ASME AED-1–2018

Aerospace and Advanced Engineering Drawings

AN AMERICAN NATIONAL STANDARD

The American Society of Mechanical Engineers

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The next edition of this Standard is scheduled for publication in 2023.

Periodically certain actions of the ASME AED Committee may be published as Cases. Cases are published on the ASME website under the AED Committee Page at http://go.asme.org/AEDcommittee as they are issued.

Errata to codes and standards may be posted on the ASME website under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in codes and standards. Such errata shall be used on the date posted.

The AED Committee Page can be found at http://go.asme.org/AEDcommittee. There is an option available to automatically receive an e-mail notification when errata are posted to a particular code or standard. This option can be found on the appropriate Committee Page after selecting “Errata” in the “Publication Information” section.

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FOREWORD

Since many major industries are increasingly globalized, resulting in the decentralization of design and manufacturing activities, it is imperative that design documentation more completely and accurately identify functional requirements. In 2007, a cross-functional group met in Washington, DC, to discuss the business pressures and needs of the aerospace industry. From this meeting, a consensus was reached to explore the creation of a new standard that would enable those in the aerospace industry to harmonize best practices and further standardize the creation and interpretation of engineering drawings. Additional meetings highlighted the need to expand the scope of the group's efforts beyond the aerospace industry, and the ASME Aerospace and Advanced Engineering Drawing (AED) Committee now represents all advanced manufacturing technologies.

ASME AED-1 provides a method for documenting the design requirements that are common to aerospace and other industries that use advanced manufacturing technologies. This Standard offers symbologies, terminologies, and concepts to enhance the understanding and abilities of those who create and use design documentation. It is hoped that a common documentation methodology will decrease design and manufacturing costs and improve quality.

This Standard is not intended to replace any of the ASME Y14 series of standards for engineering drawings. Rather, it functions as a supplement to the ASME Y14 series, allowing use of defined symbologies, terminologies, and concepts until the appropriate ASME Y14 subcommittee adopts the principles expressed herein.

As this Standard evolves, many of the concepts introduced herein will migrate to more appropriate ASME standards. When this occurs, the affected information will be moved into an appendix within ASME AED-1. In this manner, control and ownership of the subject matter will be placed with the proper committee, but the history and usage will remain visible within ASME AED-1.

This Standard is available for public review on a continuing basis. This provides an opportunity for additional public-review input from industry, academia, regulatory agencies, and the public-at-large.

This Standard was approved by the AED Standards Committee. It was approved as an American National Standard by the American National Standards Institute (ANSI) Board of Standards Review on September 25, 2018.

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Aerospace and Advanced Engineering Drawings

(The following is the roster of the Committee at the time of approval of this Standard.)

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CORRESPONDENCE WITH THE AED COMMITTEE

General. ASME Standards are developed and maintained with the intent to represent the consensus of concerned interests. As such, users of this Standard may interact with the Committee by requesting interpretations, proposing revisions or a case, and attending Committee meetings. Correspondence should be addressed to:

Secretary, AED Standards Committee
The American Society of Mechanical Engineers
Two Park Avenue
New York, NY 10016-5990
http://go.asme.org/Inquiry

Proposing Revisions. Revisions are made periodically to the Standard to incorporate changes that appear necessary or desirable, as demonstrated by the experience gained from the application of the Standard. Approved revisions will be published periodically.

The Committee welcomes proposals for revisions to this Standard. Such proposals should be as specific as possible, citing the paragraph number(s), the proposed wording, and a detailed description of the reasons for the proposal, including any pertinent documentation.

Proposing a Case. Cases may be issued to provide alternative rules when justified, to permit early implementation of an approved revision when the need is urgent, or to provide rules not covered by existing provisions. Cases are effective immediately upon ASME approval and shall be posted on the ASME Committee web page.

