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NEMA STANDARDS PUBLICATION

NEMA NS 1

GUIDE FOR PREPARATION OF NEMA STANDARDS PUBLICATIONS

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NEMA Standards Publication NS 1-1995 (R1998)

Guide for Preparation of NEMA Standards Publications

Published by

National Electrical Manufacturers Association
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Rosslyn, Virginia 22209

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Foreword

The purpose of this publication is to assist NEMA Subdivisions in the preparation of NEMA Standards Publications (SP). Additionally, this manual will be used by the NEMA Communications Department in resolving non-technical questions and in preparing SPs for publication. The manual offers rules on content, NEMA practices, and style specifications for organization of the various parts of NEMA SPs.

The manual was designed to ensure that NEMA SPs are well organized and are consistent in style within itself and with other NEMA SPs. By following the manual's rules when preparing standards bulletins, Subdivision working groups and committees can help speed publication of their work.

In 1990 the Codes and Standards Committee voted to provide an exception to the NEMA style by providing an option for those Subdivisions that wish to use the ISO/IEC style in preparation for submittal to those bodies.

In 1995 the Codes and Standards Committee adopted the revised form of NS 1 to reflect the evolution of opinion in how an SP should be presented. NS 1-1995 aims to incorporate changes made by other standards producing organizations (including ISO/IEC and ANSI) in their generalized standards, while keeping elements necessary to the understanding of electrical manufacturing standards. Except as indicated by the permissive language used in text, NS 1 is a NEMA Standard. The format will be applied to new SPs and to those undergoing major revision and will not impact existing SPs undergoing only minor change.

The Communications Department has worked closely with the Engineering Department and with individual NEMA Subdivisions in the drafting of this manual and acknowledges the need for periodic review and updating. Proposed or recommended revisions should be submitted to:

Director of Communications
National Electrical Manufacturers Association
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Section 1
GENERAL

1.1 SCOPE

This publication covers the mandatory content, organization, and format of NEMA Standards Publications (SPs). It has been reviewed by NEMA Subdivisions and approved by the NEMA Codes and Standards Committee. The rules and guidelines in this publication cover only NEMA SPs.

1.2 REFERENCES

The following publications are adopted in part, by reference in this publication, and are available from the organizations below.

1.2.1 Normative References

The following normative documents contain provisions, which through reference in this text, constitute provisions of this Standards Publication. By reference herein these publications are adopted, in whole or in part as indicated, in this SP.

American National Standards Institute (ANSI)
11 West 42nd Street
New York, NY 10036

ANSI 3/1/91	*Style Manual for Preparation of Proposed American National Standards*
ANSI Z39.4-1984	*Basic Criteria for Indices*
ANSI/ASME Y1.1-1989	*Abbreviations for Use on Drawings and in Text*
ANSI/IEEE 100-1993	*Dictionary of Electrical and Electronics Terms*
ANSI/IEEE 315-1975	*Graphic Symbols for Electrical and Electronics Diagrams (including Reference Designation Class Designation Letters)*

American Society for Testing and Materials (ASTM)
1916 Race Street
Philadelphia, PA 19103

ASTM June 1989	*Form and Style for ASTM Standards*

International Electrotechnical Commission/
International Organization for Standardization (IEC/ISO)
3, rue de Varembe
Case postale 131
CH-1211 Geneva 20

Directives Part 3	*Drafting and Presentation of International Standards*
IEC 50-1979	*General Index of the International Electrotechnical Vocabulary*

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Engineering Bulletin
No. 79, 1988 *Guidelines for Metric Conversions of NEMA Standards Standardization Policies and Procedures (1993)*

1.2.2 Other References

The following publications may be used to answer questions not covered by this standard.

United States Government Printing Office Style Manual, Washington, Revised Edition 1984.
The Chicago Manual of Style, Fourteenth Edition, Chicago and London, The University of Chicago Press, 1993.

1.3 DEFINITIONS

clause: Grouping of subclauses, paragraphs, or sentences of the same subject, introduced by a secondary level, numbered title. (A secondary level number consists of the section number and a decimal, followed by a consecutive number assigned to the clause; e.g., 2.2.)

normative: That which must be conformed to. "Normative References" are those references which are considered an integral part of the SP and by inclusion therein are adopted by the SP. "Normative Annexes" are those annexes which are considered an integral part of the SP, but most appropriately organized separate from the main body of the SP.

Section; part: Group of clauses and subclauses on the same subject, introduced by primary level, numbered title. (Primary level numbers are one-digit numbers; e.g., Section 2.)

Standards Publication: An official compilation of text (NEMA Standard, Authorized Engineering Information, Suggested Standard for Future Design) on the same subject, given a number.

subclause: Grouping of sentences and paragraphs on the same subject, introduced by a tertiary level, numbered title. (A tertiary level number consists of a section number, a clause number, and a consecutive number assigned the subclause; e.g., 2.2.2.)

1.4 ABBREVIATIONS AND ACRONYMS

The following non-standard abbreviations or acronyms are used in this SP.

SI—International System of Units (metric units)
SP—Standards Publication, a formal compilation of NEMA text (NEMA Standard, Authorized Engineering Information, Suggested Standard for Future Design) on the same subject, which has gone through a consensus process and been approved according to NEMA Standardization Policies and Procedures.

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Section 2
NEMA STANDARDIZATION

2.1 SECTION OR GROUP RESPONSIBILITY

The NEMA Subdivision sponsoring a proposed NEMA SP must provide for Codes and Standards Committee approval a complete draft that meets the requirements of this manual for mandatory content, organization, style, and legibility. Concurrent with submittal for Codes and Standards review, the draft hard copy and diskettes shall be submitted to the Communications Department. The Communications Department shall edit and format the SP according to the requirements of this document. The sponsoring Subdivision shall have final review before publication.

When a proposed SP is balloted for approval by a Subdivision, it shall contain all the elements necessary to be published. The draft shall be legible in all respects. This will facilitate more prompt publication. All drawings, graphs, equations, and tables shall be included.

2.2 PROMOTION

A catalog listing all current NEMA publications is issued annually. In the catalog the publications are grouped into subject categories and are listed by full publication number. The full title is given, together with a brief description of the content of the publication. Adoption by ANSI or other bodies is noted as well. A subject index and numerical index are included.

Any literature or other material developed by a Subdivision to promote a publication shall be submitted to the Communications Director for review to ensure that sales policies and current prices are accurately portrayed.

