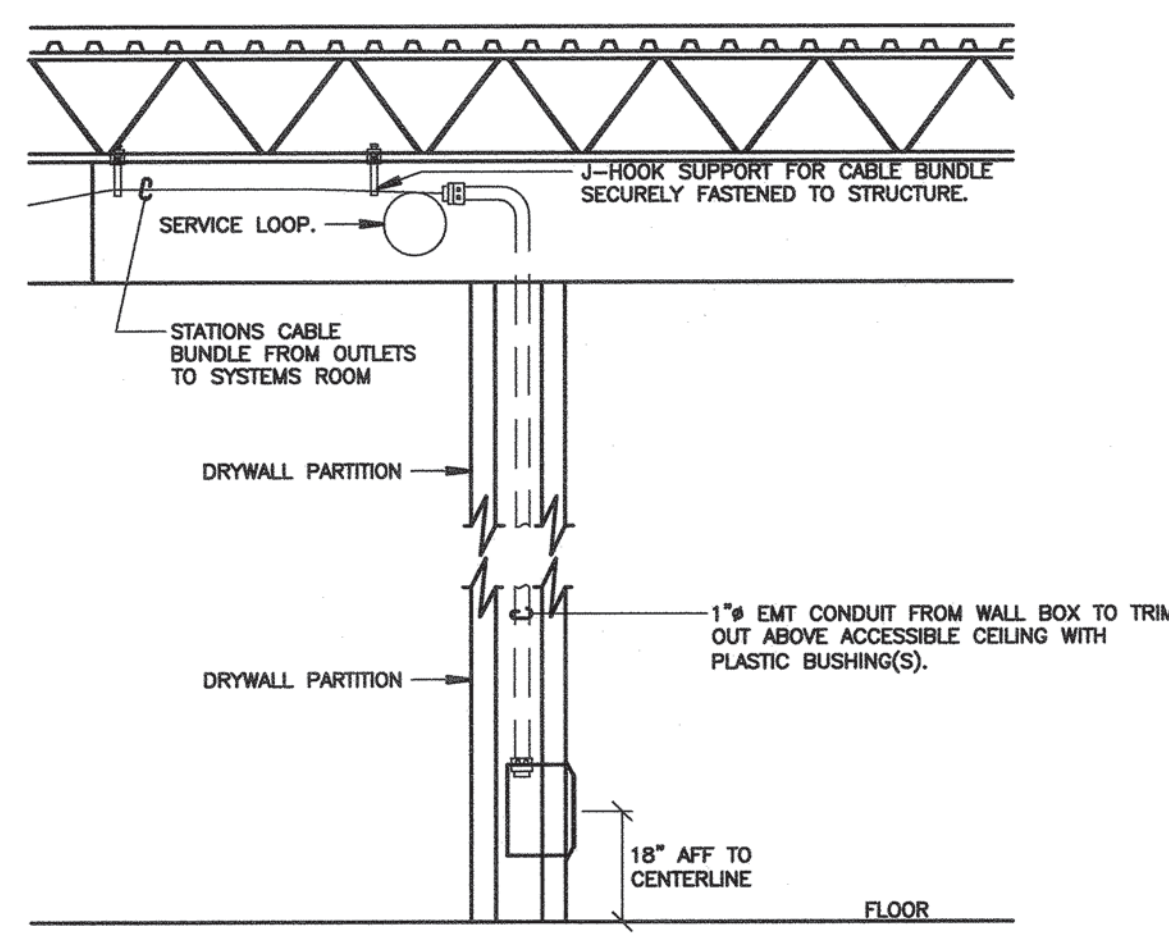


NOTE:
1. MOUNT J-HOOKS ON WALL PARTITIONS AT A MINIMUM OF 3\"/>

