

GUIDE FOR IMPLEMENTATION OF METRIC UNITS IN ICEA PUBLICATIONS

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FOREWORD

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I **PURPOSE**

The purpose of this guide is to establish the scope of and the procedures to implement the SI metric system of units in ICEA standards. All Sections are affected and are expected to adhere to this guide to attain uniformity.

II **SCOPE**

This guide covers procedures to be followed by Working Groups, Liaison Groups, Editorial Groups and members of all Sections for adoption of SI based metric practice in the development of new and revision of existing ICEA standards.

III **BACKGROUND**

Although some ICEA standards have included SI metric measurements as well as US customary inch-pound units in recent years, no effort has been made to achieve metrication in a uniform manner across all Sections. The SI metric system has been adopted as a standard for the preferred system of weights and measures world-wide, and many voluntary standards writing organizations in North America have been pursuing this goal as well. ASTM, IEEE, ANSI, EIA, NEMA, etc., have joined the global trend in designating "the metric system of measurements as the preferred system of weights and measures for trade and commerce" and have developed policies and plans to make the transition from the current US customary system to fully metric system in this decade. It is time for ICEA to join this growing and necessary trend.

IV **PROCEDURES**

1. All new and revised ICEA standards will employ the SI system, to the greatest extent possible.
2. The standards may either be fully in metric units or in dual-dimensioning format.
3. When dual-dimensioning is used, the US customary units will be shown first and the quantity converted to metric units, i.e. soft conversion, will be shown in parentheses. The rounding-off method of ASTM E 29 shall be followed. The values expressed in US customary units will be the controlling units.

The temperature will be specified in degrees Celsius or degrees Kelvin.

A statement similar to the following, will be included at the beginning of the standard:

"U.S. customary units, except for temperature, are specified throughout this Standard and are the controlling units. International System of Units (SI) equivalents are included in parentheses. The rounding-off method of ASTM E 29 shall be used for determining conformance with requirements".

4. Where appropriate, metric conductor sizes (mm²) shall be adopted as Appendices to ICEA standards. These shall be per ICEA Working Group 653 recommendations which were based on IEC Publication 228 "Conductor of Insulated Cables" with supplement 228A. See Appendix B.

Cable parameters such as insulation and jacket thickness, and other related parameters dictated by conductor dimensions shall be the same as those which correspond to the AWG or kcmil closest to the metric conductor size.

5. Values in a Table are to be provided with metric equivalents. This may be accomplished either by adding additional columns for metric values or by developing a companion Table in metric units, whichever is appropriate.
6. Metrication shall be based on the International System of Units (Le Systèmes International d'Unités or SI), the modernized metric system. The SI-based metric practice is detailed in several industry standards. The following three standards are listed here for ready reference:
 1. CAN/CSA-Z234.1-89: Canadian Metric Practice Guide.
 2. ANSI/IEEE Std. 268-1982: American National Standard for Metric Practice.
 3. ASTM E 380: Standard Practice for Use of the International System of Units (SI) (the Modernized Metric System).
7. The following Appendix A is for guidance of application of the SI Metric System. For additional information please refer to publications referenced above.
8. Publications referenced in this guide are available from:
 1. Canadian Standards Association,
178 Rexdale Blvd.,
Rexdale, Ontario.
M9W 1R3
CANADA
 2. IEEE,
445 Hoes Lane,
Piscataway, N.J. 08854,
U.S.A.

3. ASTM,
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959,
U.S.A.

4. IEC Publications are available from:

American National Standards Institute,
1430 Broadway
New York, NY 10018,
U.S.A.

or

Standards Council of Canada,
Standards Sales Division
45 O'Connor Street, Suite 1200,
Ottawa, Ontario, Canada.
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