2.3 METRICATION

Dimensions and quantities may be given in U.S. Customary Units or in SI units, or in both, whichever, in the opinion of the Subdivision, appears to be in the best interest of the users of the standards. The combined use of U.S. Customary Units and SI units (dual dimensioning) is encouraged. (e.g., The pipe shall be 12 feet [3.66 m] long.) For guidance, see "Form and Style for ASTM Standards" and NEMA Engineering Bulletin No. 79.

2.4 REVISIONS

Revisions may be issued yearly for an SP. If the change constitutes a low percentage of the total SP, Communications may issue changed pages (backed up by unchanged pages as necessary) only, along with a list of effective pages and a letter of instruction for bringing the SP up to date.

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2.5 IDENTIFICATION OF STANDARDIZATION MATERIAL

2.5.1 General

In a NEMA SP, all of the basic text except for the front matter shall be NEMA Standard, Suggested Standard for Future Design, Authorized Engineering Information, Official Standards Proposal, or a combination of these. (See NEMA Standardization Policies and Procedures, Section 4.) In the standards text these designations shall be used only if the specific sentence, subclause, or clause is of a different status than the rest of the SP as stated in the foreword. Mandatory or explanatory language shall be used to differentiate between statuses. (See 2.6 for language instructions for each standard class.) Explanations of term designations shall be included on the NEMA Standardization page, found on the inside back cover of the SP.

2.5.2 Exceptions

In adopting standards of others, NEMA may choose to show where exceptions are taken. Exceptions to NEMA Standards shall also be classified as NEMA Standard, Authorized Engineering Information, Suggested Standard for Future Design.

2.6 STANDARDS CLASSES

2.6.1 NEMA Standard

NEMA Standard relates to a product, process, or procedure commercially standardized and subject to repetitive manufacture. NEMA Standard requires mandatory language such as "shall," "must," and "shall be permitted."

2.6.2 Suggested Standard for Future Design

Suggested Standard for Future Design suggests a sound engineering approach to future development which may not have been regularly applied to a commercial product. Suggested Standard for Future Design requires mandatory language such as "shall," "must," and "shall be permitted."

2.6.3 Authorized Engineering Information

Authorized Engineering Information consists of explanatory material and other engineering data of an informative character not falling within the classification of NEMA Standard or Suggested Standard for Future Design. Conditional verbs such as "should" and "may" must be used with Authorized Engineering Information.

2.6.4 Adoptive Standards

An Adoptive Standard is a standard, adopted in whole or in part, from the standards of another organization, either domestic, regional, or international.

A NEMA Adoptive Standard shall be approved with proper reference to its source in the NEMA publication in which it appears.

In instances where an entire document of another organization is being adopted without deviation, NEMA will obtain permission to reprint and will publish the document without format change but with a NEMA cover, foreword, scope indicating the standard has been adopted by NEMA, and sections showing any deviations or exceptions necessary.

In cases where an Adoptive Standard is being incorporated in its entirety as a separate section or part of the a NEMA SP, an introductory paragraph or sentence shall be added to the section or part to identify the organization from which the standard or part is being adopted. The format of the adopted standard shall be changed to NEMA's format.

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2.7 STANDARDS TYPES

Listed below are types of information which may be included in the text of an SP.

2.7.1 General

General standards, when used, are those having broad applications to the products covered by the Standards Publication and not otherwise classified.

2.7.2 Rating

Included are specific ratings of equipment or methods of rating equipment in such units of measure as are appropriate.

2.7.3 Manufacturing

Standards which include such things as construction, materials, dimensions, provisions for mounting, spacings between live parts, precautionary labels, and nameplate markings are manufacturing standards. Standards for materials may refer to tensile and compressive strengths, dielectric strength, insulation resistance, and other pertinent physical properties.

The requirements for a manufacturer's symbol and identification or other marks to appear on equipment are generally included.

2.7.4 Performance

Characteristics such as temperature rise, interrupting capacity, voltage regulation, speed regulation, number of operations without deterioration, and the ability to withstand specified conditions shall be covered by performance standards.

2.7.5 Testing

Procedures for tests and criteria to determine compliance with manufacturing and performance standards are included in testing standards.

2.7.6 Marking

Marking standards, when used, generally require the manufacturer's symbol and identification.

2.7.7 Application

Applications of the product may be discussed as a part of the general standards or, if a large number of applications are to be covered, clarity may require their inclusion as a separate part of the publication.

2.8 REAFFIRMATION

2.8.1 General

Each NEMA SP must be reviewed by the sponsoring Subdivision every 5 years. Within the 5-year limit, the publication must be either revised and reaffirmed, reaffirmed with no text changes, or rescinded, effective as of the date of the last Codes and Standards Committee meeting in a calendar year.

2.8.2 Extension

The Codes and Standards Committee may grant a 1-year extension for good cause shown upon formal request from the Subdivision. Such request may be granted up to five consecutive times.

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2.9 COPYRIGHT

2.9.1 NEMA Standards Publications

NEMA holds the copyright on its SPs and protects the copyright for the Association and the members. As the SP is being developed, it shall bear the notation "Draft. Do Not Copy Without Written Permission of NEMA" on every page. It shall also include the copyright notation on the first sheet. This protects NEMA's rights from any unauthorized copying of the draft material. This copyright is for the intellectual property of the Association (not merely the physical page) and controls not only the reproduction of the pages but also the regeneration of the material through any means.

While the SP is under development it is the responsibility of NEMA's Program Manager to make necessary copies for review purposes and to exercise control of the copyright. The Program Manager may issue written, specific authorization to member volunteers to make limited copies for internal use in reviewing and developing the SP.

At the point when the SP is approved by the Codes and Standards Committee, the responsibility of copyright protection, publication, and distribution moves to the Communications Director.

No other parties are authorized to reproduce or regenerate NEMA draft SPs or published SPs. Requests for reprint permission shall be made to Communications Director in writing and will be answered in same.

2.9.2 Standards and Publications of Other Organizations

Working through the Vice President of Engineering, the Program Manager shall obtain written permission to reprint or reproduce standards from other organizations which are being adopted by NEMA in whole or in part.

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Section 3
STANDARDS SPECIFICATIONS

3.1 FORM OF PUBLICATION

SPs should be published in 8-1/2 x 11 inch booklet form. At the discretion of the Communications Director, large SPs may be contained in 3-ring binders.

In lieu of using tabs to divide large SPs, text may be reproduced on different colored pages, at the discretion of the Communications Director.

3.2 PUBLICATION DESIGNATION

The publication's designation or number shall be supplied by the Communications Department. The Communications Department shall ensure that the chosen publication designation has not been used before in a rescinded standard or is presently being used to identify another SP. The last digit of the year may be filled with an "X" for draft purposes until the document is approved by the Codes and Standards Committee.