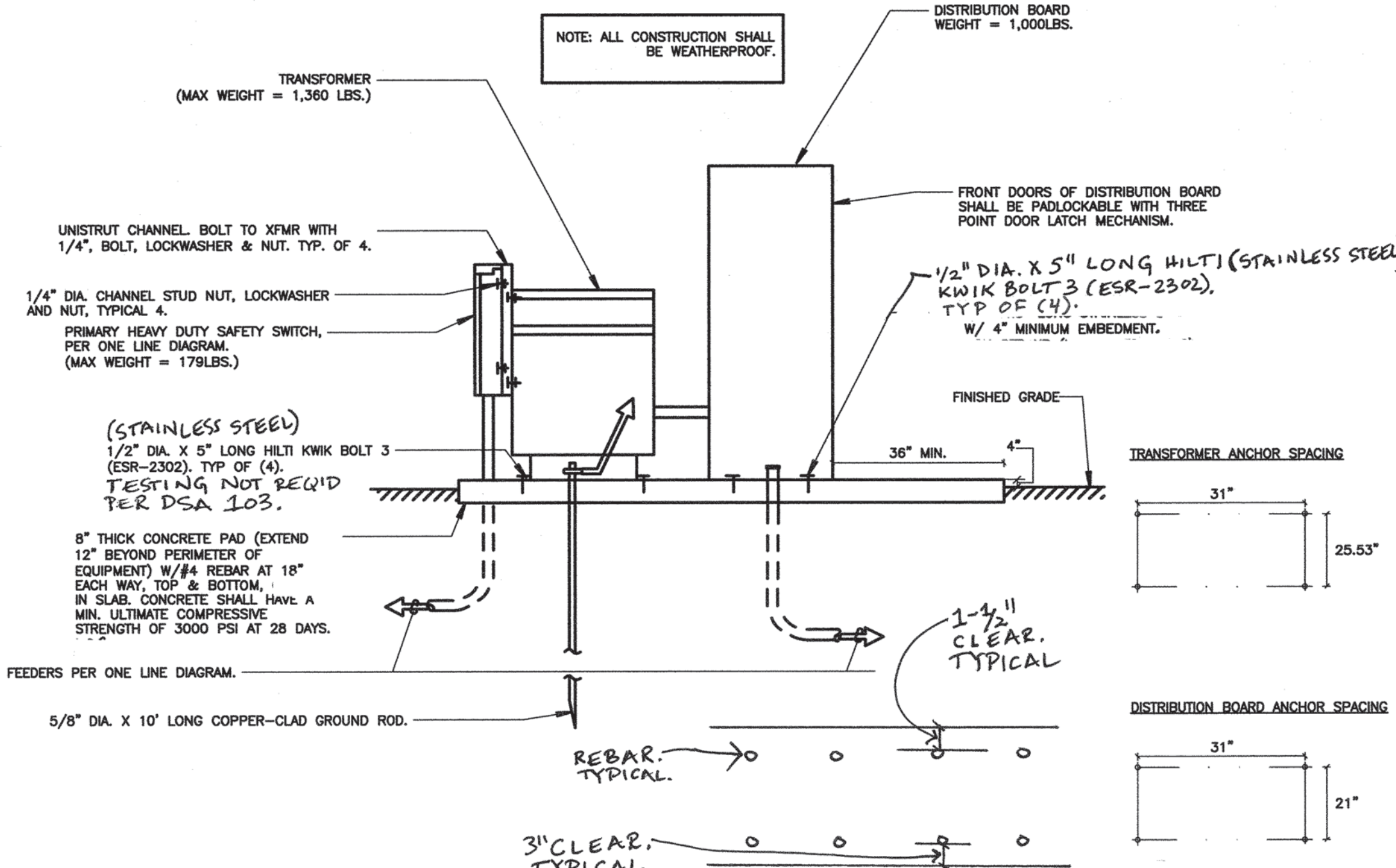
7 STRUCTURE MOUNTED J-HOOK DETAIL
NOT TO SCALE



