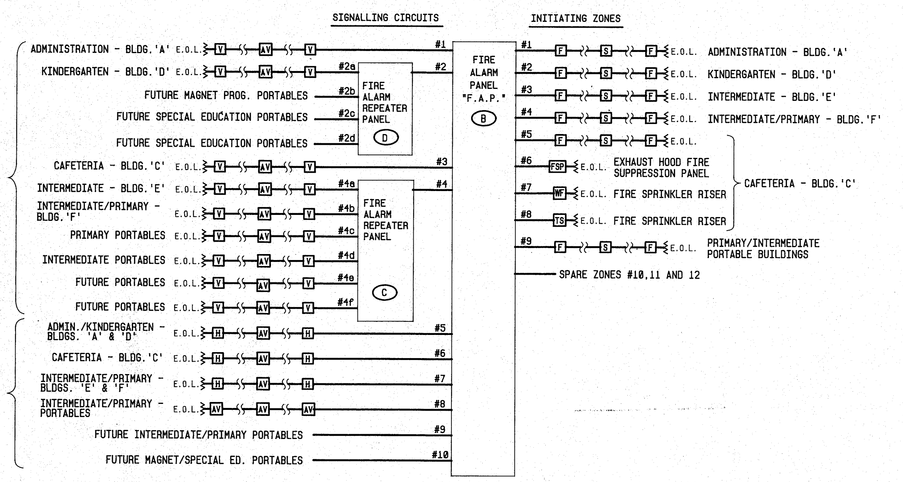


FIRE ALARM SYSTEM GENERAL NOTES

1. THE FIRE ALARM SYSTEM INDICATED IN THESE DRAWINGS SHALL BE USED FOR CONSTRUCTION.
2. CONTRACTOR IS TO PROVIDE AS-BUILT DRAWINGS TO ARCHITECT AND SCHOOL DISTRICT FOR RECORD PURPOSES ONLY.
3. FIRE ALARM SYSTEM SHALL MEET SPECIFICATION REQUIREMENTS. ALL COMPONENTS TO HAVE C.S.F.M. LISTING NUMBERS.
4. SUBMIT VOLTAGE DROP AND STANDBY BATTERY CALCULATIONS.

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 10 DB ABOVE AMBIENT NOISE LEVELS MEASURED FOUR FEET ABOVE THE FLOOR INSIDE BUILDING.

AMBIENT NOISE LEVELS SHALL BE CONSTRUED TO MEAN THAT WHICH CAN NORMALLY EXPECTED TO EXIST WHEN THE FACILITY, BUILDING, ROOM OR AREA IS FUNCTIONING UNDER NORMAL OPERATIVE OR WORKING CONDITIONS, CALIFORNIA BUILDING CODE SECTION 7203.

SCHOOLS FIRE ALARM REQUIREMENTS

THE FIRE ALARM SYSTEM SHALL CONFORM TO CALIFORNIA BUILDING CODE SECTION 809 AND CALIFORNIA ELECTRICAL CODE ARTICLE 760.

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 ENFORCING FIRE AGENCY, CALIFORNIA BUILDING CODE SECTION E740-16.

FIRE ALARM PANEL BATTERY CALCULATIONS

1. **BATTERY AMP HOURS REQUIRED:**
   24 HOURS IN STANDBY MODE,
   5 MINUTES IN ALARM MODE.
2. **BATTERY CALCULATIONS:**

	STANDBY	ALARM
COMMON CONTROL BOARD	.100A	.420A
FOUR ZONE EXPANSION BOARD	.225A	.450A
AUDIBLE ALARM CONTROL BOARD	.125A	1.000A
MASTER CODER MODULE	.023A	.025A
SPRINKLER SUPERVISORY BOARD	.010A	.085A
REMOTE ANNUNCIATOR	0	.005A
HORNS (.025 EACH)	0	.450A
MINI-HORN (.015 EACH)	0	.420A
STROBES (.090 EACH)	0	4.05A
TOTAL	.483A	6.905A

STANDBY 24 HR x .483 = 11.592 AH
ALARM .083 (5 MIN.) x 6.905A = .573 AH
12.165 AH
SAFETY FACTOR x 1.1
13.382 AH

PROVIDE 21 AH BATTERIES

NOTES (THIS SHEET ONLY):

(A) REFER TO SPECIFICATIONS, SECTION 16721 FOR MANUFACTURER REQUIREMENTS AND C.S.F.M. LISTING NUMBERS.

(B) FIRE ALARM PANEL SHALL BE EQUIPPED WITH AN 8.0A POWER SUPPLY.