3.2.1 SP Sponsored by One Subdivision

An SP sponsored by one Subdivision is given that Subdivision's alpha designation as part of its publication designation. It shall consist of the two-letter code of the Subdivision's designation, a space, and then a number followed by a hyphen and year of approval by the Codes and Standards Committee; for example: YZ 3-1994.

3.2.2 SP Sponsored by Two or More Subdivisions

If a publication is sponsored by two or more Subdivisions, no letter prefix shall be used, and the publication designation shall consist of only numbers; for example, 275-1984.

3.2.3 Superseding Edition

When a superseding edition of a previous publication is issued, it shall carry the same designation with a new date at the end, unless the sponsoring Subdivision's two-letter code has changed or the publication is being renumbered to become a part of a series.

3.2.4 Adoptive Standards

Standards adopted intact shall maintain the designation of the originating organization. NEMA's designation shall be placed above the adoptive standard designation in the upper right hand corner with the acronym "NEMA" and a slash added before the acronym of the origination organization; e.g., NEMA/IEC 601-1994.

A Standard adopted in part or as part of a NEMA SP shall be identified with the NEMA SP designation of which it is part.

3.3 TITLES

Titles shall be provided that describe in a few words what the publication covers.

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3.4 DATES

3.4.1 Original Issue

When an SP is originally published, it shall bear the year of the Codes and Standards Committee approval in its number designation; example: "XY 4-1994."

3.4.2 Reaffirmation without Revision

When an SP has been reaffirmed with no text changes, the year of reaffirmation shall be indicated by adding parentheses into which an "R" and the year are placed; example: "XY 4-1989 (R1994)."

If an SP has been reaffirmed more than once, the most recent date is the one that shall be used in the parentheses; example: if "XY 2-1984 (R1989)" is reaffirmed without revision in 1994, it becomes "XY 2-1984 (R1994)."

3.4.3 Reaffirmation with Revision

When an SP has been reaffirmed and revised at the same time, the year in the publication designation shall change. The year of reaffirmation and revision shall replace the year of publication; example: if "XY 2-1971 (R1989)" is reaffirmed with revisions in 1994, it becomes "XY 2-1994."

3.4.4 Revision Only

When an SP is revised without reaffirmation, the date in the designator shall remain the same, and the title page shall carry the notation "Revision X. Revised xx/xx/19xx" directly beneath the title. The revision number shall appear on each revised page directly following the designato; example: "MG 1-1993, Revision 1."

3.5 PARTS OF A NEMA STANDARDS PUBLICATION

The following are the elements of a NEMA SP. Except for those items indicated as supplied by the Communications Department immediately prior to publication, the complete document (or revised portion) as intended for publication shall be submitted for Codes and Standards Committee approval.

a. Cover page (supplied by Communications Department)

b. Title page

c. List of effective pages (supplied by Communications Department)

d. Table of contents

e. Foreword

f. History—optional

g. Other front matter—optional

h. General section
   1. Scope
   2. References
   3. Definitions

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i. Main Text
   1. Ratings
   2. Manufacturing
   3. Performance
   4. Testing
   5. Applications
   6. Figures, tables, and photographs

j. Annexes

k Index—optional

l. NEMA Standardization page (supplied by Communications Department)

m. Member companies page (supplied by Subdivision Program Manager)

3.5.1 Cover

The cover shall include the SP designation, without the date, and the title. The NEMA logo and other distinctive SP cover design shall remain the same for all SPs.

3.5.2 Title Page

The title page shall bear the following information:

a. Publication number and date
b. Title
c. Revision/reaffirmation information, with date
d. Notice of adoption by other standards agencies
e. NEMA address
f. Copyright notice

See Appendix A for format specifications.

All NEMA SPs shall be protected by copyright. The notice of copyright shall appear on the title page and consist of the following:

"© Copyright 1998 by the National Electrical Manufacturers Association. All rights including translation into other languages, reserved under the Universal Copyright Convention, the Berne Convention for the Protection of Literary and Artistic Works, and the International and Pan American Copyright Conventions."

The date is the year of publication or the year of the most recent revision.

The presence of this notice and registration of the copyright by the Communications Department protects NEMA SPs from unauthorized reproduction and reprinting. Any person or organization, including NEMA member companies, that wishes to reproduce or reprint material from the NEMA SPs must secure written permission from the NEMA Communications Director. This restriction is a legal protection for NEMA and its member companies and must be scrupulously observed.

3.5.3 List of Effective Pages

When an SP is revised, a list of effective pages may be supplied showing each page in the SP and its revision status. Pages that have not been revised will be listed as "Original." Revised pages will list the appropriate revision number.

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3.5.4 Table of Contents

The table of contents shall include all front matter (foreword, and all optional items); all sections clauses, and three-digit subclauses; annexes; and lists of tables and figures. Each listing shall include the number designation as used in the body of the SP, the title, and the page on which the item begins.

It is highly recommended that the table of contents be generated automatically by the word processing software.

3.5.5 Foreword

Every SP shall have a foreword. It shall be the first item to appear in the standard after the table of contents. It shall be used to provide information on user input to the development of the SP and shall contain the following statement, or equivalent:

"In the preparation of this Standards Publication input of users and other interested parties has been sought and evaluated. Inquiries, comments, and proposed or recommended revisions should be submitted to the concerned NEMA product Subdivision by contacting the:

Vice-President, Engineering
National Electrical Manufacturers Association
1300 N. 17th Street
Rosslyn, Virginia 22209"

3.5.6 MEMBER COMPANY LIST

Following the foreword, each SP shall list in alphabetical order the company name, city, and state of companies that were members of the sponsoring NEMA Subdivision at the time of Codes and Standards approval of the SP and wish to be shown. This listing shall consist of the full corporate name including all punctuation, capitalization, abbreviation designated by the member company. The Subdivision Program Manager is responsible for the accuracy of this list.

3.5.7 History

A brief history of the publication and notice of supersedence may be included as a separate part of the front matter of the SP.

If the sponsoring Subdivision decides not to include a history in the front matter of the SP, a statement shall be added in the foreword to give a brief notice of supersedence and reaffirmation.

3.5.8 Other Front Matter

If deemed necessary by the Subdivision, other front matter besides the foreword and history may be included in the standard. These items shall appear after the foreword and after the history.

3.5.9 General Section

SPs shall have a general information section as their first section. The general section shall have the following elements.