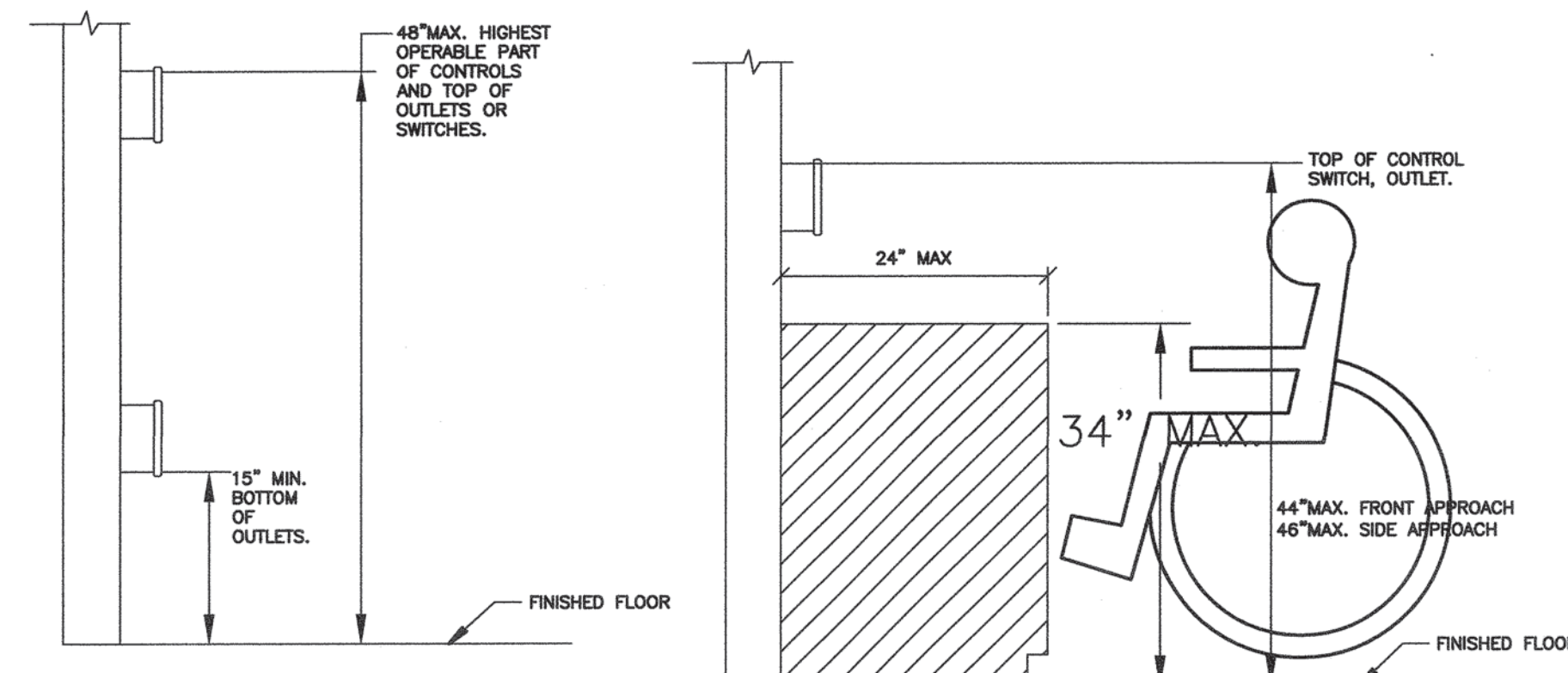
8 CABLE HANGER
NOT TO SCALE



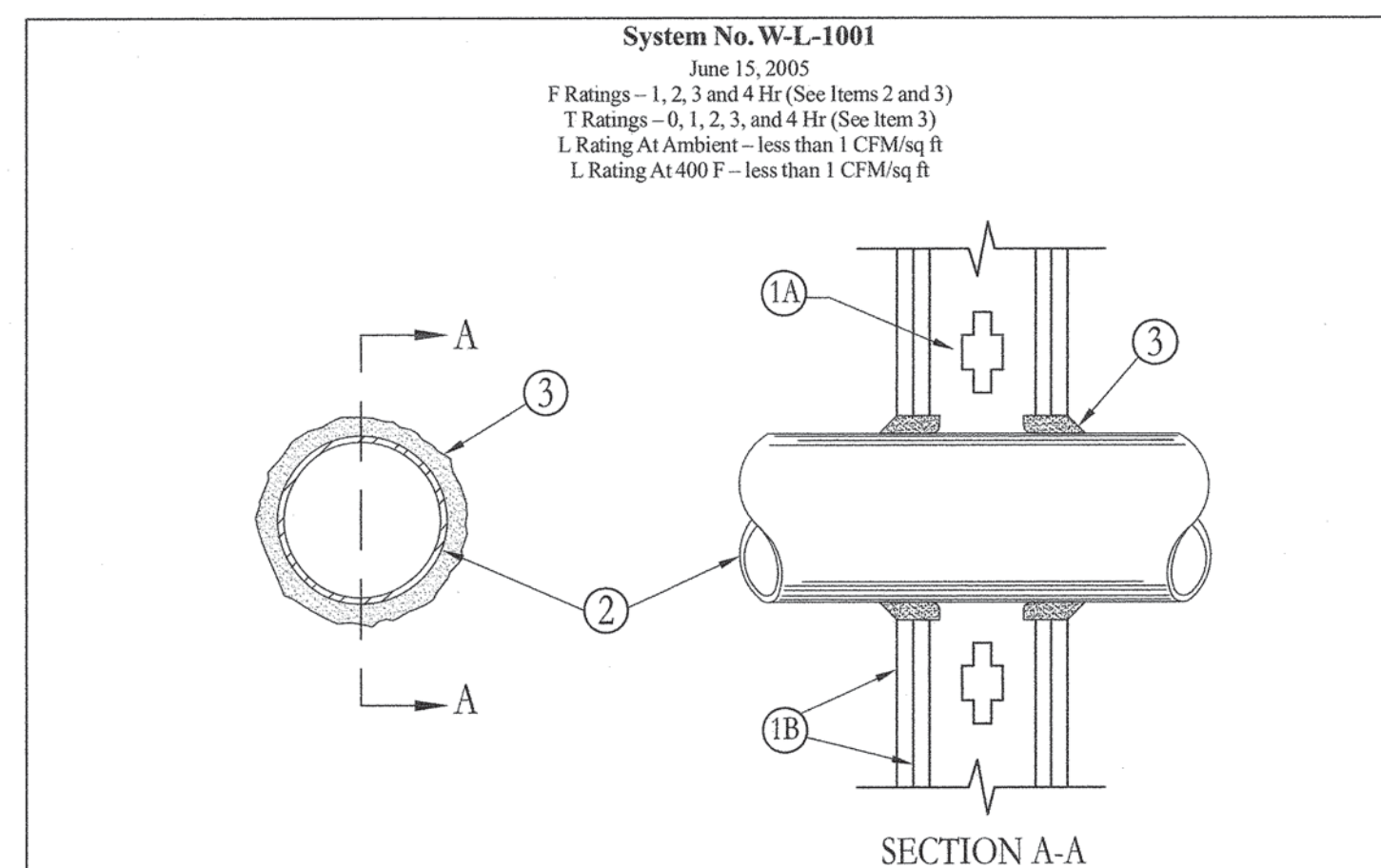
9 TYPICAL WALL MOUNTED COMMUNICATION OUTLET
NOT TO SCALE



4 TYPICAL TRANSFORMER AND DISTRIBUTION BOARD MOUNTING
NOT TO SCALE



5 MOUNTING HEIGHT OVER OBSTRUCTION
NOT TO SCALE

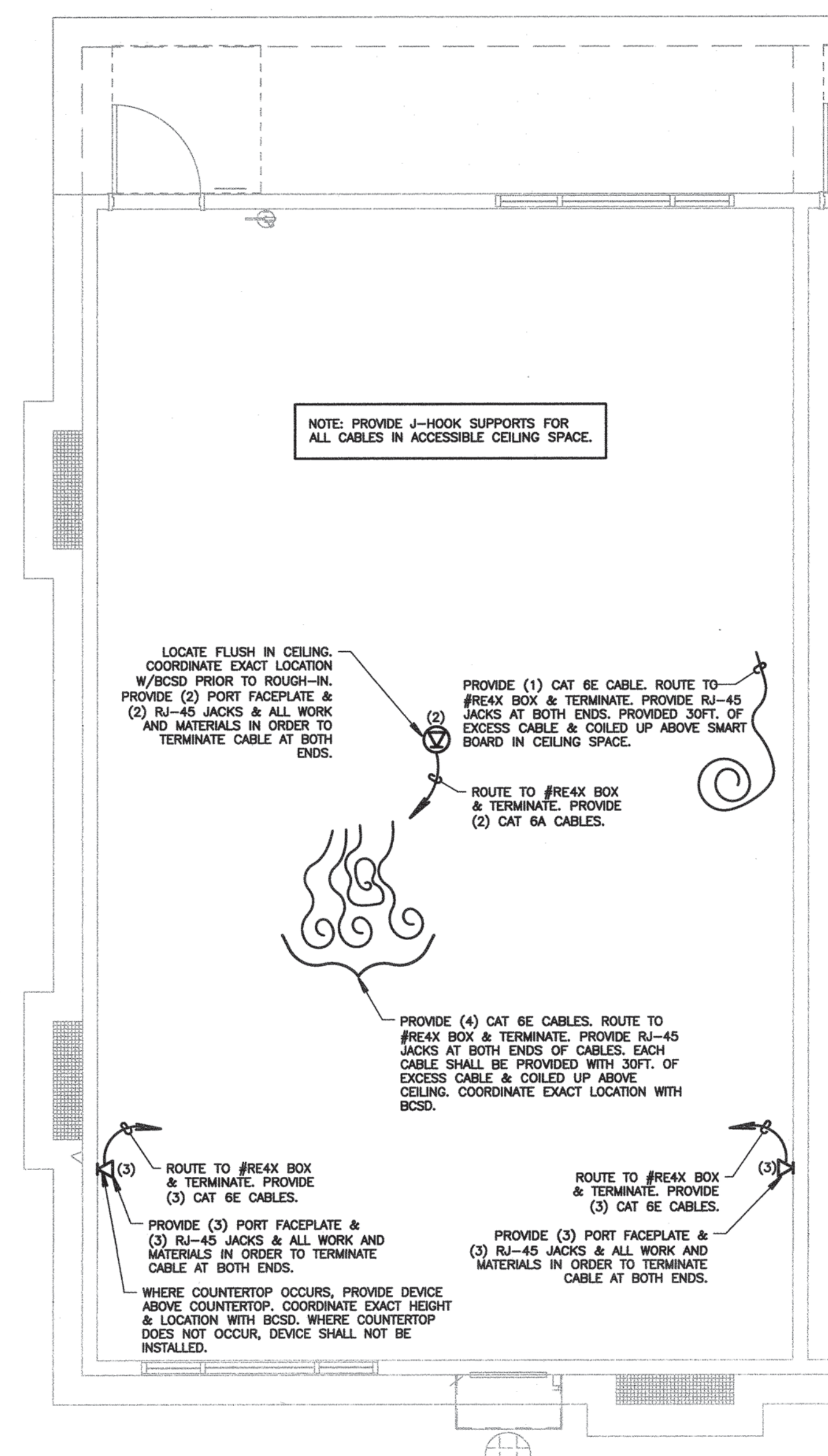


- Wall Assembly** - The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/wood assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - Studs** - Wall framing may consist of either wood studs (max 2 hr fire rated assemblies) or steel channel studs. Wood studs to consist of nominal 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nominal 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be 1.3-5/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.
 - Gypsum Board** - Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 20 in. (508 mm).
 - Through Penetrant** - One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in. (0 mm) (point contact) to max 2 in. (51 mm). 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:
 - Steel Pipe** - Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
 - Iron Pipe** - Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
 - Conduit** - Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in. (102 mm) diam (or smaller) electrical metallic tubing.
 - Copper Tubing** - Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - Copper Pipe** - Nom 6 in. (152 mm) diam (or smaller) Kettle (or heavier) copper pipe.
 - Through Penetrating Product** - Flexible Metal Piping - The following types of steel flexible metal piping may be used:
 - Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
 - Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
 - Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
- Fill Void or Cavity Material** - Caulk or Sealant - Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetration interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly F Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

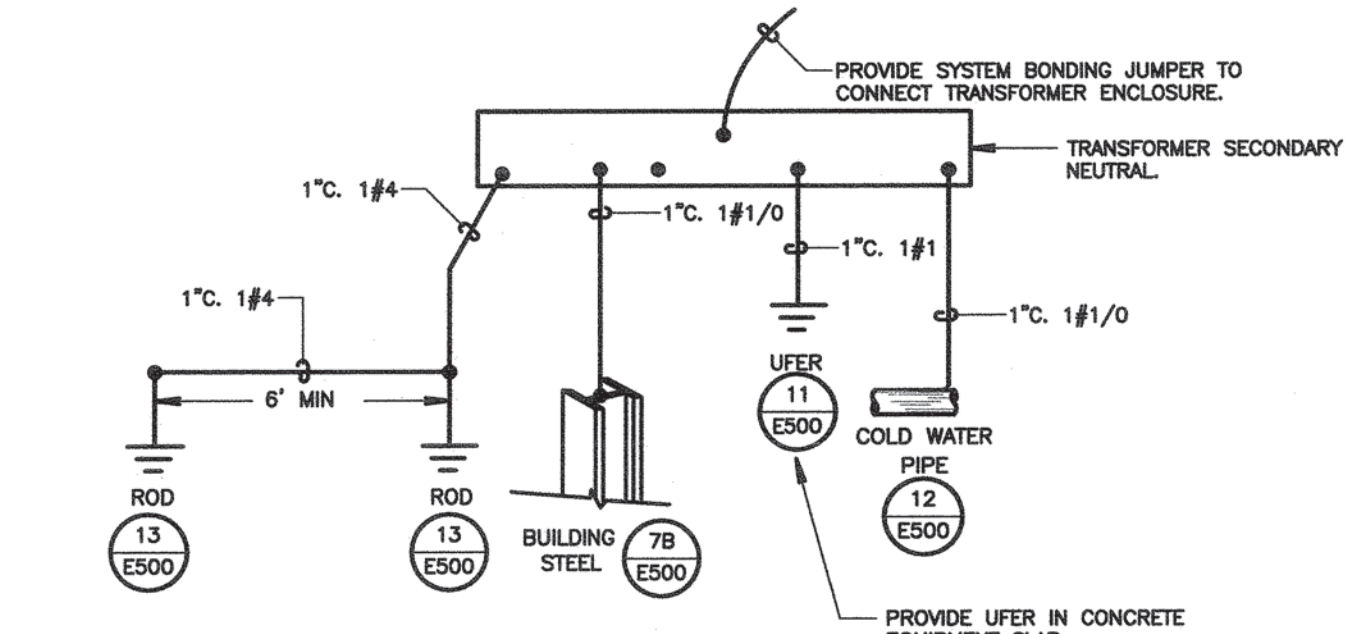
Max Pipe or Conduit Diam In. (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0-1, 1 or 2
4 (102)	3 or 4	3 or 4
6 (152)	1 or 2	0
12 (305)	3 or 4	0

*When copper pipe is used, T Rating is 0 hr.
3M COMPANY - CP 2530B caulk or FB-3000 WT sealant.
Bearing the UL Classification Marking

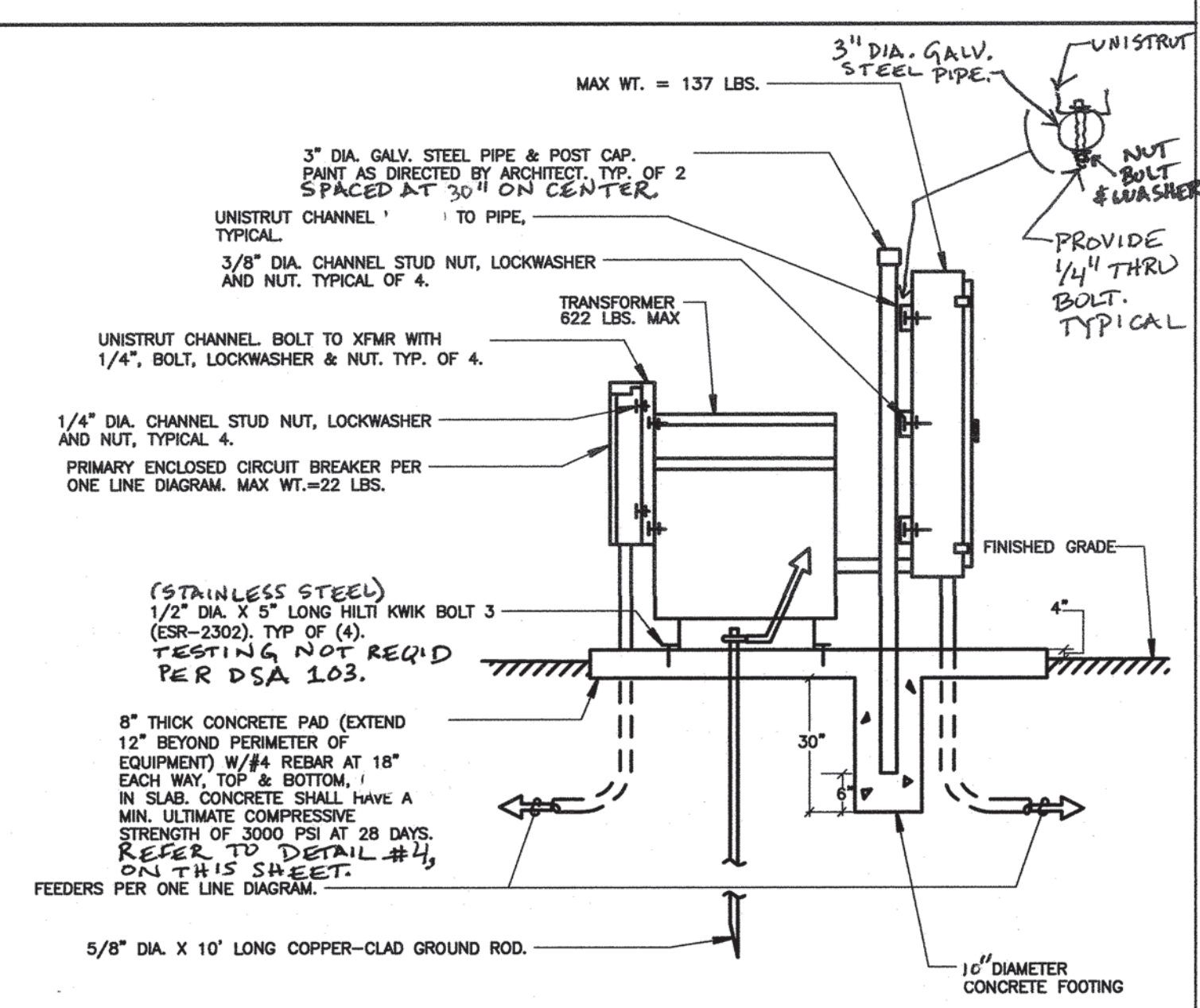
6 TYPICAL THROUGH PENETRATION FIRESTOP
SCALE: NOT TO SCALE



1 TYPICAL RELO CLASSROOM SIGNAL PLAN
NOT TO SCALE



2 SEPARATELY DERIVED SYSTEM GROUNDING & BONDING
SCALE: NOT TO SCALE



3 TYPICAL TRANSFORMER AND PANEL MOUNTING
NOT TO SCALE

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