ELECTRICAL SPECIFICATIONS

SCOPE: FURNISH ALL LABOR AND NEW MATERIALS NECESSARY FOR A COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEM FOR ILLUMINATION, POWER AND EQUIPMENT IN ACCORDANCE WITH GOVERNING CODES.

WIRING SYSTEMS, DISCONNECT SWITCHES AND ELECTRICAL CONNECTIONS TO EQUIPMENT COVERED BY OTHER SECTIONS OF THESE SPECIFICATIONS.

ALL HANGERS, ANCHORS, SLEEVES, CHASES AND SUPPORTS AND ALL ELECTRICAL EQUIPMENT AND MATERIALS.

EXTEND EXISTING FIRE ALARM SYSTEM.

ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE GOVERNING CODES AND RULES INCLUDING THE NATIONAL ELECTRIC CODE, 1990 EDITION. NOTHING IN THESE PLANS AND SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

SUBMIT SIX COPIES OF EQUIPMENT LISTS FOR POWER DEVICES AND ANY OTHER SPECIAL EQUIPMENT. CONTRACTOR IS TO REVIEW AND SIGN THESE INDICATING HIS REVIEW.

INCLUDE PAYMENT OF ALL REQUIRED INSURANCES, ELECTRICAL PERMITS, FEES AND TAXES.

PREPARE RECORD DRAWINGS OF WORK INSTALLED.

LOCAL CONDITIONS AND PLANS: BEFORE SUBMITTING A PROPOSAL THE CONTRACTOR SHALL VISIT THE SITE AND FULLY INFORM HIMSELF OF ALL EXISTING CONDITIONS AND LIMITATIONS APPLYING TO THE WORK. IF AFTER SUCH EXAMINATIONS AND STUDY IT APPEARS THAT ANY CHANGE IN THE DRAWINGS AND SPECIFICATIONS SHOULD BE ALLOWED, THE BIDDER SHALL SO STATE IN WRITING TOGETHER WITH ANY CHANGE IN COST INVOLVED.

GENERAL COORDINATION: THE DRAWINGS INDICATE DIAGRAMMATICALLY THE DESIRED LOCATION OR ARRANGEMENT OF CONDUIT RUNS, OUTLETS, EQUIPMENT, ETC., AND ARE TO BE FOLLOWED AS CLOSELY AS POSSIBLE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE THE LOCATION OF ALL OUTLETS AND RACEWAYS WITH OTHER TRADES.

CUTTING, PATCHING, MATCHING: THIS CONTRACTOR SHALL DO ALL CUTTING NECESSARY FOR THE PROPER INSTALLATION OF HIS WORK AND SHALL REPAIR ANY DAMAGE DONE BY HIMSELF OR HIS WORKMEN IN KIND AND SHALL COORDINATE WITH THAT OF OTHER PARTIES. WHEREVER POSSIBLE, WORK SHALL BE DONE IN A CONCEALED AND NEAT WORKMANLIKE MANNER, NECESSITATING THE LEAST AMOUNT OF CUTTING OF STUDS, PLATES AND WOODWORK, AND SUCH CUTTING OR NOTHING IS ALLOWED ONLY AFTER CONSULTATION WITH AND BY PERMISSION OF THE ENGINEER.

EARTHQUAKE RESTRAINT: ALL ELECTRICAL EQUIPMENT AND CONNECTIONS SHALL BE DESIGNED TO RESIST LATERAL SEISMIC FORCES EQUAL TO 0.33 OF EQUIPMENT WEIGHT WITH ALLOWABLE WORKING CODE CAPACITY INCREASED BY ONE-THIRD, OR 0.5 OF THE WEIGHT YIELD CAPACITY.

MECHANICAL AND OTHER SPECIAL EQUIPMENT: PRIOR TO COMMENCING CONSTRUCTION THIS CONTRACTOR SHALL ARRANGE A CONFERENCE WITH THE MECHANICAL AND PLUMBING CONTRACTORS AND SUB-CONTRACTORS AS WELL AS EQUIPMENT SUPPLIERS AND SHALL VERIFY TYPE, SIZES, LOCATION, REQUIREMENTS, CONTROLS AND DIAGRAMS OF ALL EQUIPMENT FURNISHED BY THEM. HE SHALL, IN WRITING, INFORM THE ELECTRICAL ENGINEER THAT ALL PHASES OF COORDINATION OF THIS EQUIPMENT HAVE BEEN COVERED.

GUARANTEE: THE CONTRACTOR AGREES TO REPLACE ANY DAMAGE OR DEFECT IN ANY PART OF THE INSTALLATION WHICH MAY FAIL DUE TO DEFECTIVE MATERIAL AND/OR WORKMANSHIP OR FAILURE TO FOLLOW PLANS AND SPECIFICATIONS FOR A PERIOD OF ONE YEAR AFTER FINAL ACCEPTANCE. HE SHALL REPAIR ANY DAMAGES TO THE ELECTRICAL FINISHES.

RACEWAYS:

ALL CONDUIT INSTALLED FOR GENERAL BUILDING WIRING IN HOLLOW DRY SPACES OF WALLS AND CEILING SHALL BE IN EMT.

FLEX MAY BE USED WHERE FISHING DOWN EXISTING WALLS IS NECESSARY AND SHALL HAVE A GWG. SEALTITE FLEX NOT OVER 18" SHALL BE USED TO FEED MECHANICAL UNITS AND SHALL BE SUPPORTED ADEQUATELY.

CONDUCTORS: FURNISH AND INSTALL A COPPER THWN 600 VOLT CONDUCTOR SYSTEM FOR PROPER CONNECTION AND OPERATION OF ALL EQUIPMENT. WIRE #10 AND SMALLER SHALL BE SOLID COPPER. ALL CONDUCTORS ENTERING ANY PANEL OR TERMINAL BOX SHALL BE IDENTIFIED BY USE OF BRADY LABELS. WIRING SHALL BE COLOR CODED.

DISCONNECT SWITCHES: SHALL BE NEMA 3R, PROPERLY SUPPORTED WITH PROPER SIZE "FRN" FUSES.

PANELBOARDS: SHALL BE IN ACCORDANCE WITH PLANS IN LOCATIONS SHOWN WITH DOOR AND LOCK. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE NEATLY SERVED WITH TY-RAP'S AND PERMANENTLY TAGGED. THEY SHALL HAVE TYPED PANEL SCHEDULES MOUNTED BEHIND PLASTIC ON DOORS. ALL EXISTING PANEL SCHEDULES TO BE VERIFIED AND UPDATED, INCLUDING ALL NEW LOADS.

FIRE ALARM SYSTEM - GENERAL: THIS CONTRACTOR SHALL INSTALL AND FURNISH, COMPLETE AND OPERATIONAL, A FIRE EVACUATION AND SELECTIVE FIRE DETECTION SYSTEM, AS WELL AS A SIGNAL CONDUCTOR AND RACEWAY SYSTEM; THE SYSTEMS SHALL INCLUDE ALL EQUIPMENT, CONDUIT, WIRE AND LABOR NECESSARY TO PROVIDE FOR COMPLETE AND OPERATIONAL SYSTEMS AS SHOWN ON THE DRAWINGS.

EQUIPMENT OTHER THAN SPECIFIED WILL BE CONSIDERED FOR APPROVAL PROVIDED THE FOLLOWING IS SUBMITTED IN WRITING BY THE ELECTRICAL CONTRACTOR TO THE ELECTRICAL ENGINEER TEN (10) DAYS PRIOR TO THE BID DATE:

COMPLETE LISTS, DESCRIPTIONS AND DRAWINGS OF MATERIALS TO BE USED.

GENERAL NOTES:

1. ALL GROUND PER NATIONAL ELECTRIC CODE, ARTICLE 250.
2. GROUND BOND BUILDING AND ALL METALLIC PIPES, GAS, WATER, ETC.
3. TEST GROUND AND CERTIFY IN WRITING, 25 OHMS OR LESS, GROUND READINGS. ADD GROUND RODS AS REQUIRED TO OBTAIN GROUND READING REQUIREMENT.

SCHOOL EQUIPMENT ANCHORAGE:

ALL MECHANICAL AND ELECTRICAL EQUIPMENT SHALL BE BRACED OR ANCHORED TO RESIST HORIZONTAL FORCE ACTING IN ANY DIRECTION USING THE FOLLOWING CRITERIA:

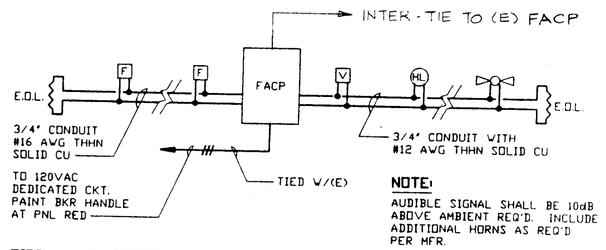
FIXED EQUIPMENT ON GRADE	20% OF OPERATING WEIGHT
FIXED EQUIPMENT ON STRUCTURE	30% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON GRADE	40% OF OPERATING WEIGHT
EMERGENCY POWER EQUIPMENT ON STRUCTURE	60% OF OPERATING WEIGHT

FOR FLEXIBLY MOUNTED EQUIPMENT USE 4 X THE ABOVE VALUES.
SIMULATANEOUS VERTICAL FORCE - USE 1/3 X HORIZONTAL FORCE.

WHERE ANCHORAGE DETAILS ARE NOT SHOWN ON THE DRAWINGS FOR EQUIPMENT 400 POUNDS OR LESS THE FIELD INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE MECHANICAL AND ELECTRICAL ENGINEER AND THE FIELD REPRESENTATIVE OF THE OFFICE OF THE STATE ARCHITECT.

FIRE DETECTION SYSTEM NOTES:

1. ALL WIRING IS SHOWN DIAGRAMMATICALLY. CONTRACTOR MAY VARY SEQUENCE OR CIRCUITRY, HOWEVER ALL CIRCUITS SHALL BE CONTINUOUS AND SUPERVISED FROM DEVICE TO DEVICE OR FAT TO DEVICE OR FCP TO FAT OR FAT TO FAT. NO PARALLEL BRANCHING SHALL BE ALLOWED. ANY CONNECTION OF ANY BREAK IN ANY CONDUCTOR SHALL BE BY TERMINAL CONNECTION AT A DEVICE OR AT A FAT ONLY.
2. ALL CONNECTIONS SHALL BE PROPERLY LABELED BY CONDUCTOR AND SHALL HAVE STAKE-ON LUG CONNECTORS.
3. FIRE ALARM TERMINAL CABINETS SHALL HAVE SUFFICIENT SPACE, TERMINAL BOARDS AND SCREW TERMINAL CONNECTORS TO ALLOW CONNECTION OF ALL CONDUCTORS SHOWN. CONTRACTOR SHALL BE REQUIRED TO SUBMIT WITH HIS OTHER SHOP DRAWINGS, DETAILED DRAWINGS OF HIS PROPOSED CONNECTIONS AT EACH FIRE ALARM TERMINAL CABINET PRIOR TO COMMENCING ANY WORK.
4. ALL CONDUCTORS SHOWN SHALL BE #16 AWG, SOLID COPPER UNLESS OTHERWISE NOTED.
5. WRITTEN CERTIFICATION BY THE FIRE ALARM EQUIPMENT DISTRIBUTOR (OR VENDOR OR MANUFACTURER) SHALL BE SUBMITTED TO THE ARCHITECT (WITH COPIES TO THE ELECTRICAL ENGINEER AND THE STATE FIRE MARSHAL) AND THAT THE INSTALLATION INCLUDES TESTING AND OPERATION CONFORMS IN ALL RESPECTS TO THE REQUIREMENTS AS SET FORTH IN TITLE 19 OF THE CALIFORNIA CODE OF REGULATIONS AND PART 3, ARTICLE 3-760 OF TITLE 24 OF THE C.C.R. AND SECTION 2-809.
6. ~~INSTALLATION OF THE FIRE ALARM SYSTEMS SHALL NOT BE STARTED UNTIL WORKING DRAWINGS, INCLUDING STATE FIRE MARSHAL LISTING NUMBERS OF ALL FIRE ALARM COMPONENTS, ARE SUBMITTED TO AND APPROVED BY THE STATE FIRE MARSHAL AT THE OFFICE OF THE STATE ARCHITECT.~~
7. UPON COMPLETION OF THE INSTALLATION OF THE FIRE ALARM SYSTEM A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE ENFORCING AGENCY WITH SIGNED LETTER TO ARCHITECT.



NOTE:
AUDIBLE SIGNAL SHALL BE 10dB ABOVE AMBIENT REQ'D. INCLUDE ADDITIONAL HORNS AS REQ'D PER MFR.

FIRE ALARM SYSTEM COMPONENTS:

CONTROL PANEL:

MANUFACTURER	MODEL No	CSFM No	QTY.	DESCRIPTION
PYROTRONICS	CP35	7165-0673:35	(1)	CONTROL PANEL
	PS35		(1)	POWER SUPPLY
	BC35		(1)	BATTERY CHARGER
	BK33		(1)	BATTERY CHASSIS
	BT34		(1)	BATTERIES
	ZU35		(1)	DUAL ZONE MODULE
	AE30U		(3)	ALARM EXTENDER MODULE
	MC30		(1)	MASTER CODE MODULE
	DI30		(1)	DRILL SWITCH
	LP30		(1)	LEASED LINE MODULE
	EK35		(1)	RACK ASSEMBLY
	EB35		(1)	BACK BOX
	ED35		(1)	DOOR

DEVICES:

MANUFACTURER	MODEL No	CSFM No	QTY.	DESCRIPTION
PYROTRONICS	MS151	7165-0673:36	SEE PLAN	PULL STATION
	HBC24	7135-0674:30		HORN
	VL	7300-0674:28		VISUAL STROBE

FIRE ALARM SYSTEM REQUIREMENTS NO SCALE (1/E-2)

NOTE:

EXISTING CAMPUS FIRE ALARM SYSTEM IS NOT EXPANDABLE.
THE NEW PYROTRONICS SYSTEM WILL CARRY NEW CLASSROOM BUILDING & IT IS EFFICIENT EXPANDABLE TO ADD ENTIRE SCHOOL AS REMODELS &/OR NEW BUILDINGS ARE ADDED TO CAMPUS.

BATTERY CALCULATIONS

6.528 AMPS + CONVERSION
.147 AMPS + ALARM
6.675 TOTAL AMPS
BATTERY BT34 = 10 HRS

GENERAL NOTE:

THE INTENT OF THE DRAWINGS AND SPECIFICATIONS IS TO RECONSTRUCT THE ~~EXISTING~~ BUILDING IN ACCORDANCE WITH THE 1989 EDITION OF TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS DEVELOP NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH SAID TITLE 24, CALIFORNIA CODE OF REGULATIONS, A CHANGE ORDER DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY OSHPD BEFORE PROCEEDING WITH THE WORK.

CONDUIT SUPPORT:

CONDUITS TO BE SUPPORTED AND BRACED PER ~~OSHPD~~ ANCHORAGE PRE-APPROVAL NO. R-0010, THE SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF CONDUITS"

NOTE:

WHEN INSTALLING DRILLING-IN ANCHORS AND/OR POWDER DRIVEN PINS IN EXISTING NON-PRESTRESSED REINFORCED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS.

NOTES:

1. ALL (E) ELECTRICAL EQUIPMENT LOCATIONS, INCLUDING FIRE ALARM CONTROL PANEL SHALL BE VERIFIED IN FIELD PRIOR TO BID.
2. ALL PULLBOXES SHALL BE STATE SIZE #5, INSTALLED PER DETAIL 7/E.
3. REFER TO SINGLE LINE DIAGRAM FOR FEEDERS AND SWITCHBOARD SIZES.
4. FIRE ALARM PLANS FOR CONSTRUCTION PHASE. SUBMIT AS-BUILTS TO ARCHITECT.

OFFICE OF THE STATE ARCHITECT ACCESS COMPLIANCE SECTION
56074 APR 23 '91
APPLICATION FILE NO. And Building NO.

REVIEWED

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(805) 324-6416
ARCHITECT C-10298

DATE 4-19-91

BAKERSFIELD CITY SCHOOL DISTRICT
BY RESOLUTION OF THE BOARD OF TRUSTEES
APPROVED:
DATE

INTERSTATE ENGINEERING, INC.
Electrical Engineer 5101
127 East Belmont Ave.
Fresno, CA 93701
(209) 486-1151

DATE 4-19-91
DRAWN

ELECTRICAL SPECIFICATIONS & DETAIL

(PRE-K RELOCATABLE CLASSROOM)
WAYSIDE ELEMENTARY SCHOOL
BAKERSFIELD CITY SCHOOL DISTRICT
BAKERSFIELD, KERN COUNTY, CALIFORNIA

JOB NO. 153
SHEET NO. E-2
SHEET 2 OF 2