(C) SIX-CIRCUIT ADA REPEATER PANEL WITH 8.0 A.H. BATTERIES. THORN #3832-992-003/7070-036; C.S.F.M. #7165-077:068.

(D) FOUR-CIRCUIT ADA REPEATER PANEL WITH 8.0 A.H. BATTERIES. THORN #3832-992-002/7070-036; C.S.F.M. #7165-077:068.

VOLTAGE DROP CALCULATIONS FOR SIGNALING CIRCUITS

$$\text{VOLTAGE DROP} = \frac{\text{CURRENT x WIRE LENGTH x 21.6}}{\text{CIRC. MILS}}$$

$$\text{VOLTAGE DROP \%} = \frac{\text{VOLTAGE DROP}}{\text{APPLIED VOLTAGE}} \times 100$$

1. SIGNALING CIRCUIT #5

$$\frac{.210 \times 650' \times 21.6}{6530} = 0.971$$

$$\frac{0.450}{24} \times 100 = 1.88\%$$

2. SIGNALING CIRCUIT #7

$$\frac{.36 \times 1380' \times 21.6}{10380} = 1.03$$

$$\frac{1.03}{24} \times 100 = 4.000\%$$

3. SIGNALING CIRCUIT #4b

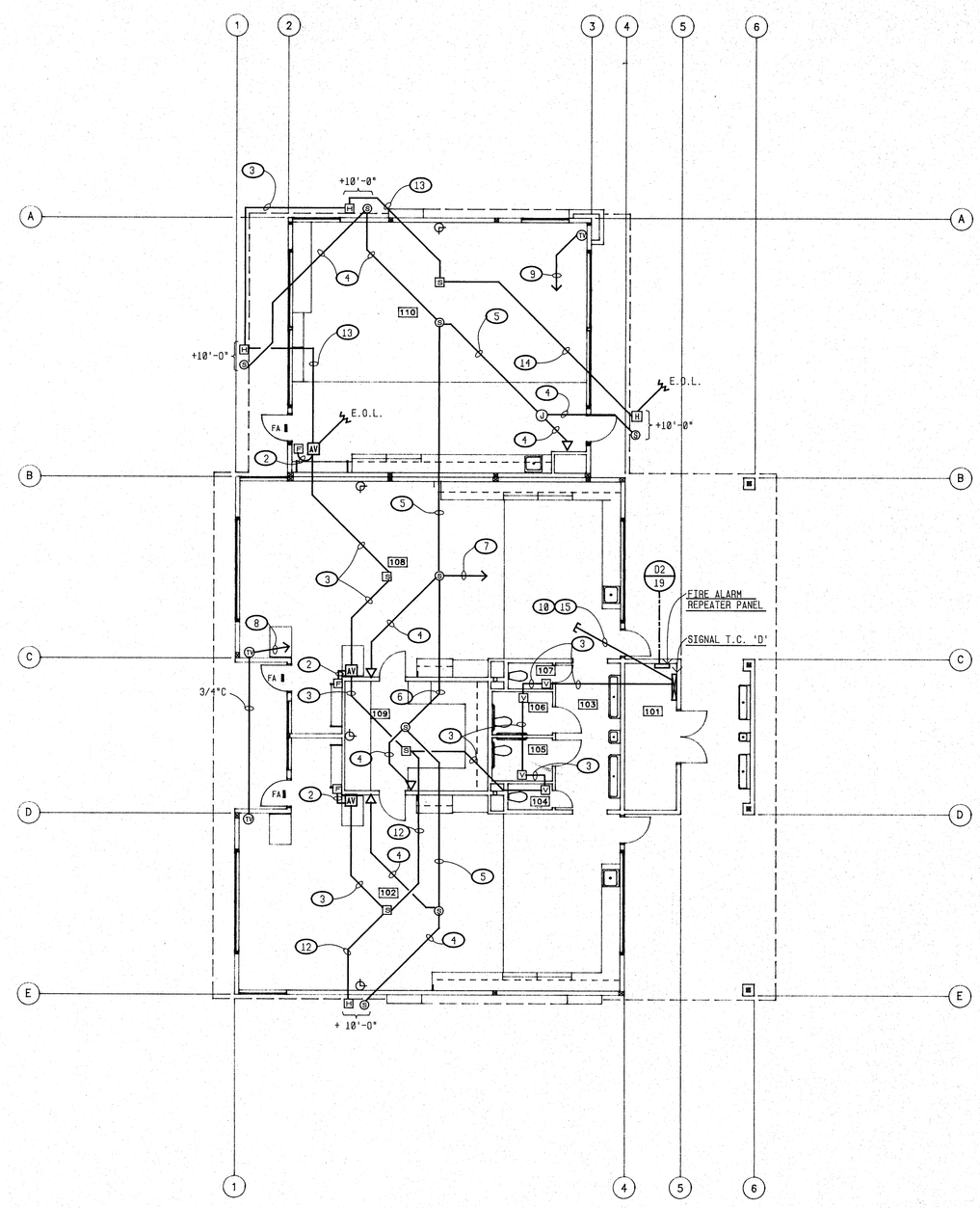
$$\frac{.720 \times 570' \times 21.6}{10380} = 0.854$$