3.5.9.1 Scope

The scope is a mandatory element. It shall not contain requirements. The scope shall be a concise and comprehensive statement of the coverage of the publication and must not exceed the scope of the sponsoring Subdivision(s). The scope shall be the first clause in the first section of the publication. The scope shall indicate the equipment covered or excluded and the properties and characteristics addressed. If an SP covers only a limited range of quantities such as voltage, current, power, size, etc., the numerical

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limits of the ranges covered or excluded shall be noted in the scope. Nonspecific terms such as high and low, large and small, wide and narrow, etc., shall not be used.

3.5.9.2 References

All references to publications shall be listed in the first section of the SP. Dates shall be included in the reference listing. ("Latest revision" shall not suffice.) By listing the publications in this manner, references within the body of the SP will not carry dates or titles and unnecessary revision of the SP to update the dates will be avoided.

When referencing other documents, the Subdivision shall ensure that the most current edition of that publication is in conformance with the Subdivision's intent in referencing it and shall subsequently change the date to the most recent one. It shall not be acceptable to use the words "or the latest revision thereof," or the like, when referencing other standards.

An obsolete or rescinded publication shall not be referenced. Consider obtaining permission to reprint within the SP material that would otherwise be referenced but is out of print. Future editions or future revisions shall not be referenced.

a. Normative References

Normative references shall list documents that are indispensable for the application of the SP. It shall not include informative material. The normative references shall be introduced with the following wording:

"The following normative documents contain provisions, which through reference in this text constitute provisions of this Standards Publication. By reference herein these publications are adopted, in whole or in part as indicated, in this Standards Publication."

The name and mailing address of each sponsoring organization shall be listed in bold before the references to its publication(s). If the organization uses an acronym, the acronym shall be included in parentheses immediately following the name.

Thereafter, only the publication number and acronym need to be used.

b. Other References

This clause shall include references other than normative references, such as suggested further readings and related publications.

1. References to Periodicals

References to articles in periodicals shall include the information listed below in the order indicated:

a) Title of periodical
b) Volume number
c) Issue number or date of issue
d) Last name of author
e) First Initials of author
f) Title of article
g) First and last pages of article.

Example: *Bulletin of the American Library Association*, vol. 5, July 1911, Blair, E. H., "Indexing and Indexers," pp. 234-38.

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2. References to Books

References to books shall include the information listed below in the order indicated:

a) Last name of author
b) Initials
c) Title of book
d) Place of publication
e) Name of publisher
f) Year of publication
g) Edition number
h) First and last pages of reference.

Example: Friedman, H. A., *Newspaper Indexing*, Milwaukee, Marquette University Press, 1942, pp. 8-12.

3.5.9.3 Definitions

If terms in an SP require definition, the definitions shall be included in the first section of the publication, following the scope and references.

All definitions shall be NEMA Standards.

Terms and definitions shall adhere to the following requirements:

a. Terms which are commonly known or are self-explanatory shall be omitted from the SP.
b. A definition shall contain all the necessary and sufficient elements to enable the concept considered to be well understood and its boundaries delineated.
c. The preferred structure for a definition is that it shall state the class to which the concept belongs and enumerate the characteristics that separate the concept from other members of its class.
d. Circular definitions, where one concept is defined by the second concept and the second concept is defined by the first, shall be avoided.
e. Definitions shall not contain designations, classifications, or requirements.
f. The definition shall not repeat the term or include intervening, transitional words.

Terms being defined shall be listed in bold, in lowercase letters, followed by a colon. Qualifying terms shall follow in parentheses. For example:

control panel (X-ray): That part of the X-ray control upon which are mounted switches, knobs, pushbuttons, and other hardware necessary for manually setting the technique factors.

Synonyms shall be separated by a semicolon. For example:

connector, compression; crimp type connector: A non-reusable ...

3.5.9.4 Abbreviations

The primary criterion for deciding whether or not to use abbreviations is whether they will enhance or inhibit communication of the subject matter. When used, abbreviations should be in accordance with ANSI/ASME Y1.1. If abbreviations are being coined or acronyms are being created, a list shall be included in Section 1 after the clause on definitions. In the text, acronyms shall be spelled out at first use, with the acronym placed in parentheses.

Periods shall not be used with abbreviations unless there is a possibility of confusion, such as between the word "in" and the abbreviation for inch.

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Abbreviations are preferred in figures and tables unless there is a possibility of confusion.

3.6 ANNEXES

If two or more annexes are included in an SP, each shall be designated by a letter. The first annex shall be Annex A and its figures and tables shall be numbered A-1, A-2, etc. Clauses in the annex shall be numbered beginning with A.1.

3.6.1 Normative Annexes

Normative annexes are integral parts of the SP that are most appropriately organized separate from the main body of the SP. The fact that the annex is normative shall be noted in the foreword and in any reference to it in the text. The annex shall also carry the notation of "Normative" in parentheses directly after the title.

The language of a normative annex must be of a mandatory nature; i.e., "must," "shall," "shall be permitted."

3.6.2 Informative Annexes

Annexes that provide additional information but are not an integral part of the SP shall be designated as informative. This shall be noted in the foreword and in references in the text. The word "Informative" shall be placed in parentheses directly after the title.

Informative annexes shall be designated as Authorized Engineering Information and shall use permissive language such as should, may, could, would, etc.

3.7 INDEX

An index may be included in an SP that is very long or complex. ANSI Z39.4 provides guidance in preparing an index.

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Section 4
TREATMENT OF DATA

4.1 NUMBERING SYSTEM

For purposes of clarity and ease of referencing, a NEMA SP may be issued in two or more sections. Sections shall be formed by grouping together related clauses. Clauses shall be further divided into subclauses and sub-subclauses. Further subdividing should be avoided. Numbers shall not be assigned to paragraphs without titles.

Sections, clauses, subclauses and sub-subclauses shall be numbered in Arabic numerals. The first Section of an SP shall be Section 1. The first clause of Section 1 shall be 1.1. The first subclause shall be 1.1.1.

In the text, when reference is made to a clause, the Arabic numerals shall be used alone; e.g., "See 2.1 or 3.1.2." When reference is made to a section, the word "Section" will be included; e.g., "See Section 2."

For the purpose of stabilizing the numbering system, unused clause numbers may be inserted into the numerical sequence to account for future insertions of standards material. When this option is chosen, the section or clause number shall be accompanied by a title and explanatory phrase, such as "reserved for future use" or "no requirement at present." Additionally, if a clause has been deleted from a section, the number may remain with an explanatory phrase such as "Paragraph deleted." This option may be exercised by the Communications Department in the interest of avoiding excessive changes to subsequent clause numbers and consequently preprinting text pages in issuing a revision to an SP.

4.2 TYPE FACES

Headers and text shall be set in Helvetica, normal, 10 point type. Section titles shall be set in Helvetica, bold, 12 point. Table and figure titles shall be set in Helvetica, bold, 10 point.

4.3 LEVELS OF HEADS

Section numbers shall be centered at the top of the page, in bold, preceded by the word "Section." Centered underneath the section number shall be the section title, in full caps and bold.

All clause and subclause titles shall be bold. Clause titles shall be set in all capital letters. Subclause and sub-subclause titles shall be set with the initial letter of each word capitalized, except for articles, prepositions and coordinate conjunctions. Text will not begin on the same line as the title.

4.4 FIGURES AND TABLES

4.4.1 Numbering

Figures and tables shall appear after and as near to their first references as possible. Tables and figures shall be numbered according to the section in which they first appear. In large SPs, figures and tables may be numbered according to the clause in which they first appear. Such numbering shall be consistently applied throughout the SP. Each table and figure shall be referenced and shall be numbered in order of reference. Thus, the first figure in Section 4 shall be Figure 4-1. The first table in Section 4 shall be Table 4-1.

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4.4.2 Figures

4.4.2.1 General

Development of reproducible quality drawings, charts, and graphs shall be the responsibility of the sponsoring Subdivision. Development of graphics shall be done on computer to facilitate ease of update and for distribution of standard on disk. Such computer files shall be supplied for SP publication. (See Annex B, Developing Graphics for Use in NEMA Standards Publications.) If computer files are not available, camera-ready reproducibles shall be submitted.

Units of measure shall be identified either with each value in the figure or in a legend below the figure if all units of measure are the same. The figure shall be labeled "to scale" or "not to scale" as appropriate. Each figure shall have a title which appears centered below the figure and which is printed in all upper case.

All figures shall be referenced in the text by figure number; e.g., see Figure 4-1.

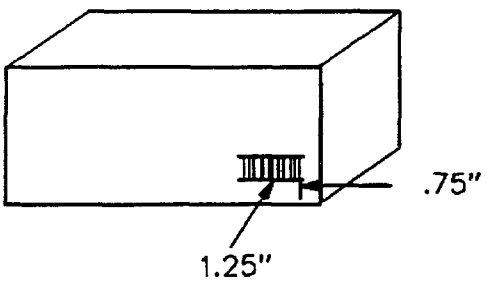


Figure 4-1
DIAGRAM OF BOX

4.4.2.2 Photographs

Glossy black and white photographs shall be provided if required in an SP. In the case of photographs of equipment, the photograph should not show a manufacturer's name or logo on the equipment, if possible.

Photographs shall be considered figures in the SP and will be numbered and bear titles accordingly. When submitting for production, the photographs must be clearly labeled with the figure number and an indication as to which end is up. This identification should be with a grease pencil because pen points or pencils make an indentation on the base of the photograph that shows up in reproduction.

4.4.2.3 Type

Figures shall be identified by centering the word "Figure" and its number above the title which shall be centered directly beneath the figure. Both figure identifier and title shall be set in Helvetica, bold, 10 point type.

4.4.3 Tables

4.4.3.1 General

Tables shall be centered horizontally on the page. They shall be ruled with double lined borders and a single line cell separation between the Table Header Line and the first line of the body of the table. (A cell is a position in a table.) Column headings shall be in bold. An ellipsis (...) or blank line shall be used to indicate a vacant cell.

Numeric entries shall be aligned on the decimal point; zeroes shall be placed before the decimal point in numbers less than unity. Fractional numbers shall be shown as decimals.

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Grammatical parallelism must be maintained throughout the entries of a reading (textual) column. (Thus if listed items begin with gerunds, all must begin with gerunds.) A concluding period should not be used unless the entry is more than one complete sentence.

A table should be organized to fit on a page. When a table must carry over for more than one page, the words "Table continued on next page" shall appear, flush right at the end of the page and the words "Table X-X Continued" shall appear centered in bold letters above the successive pages. Column heads shall be repeated on successive pages of a table.

Units of measure shall be noted either in the title or in parentheses in the column headings. The same unit of measure should be used throughout each column. For example, ohms should not be combined with megohms, feet with inches, or seconds with minutes. If such mixing is unavoidable, each entry shall show its unit of measure.

All tables shall be referenced in the text by table number; e.g., see Table 4-1.

4.4.3.2 Type

Tables shall be identified by centering the word "Table" and its number above its title. Both shall be centered above the table and set in Helvetica, bold, 10 point type.

Entries in the tables shall generally be in 10 point type. Eight point type may be used if necessary.

4.4.3.3 Informal Tables

A table with no more than three lines of information may be considered an informal table. Such tables require no table number or title. Informal tables are difficult to reference and should be used sparingly.

4.5 FOOTNOTES

4.5.1 Footnotes in Text

A footnote for the body text shall appear at the foot of the page where it is called out, preceded by a .75 inch separator line. Each page shall show its footnotes independently, starting the numerical sequence over on each page. Using the order of the symbols shown in 4.5.4, each page that has at least one footnote will use the * symbol.

The text of the footnote shall be set in 8-point type.

4.5.2 Footnotes in Tables

In the case where there are more than eight footnotes to a table, numbers may be used. Numbers shall be placed in parentheses to avoid confusion with exponents.

Table 4-1
DICOM TRANSFER SYNTAX UIDS FOR JPEG

Column 1	Column 2	Column 3	Column 4	Column 5
4,538.25	5[illegible]3.22	Text may be left aligned	text	555.33
5,[illegible]83.35	48[illegible]1	Text	may be	333.12
5,55[illegible].55	435[illegible].33	...	centered	111.11

Tabular footnote reading (order found in the table) shall be: first the title and then proceeding through each succeeding row, from left to right. The footnotes shall appear directly beneath the table, not at the foot of the page. They shall not be preceded by a separator line.

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4.5.3 Footnotes in Figures

Footnotes for figures shall be placed before the figure number and title which are centered beneath the figure. The footnote shall be preceded by a separator line.

4.5.4 Footnote Symbols

Footnotes shall be noted in the table or figure using the following symbols, in the following order:

*
**
†
††
‡
‡‡
§
§§

4.6 NOTES

Notes are to be avoided wherever possible. They shall be permitted only when they are explanatory in nature and when compliance with the note is not necessary in order for a manufacturer to represent that its product conforms to the Standard; they shall never be used to express requirements. Notes shall be set in a point size that is smaller than the main text and shall be located directly after the information to which they refer. When used, they shall be labeled "Note" and shall use the language of Authorized Engineering Information.

NOTE—Notes should only be used for explanatory purposes.

4.7 CAUTIONARY STATEMENTS

Cautionary statements are permitted when it is necessary to call attention to a potentially dangerous, confusing, or misleading situations. Words such as "Warning," "Caution," or "Danger," shall be used to denote a cautionary statement. The cautionary word shall be set in bold, full caps, and followed by an em-dash and then the information.

4.8 EQUATIONS

Equations shall be centered on the page. Where appropriate, explanation of the terms of the equation should appear directly following the equation, introduced by the word "where" appearing to the left, capitalized, and followed by a colon. For example:

$$\frac{a}{b} = \left[\tfrac{1}{2} \pm \beta\right] \sqrt{T_1 \pm b^2}$$

Where:
a = Applications
T = Time

In general, equations are not numbered unless there are cross-references to them in other parts of the text or if there are numerous equations. If numbered, they shall be numbered consecutively according to the clause in which they appear. For example, if clause 5.1 has two equations, they would be numbered Equation 5.1-1 and Equation 5.1-2. The word "Equation" and the number shall appear flush right below the equation.

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4.9 DISTINCTIVE TREATMENT OF TEXT

4.9.1 Italics

Generally, italics are not used in the regular text of a publication. This typeface is used to highlight titles of publications. Italics may be used in equations or text to show an unknown factor. In an equation, it may be less confusing to use marginal notation.

4.9.2 Boldface

The bold typeface is used to denote section and clause numbers and titles, table and figure titles, and terms, which are defined. It is also used where the intent is to draw attention to a certain piece of information, such as cautionary statements and addresses in the References clause. This typeface shall be used sparingly to preserve effectiveness of the technique.

4.9.3 Parentheses

Parentheses shall be used to set off amplifying, explanatory, or digressive elements.

If it is necessary to place a parenthetical phrase within another in text, each level of parentheses shall take a different form. The order for parentheses shall be as follows:

([{ }])

4.9.4 Lists

Items shall be given a letter or number as in a list only if there is more than one item to be listed; i.e., only designate an item as *a.* or *1.* if there is also a *b.* or *2.*

Items in a list shall be listed in the following fashion:

a. Initial item in list
   1. Subentry under item a (if needed)
      a) Subentry under a.1 (if needed)
         1) Lowest division of an item in a list (if needed)
         2) Lowest division
      b) Second subentry under a.1
   2. Subentry under a.

b. Second item in a list

4.10 SYMBOLS

Symbols are a shorthand means of conveying information. They are typically used in wiring diagrams to show the function or interconnections of a circuit, or are placed on equipment to instruct as to its use and operation. Symbols usually appear only in diagrams, figures, and tables.

Symbols should be in general agreement with ANSI/IEEE Y32E. Symbols in conformance with various IEC publications are also acceptable, but should be clearly indicated as such.

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Section 5
STYLE GUIDANCE

This section provides guidance for writing NEMA SPs. It is not intended to be all inclusive, but highlights areas that often trouble SP writers.

5.1 GRAMMAR, PUNCTUATION AND STYLE

NEMA SPs shall be written to enhance understanding. Because of their technical content, it is important to avoid overlong sentences and paragraphs. Consistency in style will also enhance the understanding of the technical content.

SPs shall be edited by the NEMA Communications Department for grammar, punctuation and consistency of style and organization. The following resources (shown in order of precedence) shall be used as reference guides:

a. GPO Style Manual

b. Chicago Manual of Style

5.2 NUMBERS

Arabic numerals are used for units of measurement, time, and money, and for quantities of 10 or more. A number is spelled out at the beginning of a sentence (avoid beginning a sentence with three digit numbers) and where two figures in succession would be confusing, such as "twelve 3-volt batteries."

When the number is less than one, the unit of measure shall be singular; e.g., 0.5 inch not 0.5 inches.

A space shall be placed between the number and the unit of measure; e.g., 10 feet; 3 mm.

5.3 PUNCTUATION

5.3.1 Period

When used with quotation marks, the period shall be placed inside the quotation marks.

The period shall be placed inside the closing parenthesis when the material in parentheses is a complete sentence or unit in itself; for example: The prongs of the plug shall interlock with the receptacle. (See Figure 7-3.)

The period shall be placed outside the closing parenthesis when the material in parentheses is part of a sentence; for example: The prongs of the plug shall interlock with the receptacle (as shown in Figure 7-3).

Abbreviations in figures, tables, and text shall be used without periods unless the omission of the period would cause confusion such as between the preposition "in" and the abbreviation for inch.

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5.3.2 Comma

In general the comma is used as a mark of separation to make clear groupings of words, phrases, and clauses in respect to the grammatical structure of the sentence. In a series of three or more, commas should precede the words *and* or *or* to avoid confusion; for example: It may be of lead, zinc, or an alloy of copper and lead.

When used with quotation marks, the comma is placed inside the closing quotation mark.

5.3.3 Semicolon

Semicolons should be used to separate complicated phrases or clauses; for example: The committee has studied all forms of mutation: the applicant, in combination with the seed; the seed multiplied; the applicant halved, but with seeds interspersed; and multiple applicants.

Semicolons are also used to separate two complete sentences which have been linked for emphasis; for example: The pulley is manual; the switch is automatic.

5.3.4 Hyphen

Hyphens should be used to tie together compound words (e.g., mother-in-law), to connect long prefixes (self-motivated), and to avoid doubling a vowel or tripling a consonant (anti-inflation, hull-less). Hyphens are used to connect unit modifiers where the meaning might otherwise be unclear (1-inch diameter; fire-tested material; but not income tax form; civil rights case). A two-word modifier, the first element of which is an adverb which is comparative, superlative (better paying job), or ending in *ly (easily read sign)*, does not take a hyphen.

Hyphens are also used to break words at the ends of lines. Authors shall not insert these hyphens manually, but shall allow their word-processing software to insert them automatically.

5.4 WORD USAGE

5.4.1 Vague, Indefinite, or Interpretive Terms

Terms such as suitable, appropriate, adequate, acceptable, reasonably, near to, small, large, etc., should be avoided.

The term "and/or" shall be avoided and, wherever possible, the statement rewritten to clarify the meaning; for example: Heel pads or sock linings, or both. (not "heel pads and/or sock linings") Nuts or screws or bolts or a combination thereof.

5.4.2 Distinctive Usage

Following are words or phrases that are often used interchangeably. In NEMA SPs they shall be used as described below.

a. Ensure, Assure, Insure

"Ensure" shall be used to show some action taken to cause something to happen; e.g., He turned up the thermostat to ensure the pipes didn't freeze. A warning label shall be affixed to the broken equipment to ensure that it is not used.

"Assure" shall be used to indicate action taken to give confidence to oneself or another; e.g., He assured his employer that he would be on time.

"Insure" shall be used to indicate indemnification; e.g., The policy was purchased to insure the facility.

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b. That and Which

"Which" shall be used to provide further description; e.g., The label, which had become frayed, was easily replaced.

"That" shall be used to make the description distinctive or restrictive; e.g., The label that is frayed is the one to be replaced.

5.5 PARALLELISM

When making a list of items, each shall be of the same grammatical form and structure. In the following example, the italicized item is not consistent with the others:

Provide the following:
a. Method used to evaluate noise
b. Specification area (size and shape)
c. If the temperature is high, when you should open the valve
d. Method of conformance.

5.6 ABBREVIATIONS, ACRONYMS, AND SYMBOLS

5.6.1 Abbreviations

Periods shall not be placed at the end of the abbreviation unless the letters spell out a word; e.g., ft for feet and in. for inches.

Abbreviations shall not be made plural; e.g., 6 in. not 6 ins.; 3 lb not 3 lbs.

5.6.2 Acronyms

Terms to be abbreviated into acronyms shall be spelled out in initial use and the acronym shall be placed directly following in parentheses. The term for which the acronym is established shall be placed in initial caps only if they form a proper name. For example, TGIF stands for thank goodness it's Friday, not Thank Goodness It's Friday.

Plural forms of acronyms shall be formed by placing a lowercase "s" after the acronyms; e.g., UPSs are advisable in this situation.

Articles for acronyms are assigned according to how the acronyms are pronounced. If it is pronounced as a word, it would use the article "an" if that word begins with a vowel. If it pronounced as letters (P-M-C), the article is assigned by the sound of the first letter; e.g., a SALT meeting; an SMS document..

5.6.3 Symbols

Symbols used for units of measure in lieu of the full word or the abbreviation should be avoided in text; they may be used in figures. The symbols shall appear directly after the number; e.g., 4", 5°F.

5.7 REVISING TEXT

Revised SP shall be updated in a manner to enhance the understanding of the end user. Generally, because page numbering and clause and subclause numbering are associated with and contained within each section, updates can be accomplished without disturbing the rest of the SP. If less than 40% of the SP is being revised, and thus only changed pages will be issued in the revision, to avoid reprinting a large number of pages the Communications Department may opt to avoid renumbering in response to changes. At the discretion of the Communications Department, deletions of sections, clauses, and subclauses shall be accommodated by inserting the word "Deleted" after the clause or subclause number; additions of clauses or subclauses shall be accommodated by numbering the new clause or subclause with an

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uppercase letter. For example, if a new subclause is to be inserted after 5.3 and before 5.4, it shall be numbered 5.3A. These options shall be exercised only when revising the numbering would require issuing a large number of pages for what would have otherwise been a small revision.

If the complete SP will be reprinted, sections, clauses, and subclauses will be renumbered.

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Annex A
FORMAT SPECIFICATIONS

A.1 PAGE SETUP

Margins

Top — 1.20 inches
Bottom — 1.00 inch
Left — 1.00 inch
Right — 1.00 inch

From Edge:
Header — 0.5 inch
Footer — 0.5 inch

Tabs

Set tabs at the start of a new document — tabs can be specified in the Style, i.e, Normal text, tabs set at 0.25", 0.50", 1.00", 1.50" etc.

Paper Size

8.5 × 11 inches

Orientation

Portrait

Layout

Section Starts — New Page
Headers and Footers — Different, Odd and Even

A.2 STYLES

Word for Windows allows the user to create Styles (formats) that can be applied to the text so as to create a document of desktop-publishing quality. If the user follows the heading levels inherent in Word throughout the document, a Table of Contents can be automatically generated once the typing has been completed.

NS 1 is formatted according to these guidelines. The following page displays the format and spells out the settings to be used.

The following page displays the format to be followed for the Title Page. The format to be followed for the body of the document appears on the next page.

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12 Lines from the Top of the Page 12 Pt. Helvetica, **bold**,centered, enter the NEMA Standards Publication number. Follow with two returns.

NEMA Standards Publication NS 1-1995

Guide for Preparation of NEMA Standards Publications

Title appears centered. Text is 12 Pt. Helvetica *italics*

Approx. 22 lines down, published by is in 10 Pt. Helvetica, italics followed by two returns

NEMA appears in 10 Pt. Helvetica **bold** followed by the street address in 10 Pt. Helvetica normal type

Published by

National Electrical Manufacturers Association
1300 N. 17th Street
Rosslyn, Virginia 22209

Copyright information centered in 10 Pt. Helvetica, normal on last line of page.

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Normal Text: 10 Pt. Helvetica, left aligned, first line indented. Double return at end of paragraph.

Heading 1
12 Pt. Helvetica, **bold**, centered, space above is set to 24 pts., space after is also set to 24 pts. The word Section is in upper and lower case, Section name is ALL CAPS.

Section 5
SECTION NAME

This section provides guidance for writing NEMA SPs. It is not intended to be all inclusive, but highlights areas that often trouble SP writers.

5.1 GRAMMAR, PUNCTUATION AND STYLE

Heading 2—10 Pt. Helvetica, **bold**, ALL CAPS, space after is set to 8 pts.

NEMA SPs shall be written to enhance understanding. Because of their technical content, it is important to avoid overlong sentences and paragraphs. Consistency in style will also enhance the understanding of the technical content.

SPs shall be edited by the NEMA Communications Department for grammar, punctuation and consistency of style and organization. The following resources (shown in order of precedence) shall be used as reference guides:

a. GPO Style Manual

b. Chicago Manual of Style

5.2 NUMBERS

Arabic numerals are used for units of measurement, time, and money, and for quantities of 10 or more. A number is spelled out at the beginning of a sentence (avoid beginning a sentence with three digit numbers) and where two figures in succession would be confusing, such as "twelve 3-volt batteries."

When the number is less than one, the unit of measure shall be singular; e.g., 0.5 inch not 0.5 inches.

A space shall be placed between the number and the unit of measure; e.g., 10 feet; 3 mm.

5.2.1 Period

Heading 3—10 Pt. Helvetica, **bold**, space after is set to 4 pts.

When used with quotation marks, the period shall be placed inside the quotation marks.

The period shall be placed inside the closing parenthesis when the material in parentheses is a complete sentence or unit in itself; for example: The prongs of the plug shall interlock with the receptacle. (See Figure 7-3.)

The period shall be placed outside the closing parenthesis when the material in parentheses is part of a sentence; for example: The prongs of the plug shall interlock with the receptacle (as shown in Figure 7-3).

5.2.1.2 Abbreviations

Heading 4—10 Pt. Helvetica, **bold**, space after is set to 4 pts.

Abbreviations in figures, tables, and text shall be used without periods unless the omission of the period would cause confusion such as between the preposition "in" and the abbreviation for inch.

5.2.1.2.1 Next Level

Heading 5—10 Pt. Helvetica, **bold**, space after is set to 4 pts.

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A.2.1 Normal Text

Normal Text: Font: Helvetica, 10 pt., Flush Left, Line Spacing Single, Widow/Orphan Control

First line of each paragraph is indented by tabbing once. Initial tab is set at 0.25"

A double return marks the end of a paragraph (Hit the **Enter** Key Twice). For example:

An Adoptive Standard is a standard, adopted in whole or in part, from the standards of another organization, either domestic, regional, or international.

A.2.2 Heading 1

Heading 1 is the style which should be applied to section heads. The attributes assigned to Heading 1 are:

font—Helvetica, 12 pt., bold, kern at 1 pt., centered, space before is 24 pt., space after: 24 pt., keep with next (ensures that the heading remains on the same page as the paragraph that follows)

The section number is followed by a **Shift + Return** followed by the Section Name (all in capital letters).

For example:

Section 1
STYLE GUIDE

A.2.3 Heading 2

Heading 2 is the first level heading applied to the text in the body of the document. Heading 2 is applied to sections such as 1.1, 2.1, and 2.2. The attributes assigned to Heading 2 are:

font—Helvetica, 10 pt., bold, all capital letters, space after 8 pt., tab is set at 0.6 in., keep with next (ensures that the heading remains on the same page as the paragraph that follows).

The two digit (for example, 5.1) section number, followed by one tab, followed by the section title. Heading 2 is followed by a single return.

For example:

5.1 HEADING 2

A.2.4 Heading 3

Heading 3 is the second level heading applied within the body of the section. It is applied to sections such as 1.1.1, 1.2.2, 2.3.3, etc. The attributes assigned to Heading 3 are:

font—Helvetica, 10 pt., bold, space after 4 pt., tab is set at 0.6 in., keep with next (ensures that the heading remains on the same page as the paragraph that follows).

The three digit (for example, 5.1.1) section number, followed by one tab set at 0.6 in., followed by the section title, followed by a single return.

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For example:

5.1.1 Heading 3

A.2.5 Heading 4

Heading 4 is the third level of heading applied within the body of the document. It is applied to sections such as Sections 1.2.2.3, 2.3.4.5, etc. The attributes assigned to Heading 4 are:

font—Helvetica, 10 pt., bold, space after 4 pts., tab is set at 0.6 in., keep with next (ensures that the heading stays on the same page as the paragraph that follows)

The 4 digit (for example, 5.1.2.2) section number is followed by one tab set at 0.6 in., followed by the section title, followed by a single return.

For example:

5.1.2.2 Heading 4

A.2.5 Heading 5

Heading 5 is the fourth level of heading applied within the body of the document. It is applied to sections such as 1.2.2.3.2, 2.3.4.5.2, etc. The attributes assigned to Heading 5 are:

font—Helvetica 10 pt., bold, space after is set to 4 pts., tab is set to 0.6 in., keep with next (ensures that the heading and the paragraph that follows remain on the same page).

The five digit (for example, 5.1.2.2.1) section number is followed by one tab set to 0.6 in., followed by the section title, followed by a single return.

For example:

5.1.2.2.1 Heading 5

Text would then follow in the normal, paragraph mode.

A.3 TABLE OF CONTENTS

Once the document has been typed and formatted, the user must place the cursor at the point at which the Table of Contents should begin. The Table of Contents is generated through the Insert Menu. All levels of headings applied to the document: Heading 1, 2, 3, 4 and 5 will be utilized by Word to generate the Table of Contents. The Table of Contents may then be formatted as specified in the NEMA Style.

Sample Table of Contents is shown below:

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Annex B
DEVELOPING GRAPHICS FOR USE IN NEMA STANDARDS PUBLICATIONS

B.1 GRAPHICS DEVELOPMENT

As a NEMA Standards Publication is developed, the graphics shall also be developed on computer. This will facilitate future updates and allow for delivery to users of the SP on computer disk.

All graphic images must be separated out of word processing packages The formats listed in B.2 are options for providing computer graphics files for NEMA Standards Publications. They are listed in order of preference.

B.2 GRAPHICS COMPUTER FORMATS

B.2.1 Most Desirable—Vector Based

Vector based graphics is the preferred format for submittal. The files can be edited, the output quality is good, and the file sizes are manageable.

a. **.CDR Files** This is the resident file format for CorelDRAW. Once in CorelDRAW, the images can be edited and exported.

b. **.DXF Files** These files can not be imported into Word, WordPerfect 6.0, or Ventura directly, however, they can be brought into CorelDRAW. The import quality is not bad, but work must be done to clean them up, it is not a perfect import. Once the file is brought into CorelDRAW the images can be edited and exported.

c. **.WPG Files** These files can be imported into Word and WordPerfect 6.0, but can not come into Ventura directly. They can be brought into CorelDRAW. The import is not bad, however, work must be done to clean them up. It is not a perfect import. Once into CorelDRAW the images can be edited and exported.

d. **.PCT Files** These files can not import into either Word, WordPerfect 6.0, or Ventura directly, however, they can be brought into CorelDRAW. The import is not bad, but work must be done to clean them up. It is not a perfect import. Once into CorelDRAW the images can be edited and exported. This seems to be the best exchange format between a MAC and a PC.

e. **.AI Files** These can not import into either Word, WordPerfect 6.0, or Ventura directly, however, they can be brought into CorelDRAW. The import is not bad, but work must be done to clean them up. It is not a perfect import. Once into CorelDRAW the images can be edited and exported.

B.2.2 Second Choice — Raster Based (not optimal, but usable)

a. **.TIF, .PCX, .BMP** These are bit-mapped images. These are the kind of files that you get when an image is scanned in. These files are the most time consuming to edit and are not too scalable. If one of these images is enlarged too much the lines become jagged. If it is reduced too much some of the lines begin to disappear. These files can import directly into Word, WordPerfect 6.0, or Ventura. The import is not bad but work must be done to clean them up. Once in Corel PhotoPAINT

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the images can be cleaned up and then brought into CorelDRAW to be traced (converted into a Vector based file), cleaned up, edited, and then exported.

B.2.3 Lease Desirable Choice—Encapsulated PostScript Files

a. **.EPS Files** While .EPS files can be used to print the graphic, they can not be edited and are not the best option for documents that must be maintained.

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