Requests for Cases shall provide a Statement of Need and Background Information. The request should identify the Standard and the paragraph, figure, or table number(s), and be written as a Question and Reply in the same format as existing Cases. Requests for Cases should also indicate the applicable edition(s) of the Standard to which the proposed Case applies.

Attending Committee Meetings. The AED Standards Committee regularly holds meetings and/or telephone conferences that are open to the public. Persons wishing to attend any meeting and/or telephone conference should contact the Secretary of the AED Standards Committee. Future Committee meeting dates and locations can be found on the Committee Page at http://go.asme.org/AEDcommittee.

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AEROSPACE AND ADVANCED ENGINEERING DRAWINGS

1 GENERAL

1.1 Scope

This Standard provides a method to document requirements that are common across aerospace and other industries that use advanced manufacturing technologies. This Standard offers symbologies, terminologies, and concepts to enhance the understanding and abilities of those who create and use design documentation.

1.2 Conventions

The conventions in paras. 1.2.1 through 1.2.10 are used in this Standard. With the exception of the system of units described in para. 1.2.7, these conventions are similar to the conventions used in the ASME Y14 standards.

1.2.1 Mandatory, Nonmandatory, Guidance, and Optional Words

(a) The words "shall" and "will" establish a mandatory requirement.
(b) The words "should" and "may" establish a recommended practice.
(c) The words "typical," "example," "for reference," and the Latin abbreviation "e.g." indicate suggestions given for guidance only.
(d) The word "or" used in conjunction with a mandatory requirement or a recommended practice indicates that there are two or more options on how to comply with the stated requirement.

1.2.2 Cross-Reference of Standards. Cross-reference of standards in text with or without a date following the standard designator shall be interpreted as follows:
(a) Reference to ASME Y14 standards in the text without a date following the standard designator indicates that the issue of the standard identified in the References section (section 2) shall be used to meet the requirement.
(b) Reference to ASME Y14 standards in the text with a date following the standard designator indicates that only that issue of the standard shall be used to meet the requirement.

1.2.3 Invocation of Referenced Standards. The following examples define the invocation of a standard when specified in the References section (section 2) and referenced in the text of this Standard:
(a) When a reference standard is cited in the text with no limitations to a specific subject or paragraph(s) of the standard, the entire standard is invoked, e.g., "Dimensioning and tolerancing shall be in accordance with ASME Y14.5" is invoking the complete standard because the subject of the standard is dimensioning and tolerancing and no specific subject or paragraph(s) within the standard are invoked.
(b) When a referenced standard is cited in the text with limitations to a specific subject or paragraph(s) of the standard, only the paragraph(s) on that subject are invoked, e.g., "Assign part or identifying numbers in accordance with ASME Y14.100" is invoking only the paragraph(s) on part or identifying numbers because the subject of the standard is engineering drawing practices, and part or identifying numbers is a specific subject within the standard.
(c) When a reference standard is cited in the text without an invoking statement such as "in accordance with," the standard is for guidance only; e.g., "For gaging principles, see ASME Y14.43" is for guidance only, and no portion of the standard is invoked.

1.2.4 Parentheses Following a Definition. When a definition is followed by a standard referenced in parentheses, the standard referenced in parentheses is the source for the definition.

1.2.5 Notes. Notes depicted in this Standard in ALL UPPERCASE letters are intended to reflect actual drawing entries. Notes depicted in initial uppercase or lowercase letters are to be considered supporting data to the contents of this Standard and are not intended for literal entry on drawings. A statement requiring the addition of a note with the qualifier "such as" is a requirement to add a note, and the content of the text is allowed to vary to suit the application.

1.2.6 Acronyms and Abbreviations. Acronyms and abbreviations are spelled out the first time used in this Standard, followed by the acronym or abbreviation in parentheses. The acronym or abbreviation is used thereafter throughout the text.

1.2.7 Units. U.S. Customary units are featured in this Standard. It should be understood that the International System of Units (SI) could equally have been used without prejudice to the principles established.