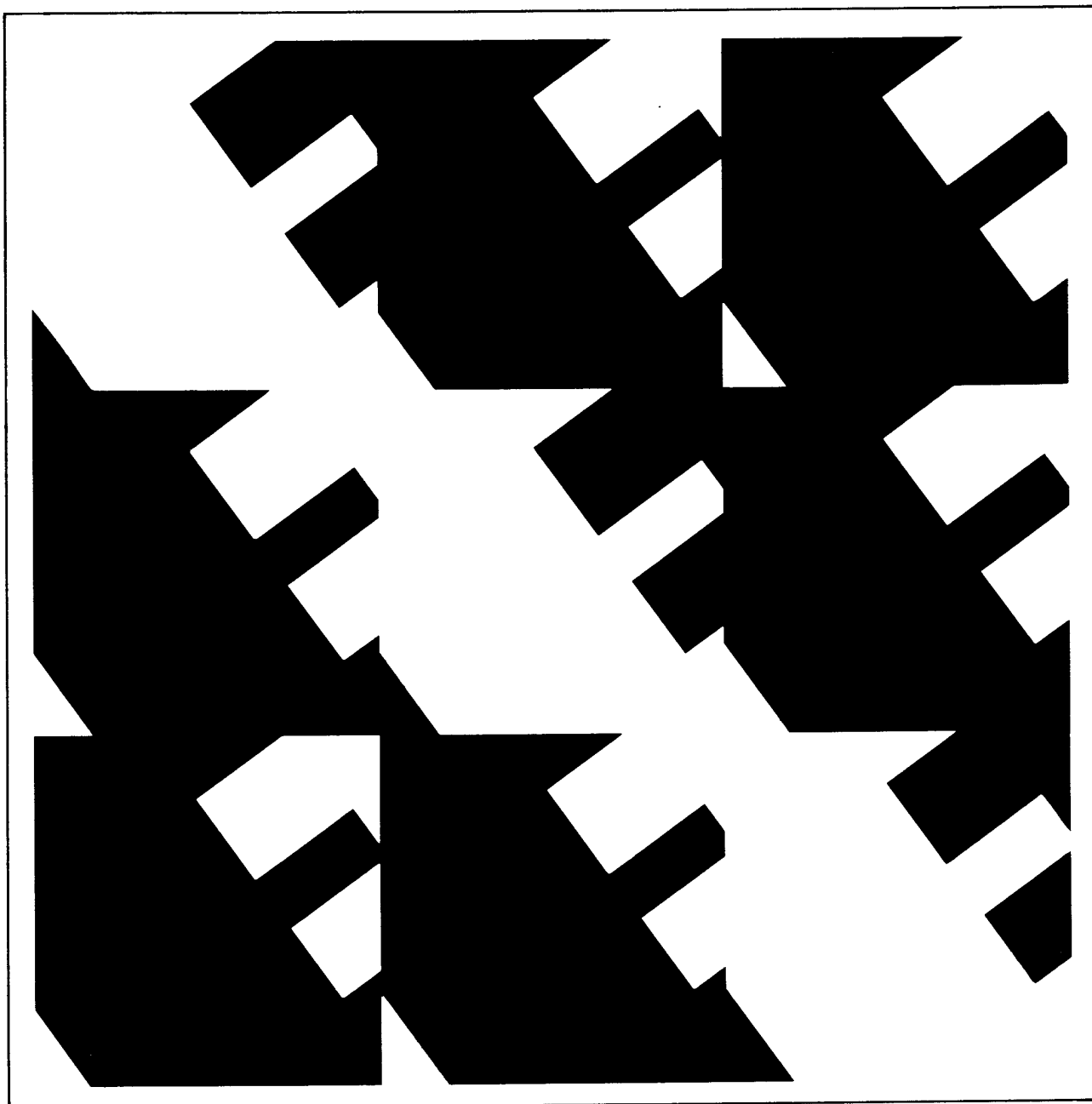


IEEE Guide for the Design and Installation of Cable Systems in Power Generating Stations



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**IEEE Guide for the Design and
Installation of Cable Systems in
Power Generating Stations**

Sponsor
**Power Generation Committee of the
IEEE Power Engineering Society**

Approved March 21, 1985
IEEE Standards Board

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Foreword

(This Foreword is not part of ANSI/IEEE Std 422-1986, IEEE Guide for the Design and Installation of Cable Systems in Power Generating Stations.)

All sections of this guide have been revised to incorporate the changes in installation philosophies that have occurred since its last issue. Also, Section 12 (Flame Tests) has been dropped since the general industry philosophy has been to reference the section on flame tests given in ANSI/IEEE Std 383-1974 for all installation applications rather than the section on that topic in this document.

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IEEE Guide for the Design and Installation of Cable Systems in Power Generating Stations

1. General

1.1 Scope and Purpose. This document has been developed as a guide for the design and installation of wire and cable systems in generating stations with the objective of minimizing failures and their consequences. It is not intended for use in the design of wire and cable systems in switchyards or substations, which is covered in IEEE Std 525-1978 [17].

This guide applies to both nuclear and non-nuclear electric power generating stations except for the special requirements of wire and cable installations in Class 1E systems of nuclear stations for which the user should refer to ANSI/IEEE Std 690-1984 [5].¹

1.2 References

[1] AEIC CS5-82, Specification for Thermoplastic and Crosslinked Polyethylene Insulated Shielded Power Cables Rated 5 Through 46 kV.²

[2] AEIC CS6-82, Specification for Ethylene Propylene Rubber Insulated Shielded Power Cables Rated 5 Through 69 kV.

[3] ANSI/IEEE Std 383-1974, IEEE Standard for Type Test of Class 1E Electric Cables, Field Splices, and Connections for Nuclear Power Generation Stations.³

¹ The numbers in brackets correspond to those of the references listed in 1.2.

² AEIC publications are available from Association of Edison Illuminating Companies, 51 East 42nd Street, New York, NY 10017.

³ IEEE publications are available from the Sales Department, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854.

[4] ANSI/IEEE Std 400-1980, IEEE Guide for Making High-Direct-Voltage Tests on Power Cable Systems in the Field.

[5] ANSI/IEEE Std 690-1984, IEEE Standard for the Design and Installation of Cable Systems for Class 1E Circuits in Nuclear Power Generating Stations.

[6] ANSI/NFPA 70-1984, National Electrical Code (NEC).⁴

[7] ANSI/NFPA 72D-1979, Installation, Maintenance and Use of Proprietary Protective Signaling Systems.

[8] ANSI/NFPA 72E-1984, Automatic Fire Detectors.

[9] ASTM E119-83, Standard Methods of Fire Tests of Building Construction and Materials.⁵

[10] ICEA P-32-382, Short Circuit Characteristics of Insulated Cable.⁶

[11] ICEA P-54-440/NEMA WC51, Ampacities in Open Top Cable Trays.⁷

⁴ NFPA publications are available from Publications Sales, National Fire Protection Association, Batterymarch Park, Quincy, MA 02269.

⁵ ASTM publications are available from the Sales Department of the American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

⁶ ICEA publications are available from Insulated Cable Engineers Association, PO Box 411, South Yarmouth, MA 02664.

⁷ ICEA/NEMA publications are available from Insulated Cable Engineers Association, PO Box 411, South Yarmouth, MA 02664 and NEMA, 2101 L Street, NW, Washington, DC 20037.