$$\frac{0.854}{24} \times 100 = 3.56\%$$

NOTE: VALUES SHOWN ARE WORST CASE VOLTAGE DROPS. OTHER SIGNALING CIRCUITS WOULD HAVE LESS CURRENT AND/OR SHORTER WIRE LENGTHS.

1 / E-12 FIRE ALARM WIRING DIAGRAM

NO SCALE



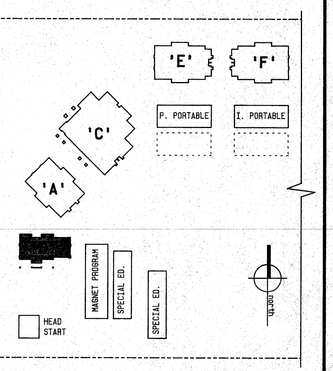
north

KINDERGARTEN CLASSROOM SIGNALS PLAN 'D'

1/8" = 1'-0"

NOTES (THIS SHEET ONLY):

1. 1/2"C - 4 #12
2. 1/2"C - 4 #14
3. 3/4"C - 4 #12, 2 #14
4. 1/2"C - ONE I.C. CABLE
5. 1/2"C - TWO I.C. CABLES
6. 3/4"C - THREE I.C. CABLES
7. 3/4"C - FIVE I.C. CABLES TO INTERCOM SECTION OF SIGNAL T.C. 'D'.
8. 1"C - TO BURGLAR ALARM/TELEVISION SECTION OF SIGNAL T.C. 'D'.
9. 3/4"C TO BURGLAR ALARM/TELEVISION SECTION OF SIGNAL T.C. 'D'.
10. 1"C STUB INTO ACCESSIBLE ATTIC SPACE ABOVE T-BAR CEILING FROM BURGLAR ALARM/TELEVISION SECTION.
11. 1/2"C - 2 #14.
12. 3/4"C - 8 #12, 4 #14.
13. 1/2"C - 2 #12, 2 #14.
14. 1/2"C - 2 #12.
15. TWO 1"C STUBS INTO ACCESSIBLE ATTIC SPACE ABOVE T-BAR CEILING FROM COMPUTER SECTION.



KEY PLAN

APPROVALS

OFFICE OF THE STATE ARCHITECT
ACCESS COMPLIANCE SECTION
APPLICATION PER W. R.D. BOKES
69152 MAR 11 93
APPROVAL of this plan does not authorize or approve any omissions or deviations from applicable regulations.
Reviewed by

IDENTIFICATION STAMP
Department of General Services
Office of the State Architect
PORTION 1
MAR 11 1993
Structural Safety Section
Appl. #
Backchecked by

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REGISTERED ARCHITECT L. PHIL KLASSEN #C10401 Exp. 1-31-95 STATE OF CALIFORNIA

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Written dimensions on these drawings shall have precedence over scaled dimensions; contractors shall verify and be responsible for, all dimensions and conditions on the job and this office must be notified of any variations from the dimensions and conditions shown by these drawings. Shop details must be submitted to this office for approval before proceeding with fabrication.

BAKERSFIELD CITY SCHOOL DISTRICT

MESA MARIN ELEMENTARY SCHOOL

BAKERSFIELD, CA.

Sheet title: KINDERGARTEN CLASSROOM SIGNALS PLAN, BUILDING 'D' AND FIRE ALARM WIRING DIAGRAM.

REGISTERED PROFESSIONAL ENGINEER Gregg Carmichael No. 7188 Exp. 9/30/93 Electrical STATE OF CALIFORNIA

Date:	Issued for:

Date:		Revisions:
10-94	A	AS BUILTS

Drawn by: R.T.S.

Job no: 1223

Dgn. file:

Sheet: E.12

Sheet of: 17

Date: