

ASME Y14 SUBCOMMITTEE CHARTERS

ASME Y14 Subcommittee Charters
Engineering Drawing and Related Documentation Practices
(Updated 15 Aug 2017)

SUBCOMMITTEE CHARTERS

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
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ASME Y14 SUBCOMMITTEE CHARTERS

CHARTER FORMAT & CONTENT

CHARTER TITLE: SUBCOMMITTEE CHARTER

Section 1: General. This section will describe the subject to be covered by the standard or other document to be prepared by the committee, including the reasons why the document is needed and its anticipated use. Also, to be included are background information and any special "modus operandi" peculiar to the committee's function due to the nature of the subject and the document(s) to be produced. From this section the committee member should be able to understand the scope of the subject coverage, including limitations within which the committee must restrict itself so as not to encroach on other committees' responsibilities nor stray beyond the specific subject matter involved.

Section 2: Requirements. This section will specifically describe the intended content of the standard or other publication to be produced, including minimum requirements, limitations, and options to be considered. The description will be in terms of subject categories, classes, definitions, format, user considerations, and other data relevant to the intended coverage and purposes of the document. For an existing subcommittee with already published documents this section will be more detailed and specific than for a new subcommittee whose work is not yet started or still in the initial phase of preparation.

Section 3: Basis. This section will describe the known existing data and information which may be used as the basis for the standard or other publication(s) to be produced by the subcommittee.

ASME Y14 SUBCOMMITTEE CHARTERS

EXECUTIVE ADVISORY PLANNING TEAM (EAPT)

COMMITTEE CHARTER

1. **Responsibility.** The EAPT is responsible for the following:
 - a. Advise the Main Committee.
 - b. Assist in establishing the future direction of the Main Committee's work.
 - c. Make recommendations to the Main Committee related to harmonization of Y14 standards with other national and international standards.
 - d. Maintain and administer the Y14 Mission statement.

2. **Officers.** The Chairperson shall be a Vice Chairperson of the Main Committee. The Chairperson may appoint a Vice Chairperson and/or a Secretary from the membership.

The term as member shall coincide with his or her term as Vice Chairperson of the Main Committee. The term of office of the Vice Chairperson, and Secretary shall either coincide with his or her term as member of the Main Committee, or the term of the Chairperson whichever occurs first.

3. **Members.** The members of the EAPT shall be members of the Main Committee appointed by ASME upon recommendation of the Chairperson of the EAPT and approval of the Main Committee. Their appointments shall coincide with their terms as members of the Main Committee.

The membership shall consist of the Chairperson of the Main Committee and four other members of the Main Committee, one of whom shall be the Vice Chairperson of the Main Committee, and one of whom shall have a strong linkage with the DoD.

A member may not be represented by an alternate. Balancing of interests is desirable, but not required.

4. **Duty.** The duty of each member is to give thorough consideration to each subject brought before the subcommittee for action, to vote on approval or disapproval of each proposal, to contribute expertise on the subjects under consideration, to advise on personnel for membership on the Main and subordinate committees, and assist generally in carrying out the functions of the subcommittee. Such duties may be carried out by attendance at meetings, by correspondence, and by telephone. Members failing to perform their duties shall be subject to having their appointments terminated by the EAPT Chair with majority approval of the other EAPT members.

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SUBCOMMITTEE 1 - DRAWING SHEET SIZE AND FORMAT

1. **General.** Standardization of the sheet size and basic formats of engineering drawings will permit industry and government to utilize common practices, enhance interchange of data, reduce varieties, minimize cost of formats, permit standardization of microfilm and reproduction procedures and equipment, and improve availability of suitable handling and storage facilities. Although standardization of basic format will provide uniform location of title block, revision date, etc., on drawings, it is not the intent of this standard to control the details of the data to be entered in the various format blocks nor in the body of the drawing. The sizes and details of format blocks should be limited to minimum needs to permit variations by various users to meet requirements peculiar to their own needs.
2. **Requirements.** This standard will include a range of sheet sizes broad enough to satisfy the needs of industry and government agencies. Standard drawing paper and film stock sizes being produced suppliers shall also be taken into account. The sheet sizes and format blocks, margins, and zones will be based on existing broadly used standards, especially those established by the Government, however restricted in dimension only to the minimum requirements of most users. Considerations for microfilm and reproduction requirements and for the preparation of forms via utilization of automated equipment will also be included.
3. **Basis.** The basis for this standard will be the ASME Drawing Standards Manual, MIL-STD-100, previous ASA and ANSI standards, pertinent international and military standards and specifications, and standards already established and in use by an adequately broad segment of organizations.

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SUBCOMMITTEE 2 - LINE CONVENTIONS AND LETTERING

1. **General.** Standardization of line conventions and lettering types and styles on engineering drawings will permit drawings prepared by virtually any method in all sizes and types of industrial or government facilities to meet readability and reproducibility requirements. The standard line conventions will also enhance delineation of the characteristics of items and differentiate features of parts from dimension lines, center lines, leaders, section lines, etc., as well as provide for special needs such as designation of stitching, movement or alternate positions of parts, limits of application of form controls, etc.
2. **Requirements.** This standard will include:
 - (1) Types and thicknesses of lines to be used for various purposes.
 - (2) Example showing applications of the various types and thicknesses of lines.
 - (3) Arrowheads and other methods of termination of leaders.
 - (4) Standard section lining symbols.
 - (5) Standard letters and numerals, including upper and lower case and inclined and vertical styles, and microfont and machine readable styles as applicable to hand and automated equipment methods of application.
 - (6) Character size standards, including the size ratio of lower case to upper case letters.
3. **Basis.** Existing government and industry standards and new standards adopted by other recognized organizations will be considered where applicable to engineering drawings. ISO standards will also be taken into consideration.

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SUBCOMMITTEE 3 - MULTI AND SECTIONAL VIEW DRAWINGS

1. **General.** Standardization of the system of delineation and projection of views and sections on engineering drawings will provide for uniform interpretation and understanding of drawings requirements. Also of importance is standardization of nomenclature used to identify cutting planes, views, sections, etc., as well as the means of identification of the various elements of the system.
2. **Requirements.** This standard will cover orthographic projection of views and sections, with third angle projection as the American standard. A description of the first angle projection method will also be included for informative purposes. Placement of views, nomenclature covering the various aspects of the system, the various requirements for defining and delineating sectional views, requirements for views and sections, identification of views and the direction or location from which the views are taken, cross referencing between views, types of sections, and conventional representation will be included as applicable. Consideration of the principles of projection may also be included as applicable. Consideration of the principles of projection, may also be included (called "space geometry"), either as part of the standard or in an appendix. Also to be considered are needs peculiar to the use of computer graphics equipment and associated plotters and printers for the generation of views, sections and all related data.
3. **Basis.** Practices established and used universally and documented in previous issues of this standard, in existing military, industry, and company standards, and written in such textbooks as Engineering Drawing by Thomas E. French, McGraw Hill Book Company, Inc. will be used as the basis for this standard. ISO standards will also be considered.

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SUBCOMMITTEE 4 - PICTORIAL VIEWS

(Consolidated into Y14.3)

1. ~~**General.** Standardization for delineating three dimensional views and sections on engineering drawings will provide for uniform interpretation and understanding of drawing requirements. Also of importance is standardization for preparation, placement, dimensioning, identification, etc., of such views to ensure uniform drawing interpretation.~~
2. ~~**Requirements.** The standard will include descriptions of those methods for preparing and delineating three dimensional views considered to be practical for engineering drawing purposes. Consideration will be given to both manual and computer generated methods. Also included will be practices specific to three dimensional views such as dimensioning, sections, and views.~~
3. ~~**Basis.** Recognized industry, military and company standards, textbooks and input from committee members will be used as the basis for this standard.~~

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SUBCOMMITTEE 5 - DIMENSIONING AND TOLERANCING

1. **General.** Standardization of dimensioning and tolerancing methods, systems, and indications on engineering drawings promotes uniform practices and should facilitate a common interpretation of these requirements. A broadly accepted national standard which incorporates international practices and symbology to the maximum acceptable extent will enable American companies to produce drawings understandable throughout the world. It will help to ensure that wherever parts are produced from such drawings they will satisfy the dimensional requirements. This standard should cover every aspect of dimensioning and tolerancing, from definitions and units of measurement to the complexities of geometric tolerancing.
2. **Requirements.** This standard will cover dimensioning, tolerancing, and related practices for use on engineering drawings and in related documents. The subject material should include all generally used dimensioning and tolerancing methods, symbology, geometric tolerance controls, the control of free state variation, and the establishment of datums. Also to be included are definitions of terms, units of measurement, interpretation of limits, and methods of specifying unique features such as knurls, spotfaces, counterbores, etc. Consideration shall be given to the development of practices that can be effectively used for CAD/CAM systems application. Appendices may be added as needed to provide supplemental information, guidelines, formulas, and interpretation of former practices. Those practices unique to architectural and civil engineering, and symbology for welding, surface texture, electrical, and other characteristics already covered in other national standards shall not be included.
3. **Basis.** Previous issues of this standard, which were representative of military and commercial practices employed by a broad cross-section of industry; ISO standards and practices, insofar as they are practicable and technically acceptable to USA government and industry; identified needs for clarification and improvement of existing material; and new developments in methods of expressing dimensional requirements as a result of advances in technology.

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SUBCOMMITTEE 6 - SCREW THREAD REPRESENTATION

1. **General.** Standardization of methods of delineating and specifying screw threads on engineering drawings will help to ensure common understanding of what to put on the drawing and how to interpret that data, regardless of where the drawing is made and where it is used. Since the design and identification standards for screw threads are covered by other ANSI and international standards, this Y14 standard will be limited to the methods of representing and labeling such threads on drawings and related documents.
2. **Requirements.** This standard will define the standards for delineation of all accepted forms of screw threads on engineering drawings and related documentation. It will also define the standard methods of specifying threads and all of their characteristics, including the dimensioning of thread characteristic such as length of incomplete threads, etc. utilizing established symbolic callouts and terms as defined in recognized national and international standards. Definitions and tabs should be included as a reference to the extent necessary to assist the drafter in utilizing correct terms. The choice of design requirements, sizes, and tolerances should be made by use of the applicable thread design standards not interpreted in Y14.6. Both inch and metric threads will be covered by this standard.
3. **Basis.** The basis for this standard will be previous Y14.6 issues, ANSI B-Series Standards, FED-STD-H28, Military thread specifications, and recognized industry standards which have national significance. International standards may be included where they apply to USA uses and recognition.

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SUBCOMMITTEE 7 - GEARS AND SPLINES

DISBANDED 10/6/2006

- 1. General.** Standardization of the delineation and specification of gear and spline teeth and their characteristics, together with their control requirements relative to the component on which they are generated, on engineering drawings and related documentation will provide the designer and drafter with the tools for clear definition and the drawing user with precise interpretation of those requirements. Y14 Standards on this subject will be limited to the identification of gear and spline information on drawings and related documentation, referencing the applicable industry, national and international standards and other documentation for the selection and design requirements.
- 2. Requirements.** The Standards for gear and spline definition on engineering drawings and related documentation should be issued as separate standards for each basic type or grouping of tooth forms as determined by the subcommittee to provide clear and concise standards and enable reasonable maintenance cycles for updating. The standards will provide sufficient information to delineate and specify all design definition of the gear or spline teeth and related characteristics. Design data and tabular information should be included to the extent necessary to prepare the drawing and related documents, however the data needed to create the design should only be referenced in these standards and the designer should be referred to established industry, national, international standards and other documentation to establish the design of the item. Discussion related to gears and splines whose names and/or configurations are covered by copyrights, patents, or trademarks must (a) recognize such protection and (b) not be interpretable as an endorsement of a specific product.
- 3. Basis.** The basis for these standards will be previous issues, AGMA Standards, and other applicable ANSI Standards. Information available from gear and spline tool and machinery manufacturers should also be taken into account, as applicable, as well as industry and government data.

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SUBCOMMITTEE 8 – CASTINGS, FORGINGS, AND MOLDED PARTS

1. **General.** There are some characteristics of castings, forgings and molded parts which require drawing definition practices not required for other items. Standardization of these practices will ensure that casting/forging/molded parts drawings and related documentation are correctly interpreted and that castings, forgings and molded parts will meet engineering requirements. Casting/forging/molded parts design requirements will not be included, however cast/forged part design will affect the drawing delineation and dimensioning requirements and may be covered in the standard to the extent necessary to ensure standard practices.
2. **Requirements.** This standard should cover delineation and dimensioning practices peculiar to cast/forged/molded parts, such as definition of draft, parting lines, flash, removal of sprues and vents, establishment of datums, stock allowance, and mismatch, as applicable, Information on notes, marking, etc., may also be included either in the standard, where appropriate, or in appendices.
3. **Basis.** Industry association publication and company standards may be used as available.

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SUBCOMMITTEE 11 - MOLDED PART DRAWINGS

~~DISBANDED AND MERGED INTO SC 8 ON OCTOBER 7, 2005~~

- ~~1. **General.** Molded parts have characteristics similar to both castings and forgings as well as having aspects unique to the various molding processes. Standardization of drawing definition practices has long been needed to insure that drawings and associated documentation receive uniform and correct interpretation. While mold design requirements will not be covered, some discussion of mold characteristics is anticipated because of the direct relation of the mold to the part drawing. Such discussion will be kept to the minimum required to insure standard drafting practices.~~
- ~~2. **Requirements.** This standard should cover the drawing and dimensioning practices specific to molded part drawings. Topics to be covered include delineation of parting lines, draft, surface quality and finish, flash, misalignment, ejector pin marks and locations, and cavity identification. Some of this information may best be covered in appendices rather than the body of the standard.~~
- ~~3. **Basis.** ANSI Y14.5M will be the underlying standard. Consistency with Y14.8 is also desired to the extent that similar practices are defined. No industry standards have been established, however, many companies have developed proprietary standards and as many of these standards as possible will be obtained and consulted.~~

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SUBCOMMITTEE 13 – MECHANICAL SPRING REPRESENTATION

~~DISBANDED 10/6/2006~~

1. ~~**General.** A Standard for expressing functional requirements for mechanical springs on engineering drawings and in related documentation will provide a basis for uniform delineation practices, common terms, and universal dimensioning methods, and can provide recommendations for notes covering the various material, heat treat, and inspection requirements, thus ensuring uniform interpretation of design requirements as specified on the drawing.~~
2. ~~**Requirements.** This standard should include definitions of terminology; methods for delineation of the various types of mechanical springs and their unique features; typical dimensioning practices peculiar to springs; methods for specifying materials and material size requirements, force and strength requirements, life requirements under given loads and cycling, and other needs unique to springs; and recommended format for depicting and defining these requirements, as applicable. Spring design requirements shall not be included except as implied by the necessary data required to be specific.~~
3. ~~**Basis.** The basis for this standard shall be MIL-STD-29 and data available from spring manufacturers and engineering handbooks.~~

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SUBCOMMITTEE 17 - FLUID POWER DIAGRAMS

DISBANDED

- ~~1. **General.** Standardization of symbols and diagrams for fluid power devices will provide the means for the engineer to communicate via the engineering drawing and related documentation and ensure uniform interpretation by the reader. It is essential that standard symbols established by other responsible national and international committees be utilized as appropriate in this Y14 Standard and, in turn, on engineering drawings.~~
- ~~2. **Requirements.** This standard will describe the delineation and description of diagrams on engineering drawings and related documentation for fluid power devices. Standard symbols, linework, lettering, and other applicable data established in national and international standards, plus applicable industry data, shall be used as determined appropriate.~~
- ~~3. **Basis.** Previous issues of ANSI Y14.17 shall provide the basis for this standard, plus new data developed by industry and experience with the standard.~~

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SUBCOMMITTEE 18 – DRAWING PRACTICES FOR OPTICAL PARTS

~~DISBANDED OCTOBER 7, 2006~~

- ~~1. **General.** Standardization of the drawing and related documentation practices for definition of optical parts will provide uniformity of presentation of data and interpretation. The terms and dimensioning requirements peculiar to lens element, lens assembly, light measurement, materials, etc., used in optical systems require that drawings include delineation, dimensions, notes, and material definition different than ordinary machined and formed material. This standard must utilize the standards established by other national, international, government, and industry committees and establish the engineering drawing needs for definition of components of optical systems.~~
- ~~2. **Requirements.** This standard will describe the methods to be used to delineate and dimension those component parts of devices which incorporate optical elements which relate to the transmission of light. This includes lenses, prisms, filters, mirrors, and related items. The callouts of materials, heat treatment, surface control, coating requirements, assembly controls, and marking requirements shall also be included to the extent required to cover the drawing and related documentation needs to provide complete information for manufacture and inspection of the optical parts. Information required for ordinary machined and formed materials should only be included where required to describe the optical part. Standard terms established in other national, international, government, and industry standards shall be utilized as applicable, with reference to those standards included as appropriate.~~
- ~~3. **Basis.** Currently available American National Standards, including ANSI PH3.617, ANSI Y14.5M, ANSI Y14.36; U.S. Military Standards and Specifications, including MIL-STD-34, MIL-STD-1241, MIL-G-174; and other national, international, government, and industry standards shall be utilized as applicable.~~

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SUBCOMMITTEE 24 - TYPES AND APPLICATION OF ENGINEERING DRAWINGS

1. **General.** Standardization of the various types of engineering drawings produced to define the components, assemblies, installation, and other aspects of products should enhance the understanding and proper use of drawings and related documents. The wide variety of drawing types originally described in MIL-STD-100, plus other types used in industry and Government, were used to create this standard. The criterion established by this Standard provides preparation guidance useable by all segments of industry and Government. Continuing maintenance of this Standard is based on evolving needs of both industry and Government.
2. **Requirements.** This standard shall include a description of the basic requirements to be covered on each of the various types of engineering drawings and one or more examples (using hypothetical or non-specific items) of each drawing type showing the requirements peculiar to that drawing type. Other Y14 Standards are referenced where applicable to describe detail requirements, together with other national international, and industry standards where appropriate. This Standard, in conjunction with other ASME Y14 standards, provides the engineering drawing preparation guidance initially established by MIL-STD-100.
3. **Basis.** MIL-STD-100 and applicable national and industry practices were used as the basis of this Standard. Government, national, and international standards, along with industry and company practices form the basis for continued development of this Standard.

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~~SUBCOMMITTEE 26 – COMPUTER-AIDED PROCESSING OF ENGINEERING DRAWINGS AND RELATED DOCUMENTATION~~

~~DISBANDED 21 October 2016~~

- ~~1. **General.** The application of computer-aided processes to the design, definition, manufacture, and acceptance of products is widespread. A common interpretation of the elements involved in these processes is naturally required to support use and exchange of product-defining data. Accordingly, standards that govern the design and implementation of these computer-aided processes must be developed and interfaced so that consistency is ensured across them.~~
- ~~2. **Requirements.** This Subcommittee will harmonize with other national and international standards to promote consistency in computer processing of engineering drawings and related documentation. It will identify areas that indicate a need or exhibit potential for the development of future voluntary standards. It will also advise other Y14 subcommittees with respect to implementation in a computer-aided environment. The standard resulting from this work will provide a bridge or cross reference to all other relevant standards in computer-aided processes affected by engineering drawings and related documentation.~~
- ~~3. **Basis.** Review of current and future Y14 documents as they relate to the computer-generated world of product data. Supplementary information may be obtained from government and industry standards, software and hardware vendors, and other sources as applicable.~~

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SUBCOMMITTEE 31 - UNDIMENSIONED DRAWINGS

1. **General.** "Undimensioned Drawings" is the type designation applied to engineering drawings prepared on environmentally stable material to a precise scale, from which the defined item and the supporting tooling are produced directly, by photographic or other processes. The drawing presents the engineering definition graphically rather than by use of numerical dimensions, although some dimensions may be included to establish a base when tolerances for specific features are smaller than those for surfaces controlled by the precision contour, and for verifying those for surfaces controlled by the precision contour, and for verifying stability of the drawing material. The drawing may utilize flat patterns and similar processing information as necessary to economically present the definition. Special terminology is also used, such as loft lines, bend centerline, inner/outer mold lines, etc., to identify bends in sheet metal.
2. **Requirements.** This standard should include definitions, suitable types of drawing materials, formats, drawing practices, tolerancing methods, control dimension requirements for verifying precision, special terms and symbols, and special handling requirements. Also to be considered are drafting techniques such as scribing and inking where special for this type of drawing. Reproduction processes may also be considered.
3. **Basis.** The basis for this standard will be the SAE Drawing Standards Manual, Section B7, Undimensioned Drawings, and F1, Flat Pattern Development, plus available industry data as applicable.

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~~SUBCOMMITTEE 32 - GROUND VEHICLE DRAWING PRACTICES~~

DISBANDED

1. ~~**General.** Certain drawing practices are used in some areas of ground vehicle drafting which warrant documentation as standards to ensure that the ground vehicle drawings are uniformly interpreted between various segments of the industry. Where broadly used and needed these standards will be grouped and issued as standards using Y14.32.1, etc., numbers. Standards in this category shall be fully coordinated with all concerned ground vehicle manufacturers, plus others identified as involved.~~
2. ~~**Requirements.** Those standards in the SAE Drawing Standards Manual identified as applicable only to the ground vehicle industry should be considered for adoption as Y14.32 Standards, plus any others that fall within this category.~~
3. ~~**Basis.** The SAE Drawing Standards Manual and company standards recommended by interested company personnel.~~

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SUBCOMMITTEE 34 - PARTS LISTS, DATA LISTS, AND INDEX LISTS

1. **General.** Standardization of minimum requirements for parts lists, both integral with the drawing and separate, data lists, and index lists, will provide for uniformity of preparation and interpretation of such lists and their relationship to the drawing and related documentation. Provisions for preparation of lists, both manually and by use of data processing equipment, will enable broad usage of this standard to be adopted both by choice and by contract where necessary. It is essential that the standard allow for adequate flexibility to permit use for the virtually infinite variety of needs of U.S. industry and government.
2. **Requirements.** This standard should be based on existing government and industry standards, especially MIL-STD-100, but should include adequate flexibility of format and contents to permit the needs of the DoD entities to be met while still allowing for a wide variety of industry applications. Both initial issuance requirements and the methods and identity of revisions shall be covered and the methods of handling revisions must permit them to be performed by either manual or data processing methods. Format requirements should allow for both pre-printed and data processing equipment-produced forms for separate lists, while also providing for forms to be drawn or pre-printed on the drawing sheet. The method(s) of cross referencing data on lists to the applicable location of listed items in the field of the drawing shall also be covered, plus the numbering and title requirements to tie separate parts lists to the drawings.
3. **Basis.** MIL-STD-100, the SAE Drawing Standards Manual, and other industry and company data shall be utilized as applicable.

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SUBCOMMITTEE 35 - DRAWING REVISIONS

1. **General.** Standardization of the practices for revising drawings, for recording the changes, and for identifying the change authorization documents on the drawing will promote uniformity of practices and clarity of understanding. Although flexibility of specific methods of recording revisions should be maintained insofar as permissible without sacrificing interpretability or completeness, standardization of requirements for revising delineation, dimensions, and notes, and the methods of indicating the before-change information, will ensure that the revisions are properly made, that the item configuration or other characteristics affected by the change are clearly described, and that the item identity requirements are properly recorded as necessary. Where parts/material lists are included on the drawing sheet, standards for changing that data should be integrated with Y14.34 so that two documents complement one another.
2. **Requirements.** This standard shall cover the practices for revising the delineation, dimensioning, and notes on engineering drawings, for recording the revisions on the drawing, and for identifying the change authorization document in the revision history block or column. Methods for indicating the before-change configuration and related information shall be included, along with the standards for change letter/number coding and cross referencing between the revision block/column, and the field of the drawing. Also to be included are requirements for identifying changes in item identification caused by revisions as required by the change authorization document. Changes to integral parts/material lists shall be covered in concert with the data included in the Y14.34 Standard on lists. Reference should be made to other Y14 Standards as necessary. Practices for adding or eliminating drawing sheets and other revision-related information should be included as necessary. The standard should be complete and flexible enough to take care of the needs of the broad range of industrial firms as well as military and government entities.
3. **Basis.** MIL-STD-100, the SAE Drawing Standards Manual, and other industry and government standards and data as applicable.

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SUBCOMMITTEE 36 - SURFACE TEXTURE SYMBOLS

1. **General.** Standardization of the methods of specifying surface texture requirements for solid materials on engineering drawings was previously covered only by ANSI B46.1, Surface Texture. Because the specification of all requirements on the drawing was considered to fall within the scope of the Y14 committee's responsibility, establishment of a Y14 Standard ensures that the drawing aspect of the subject will be controlled by those most concerned with engineering drawing standardization.
2. **Requirements.** This standard will include the designation of surface texture requirements for roughness, waviness, and lay on engineering drawings and in related documentation. This information is separated out of ANSI Standard B46.1, Surface Texture, without changing any of the symbols or other standards defined by that standard, and all data included in Y14.36 will be maintained in concert with B46.1.
3. **Basis.** ANSI B46.1, ISO 468, ISO 1302, and other national, government, and industry standards, as applicable.

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SUBCOMMITTEE 37 - COMPOSITE PART DRAWINGS

1. **General.** Composite parts require drawing definition practices not covered by other standards. Standardization of these practices will ensure that composite part drawings and related documentation are correctly interpreted and that parts made to these drawings will meet engineering requirements. Composite parts are limited to inseparable assemblies made from load carrying fibers within a homogenous resin matrix that are cured and bonded and may include integral composite or non-composite materials. Composite part design requirements will not be included. However, composite part design that will affect the drawing delineation and dimensioning requirements may be addressed to the extent necessary to ensure standard practices.
2. **Requirements.** This standard shall cover delineation and dimensioning practices peculiar to composite parts, such as flat pattern delineation, fibre, warp, and ribbon direction, collation views, lay up tables, trim lines, and methods of calling out filament windings and fabrication sequences. Information on notes, materials, processes, marking, and other pertinent data shall also be included to the extent required to cover the drawing and related documentation needs to provide complete information for manufacture and inspection of these parts. Information required for ordinary machined and formed parts should only be included where required to describe those parts covered in this standard.
3. **Basis.** This standard should utilize any standards established by other national, international, government, and industry committees in establishing the engineering drawing needs for definition of these parts. Industry association publications and company standards may also be used as available.

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SUBCOMMITTEE 38 - ABBREVIATIONS

1. **General.** Standardization of abbreviations and acronyms for engineering drawings and related documentation will provide uniform recognition of commonly used terminology.

The intent of standard is to allow the use of approved abbreviations and acronyms in lieu of the use of complete words or terminology.

2. **Requirements.** This standard shall identify abbreviations and acronyms related to engineering and physical sciences, excluding those more appropriately addressed in other standards.
3. **Basis.** The basis for this standard shall be ASME Y1.1 and MIL-STD-12 and other government and industry data as applicable.

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SUBCOMMITTEE 39 - LIMITS AND FITS

1. **General.** This standard shall present recommended tolerances and corresponding symbology for rough and finished (except threaded) parts. This data will be applicable to the establishment of preferred sizes, tolerances, and limits and fits.
2. **Requirements.** This standard shall cover definitions, preferred basic sizes and tolerances, tables of standard tolerances, selection of fits, standard and modified fits and machining processes.
3. **Basis.** This standard should utilize any standards established by other National, international, government, and industry committees in establishing these requirements. Industry association publications and company standards may also be used as available.

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SUBCOMMITTEE 40 - GRAPHIC SYMBOLS

1. **General.** Standardization of graphic symbols and related designations and conventions for manual and computerized representation in engineering disciplines and with the public. Symbology and uses are included for the following fields: electrical and electronic diagrams; pipe fittings, valves and piping; heating ventilation and air conditioning; heat-power applications; fluid power diagrams; process flow diagrams in petroleum and chemical industries; mechanical and accoustical elements as used in schematic diagrams.

To coordinate and establish standards for graphical symbols, reference definitions and related designations in conjunction with other standardization organizations.

2. **Requirements.** The standard shall be based on description, definitions and related designations in the applicable fields.
3. **Basis.** ISO/TC10/SC 10, NFPA, SAE and other company, industry, and Government standards as applicable.

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SUBCOMMITTEE 41 - DIGITAL PRODUCT DEFINITION DATA PRACTICES

1. **General.** A standard for product definition in the 3D environment that will serve to provide recognition of the standard minimum capabilities, advantages, and limitations of such data bases, and standardization of applicable terminology.
2. **Requirements.** The standard shall identify criteria for digital modeling relative to disciplines, processes, and related data required to provide a complete product definition including but not limited to the following:
 - Components, assemblies and installations
 - Concurrent engineering (product design, tool design, manufacturing planning)
 - Coordinate Measuring Machine (CMM) programming
 - Element model interfaces
 - Numerical Control (NC) toolpath development
 - Geometry change control
 - Data interpretation and conversion
 - Dimensioning and tolerancing in accordance with ASME Y14.5M and ASME Y14.5.1M
 - Compatibility between product definition data bases
 - Dimensional accuracy
 - Generation of 2D documentation
3. **Basis.** The state-of-the-art of digital modeling as recognized or agreed upon by industry.

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SUBCOMMITTEE 42 – ELECTRONIC APPROVAL SYSTEMS

1. **General.** A standard for electronic approval systems (EASY) practices for the preparation and revision of engineering drawings¹ and will serve to provide:
 - Identification and documentation of the relationships between engineering drawings and their related approval indicators and dates.
 - Identification and documentation of the minimum requirements of an EASY.
2. **Requirements.** The standard will address:
 - Approvals and dates for internal use and for those that are legally binding outside the organization.
 - Approvals for specific responsibilities (e.g., manufacturing or stress engineer) of approvals that are used to approve the entire drawing.
 - Whether approval indicators are part of the drawing, separate documentation, or a related database.
 - The security of approval indicators against unauthorized entry or removal from the drawing, separate documentation, or a related database.
3. **Basis.** The following references relate to electronic approval of information:
 - ASME Y14.35M-1997, Revision of Engineering Drawings and Associated
 - ASME Y14.100M-1998, Engineering Drawing Practices (para. 4.27)
 - International Organization for Standardization: ISO 11442-1 thru 5, and ISO 7200.
 - National Institute of Standards and Technology: FIPS PUB 180-1, FIPS PUB 185, and FIPS PUB 186.
 - U.S. Government activity (partial listing): 1997 House Bill 1903, 1997 House Bill 2676, 1997 Senate Bill 1594, and 1998 Senate Bill 2107.
 - State activity (partial listing, most states have at least one bill/statute under consideration): Arizona – 2 bill/statutes, California – 5 bill/statutes, Florida – 3 bill/statutes, Nevada – 2 bill/statutes, and Virginia – 3 bill/statutes.

Most of the above provide very general information. For example, ASME Y14.100, paragraph 4.27, Drawing Verification and Approval says

The design activity shall verify that engineering drawings and associated lists are technically accurate, in conformance with all requirements, and have been approved. Approval shall be signified in the signature block on the original by signature or approval indicator established by the design activity. A signature or approval indicator may be either hand written or electronically affixed as long as it is unique to an individual, capable of verification, and under the individual's sole control.

An ASME standard on electronic approval systems will use these varied sources to develop a standard which provides users a set of minimum requirements when setting up their internal electronic approval systems.

¹ The term "engineering drawings" refers to drawings and associated lists.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 43 – DIMENSIONING AND TOLERANCING OF FUNCTIONAL GAGES

1. **General.** A standard for the definition of Functional Gages that will serve to provide the minimum dimensioning and tolerancing requirements, characteristics, and advantages of such tools, including the standardization of applicable terminology, definitions, and related processes.
2. **Requirements.** The standard identifies criteria for the definition of Functional Gages relative to characteristics, processes, and industry practices required to provide a complete product definition including, but not limited to, the following:
 - Standardized gaging policies as applied to various types of gage functions
 - Dimensioning and tolerancing of Functional gages and GO gages
 - Gage and fixture components, assemblies and related documentation
 - Concurrent engineering related to product requirements and gage design
 - Coordinate Measuring Machine (CMM) enhancements when used as a soft gage
 - Gage simulation of workpiece geometry
 - Product definition data content requirements, interpretation, terms and definitions
 - Dimensioning and tolerancing in accordance with ASME Y14.5M and Y14.5.1M
 - Defining gage characteristics using a dimensional accuracy decision process
3. **Basis.** The state-of-the-art tool design, fabrication, and product definition processes currently in use by industry.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 44 – REFERENCE DESIGNATIONS

1. **General.** Standardization of the formation and application of reference designations for electrical and electronics parts and equipment.
2. **Requirements.** The reference designations are intended for uniquely identifying and locating discrete items on diagrams and in a set, and for correlating items in a set, graphic symbols on diagrams, and items in parts lists, circuit descriptions, and instructions.
 - Three methods for forming and applying reference designations are considered; the unit number method, the location numbering method, and the location coding method. A complete reference designation may incorporate reference designations formed by the use of any of these methods at any level from basic parts to complete units.
 - The unit numbering method has a long history of satisfactory use in all types of electrical and electronics equipment. The location numbering method and location coding method have been developed to permit rapid physical location of items in large, complicated equipments featuring multiple use of many identical, or closely similar, items. These methods shall be applied in such a way that duplicate complete reference designations do not occur in an equipment or system.
 - Device function designations for power switchgear and industrial control use are not covered by this standard.
3. **Basis.** ANSI Y32.16-1975 (IEEE Std 200-1975) and other industry and company data shall be utilized as applicable, as well as relevant ISO standards.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 45 – MEASUREMENT DATA REPORTING PRACTICES

1. **General.** A standard for the content and format of measurement data for mechanical parts. The standard will serve to provide, for each type of tolerance specified in accordance with ASME Y14.5 and Y14.5.1, the essential elements and uniform formats for the reporting of measurement data. There are currently no known, high level standards of this sort, resulting in widely varying data content and format throughout industry. By providing such a standard OEM's will have a Nationally recognized document from which standard measurement data reporting practices both internally, and from their suppliers, can be driven.
2. **Requirements.** The standard shall identify for each tolerance type (Size, Flatness, Position, Profile of a Surface, etc) the required content and format of measurement data, and additional practices needed to enable the required content and format, including but not limited to:
 - A dimension numbering/tolerance ID method to enable consistent practices for cross-referencing between tabulated data and drawing specifications.
 - Data presentation formats for each tolerance type defined in ASME Y14.5.
 - Practices which standardize the labeling of measurement points applied to metrology process drawings.
 - Additional measures, if needed, such as enhanced notation of datum reference frame axial directions for situations such as position tolerances applied to features that are not orthogonal to the datum reference frame.
3. **Basis.** Existing reporting formats with various options to accommodate industry differences that can be found within the mechanical part design, specification, manufacturing, and metrology industries.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 46 – PRODUCT DEFINITION FOR ADDITIVE MANUFACTURING

(Established 05 May 2016)

1. **General.** Develop and standardize systems and indications to promote uniform product definition practices for Additive Manufacturing (AM). Create a broadly accepted standard that incorporates, expands, or refines international practices and symbology to enable AM product definition data sets to be created, interpreted, and consumed on a global basis. This standard shall ensure that component parts and component assemblies, produced from such AM product definition data sets, are subject to a single interpretation of engineering specifications and requirements for the purpose of conformance verification. This standard shall supplement the requirements of the Y14 series.
2. **Requirements.** This standard establishes uniform practices for disclosing and interpreting product definition specifications in AM product definition data sets. These practices aim to convey the physical and functional requirements of AM component parts and component assemblies. The subject material shall include dimensioning and tolerancing methods, symbology, and product definition control of intermediate stages of AM processing. Complementary to existing standards, this standard shall establish methods to control the product definition, such as: support structure, assemblies, embedded components, test coupons, and heterogeneous materials. The standard shall establish methods to specify AM process-specific characteristics (e.g. build orientation and placement) that affect product definition.
3. **Basis.** Industry publications, company standards, and other industry standards may be used to support the definition of AM products. Information available from additive designers and manufacturers should be taken into account, as applicable, as well as industry and government data.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 41.1 – 3D MODEL DATA ORGANIZATIONAL SCHEMA (TENTATIVE REVISION to be Y14.47)

1. **General.**
Establish a schema for organizing information in a model within a digital product definition data set. The schema defines a common practice to deliver consistent data content and structure to consumers of the data. An alternate method of data organization may be used as long as a cross-reference is provided to the schema.
2. **Requirements.** The standard shall identify criteria for a model organization schema, includes but is not limited to the following:
 - Schema framework
 - Model based definition
 - Mapping between schemas
 - Naming conventions
 - Associated groups
 - Presentation states
 - Product definition elements
 - Metadata
 - Dataset completeness states
 - Maturity state
 - Geometry state
 - Annotation and attributes state
3. **Basis.** The state-of-the-art of model organization schema practices as recognized and agreed upon by industry.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 48 – DIRECTION INDICATOR AND LOAD INDICATOR (TENTATIVE)

- 1. General.** Standardization of methods to unambiguously define and specify directions, directional requirements, loads, and loading requirements in product definition data sets. Standardized specifications for directions and loads facilitate consistent definition of directions and loads in product definition data sets, consistent understanding of the meaning of the specifications, and consistent understanding of the requirements they impose upon the product, suitable for human interpretation and use by software (machine readable). This Y14 standard is limited to methods of defining direction and load specifications in product definition data sets (on drawings, in annotated models, and related documents) and the explanation of the requirements the specifications impose upon the product. This is a global Y14 standard applicable to all other specification methods defined in ASME Y14 series standards. Direction and load indicators may be used in combination with any other Y14 product definition specifications as applicable.
- 2. Requirements.** This standard defines symbolic methods to unambiguously delineate directions, directional requirements, loads, and loading requirements in product definition data. It will define standard methods of specifying linear and non-linear directions, the direction of gravity, point loads, pressure differentials, and other types of directional and loading requirements, and the relationships of directions and loads to datum reference frames associated to products. Standardized methods of relating these specifications to a datum reference frame allows unambiguous definition of the requirement they impose upon an actual manufactured product, as the rules of relating a datum reference frame to a product work in both the theoretical world and the world of actual imperfect parts and assemblies. The methods defined in this standard provide an alternative to defining directions using legacy methods and view-specific methods developed decades ago for manual drafting methods, which do not translate into rigorous and repeatable requirements on actual imperfect parts and assemblies. These direction and load indicators support traditional drawing-based and 3D model-based methods.
- 3. Basis.** The basis for this standard is material developed initially from drafts of the limited directional methods defined in ISO 1101:2012, industrial experience, and extended to a more complete and rigorous set of tools in this standard.

ASME Y14 SUBCOMMITTEE CHARTERS

SUBCOMMITTEE 100 – ENGINEERING DRAWING PRACTICES

1. **General.** Addressing engineering drawing practices as a composite subject area under the scope of a single standard will serve to provide:

- identification and documentation of the interrelationship of the various drawing practices subject areas;
- identification of engineering drawing related practices that indicate a need or potential for the development of future voluntary standards; and
- a summary of Government peculiar requirements and associated practices.

The treatment of drawing practices in the context of Government requirements versus various industry documentation systems will also serve to challenge the necessity and applicability of those practices that appear unique from that commonly recognized. Accordingly, opportunities for standardization will result as practices are identified as unnecessarily restrictive or excessively cost driving. Similarly, practices that are identified as Government peculiar but fully justifiable will form the basis for appendices to the basic body of a standard addressing industry wide drawing practices.

A general engineering drawing practices standard will serve to provide a ready reference to existing, associated documentation. Such visibility would not only provide a concise "shopping list" of available standards, but serve as a vehicle for communicating application guidance, restrictions, and limitations as applicable to individual standards.

2. **Requirements.** This standard shall include an association of engineering drawing practices with existing standards, and provide detail guidance in subject areas where no documentation on industry practice currently exist. Government unique practices shall be summarized in Appendices to the basic standard. References to existing standards will fully utilize Y14 series and other voluntary, international, and industry standards as applicable. References to military specifications and standards will be restricted to those appendices designated as pertinent to Government unique requirements. Illustrations depicting examples of acceptable practices will be utilized to a maximum.

3. **Basis.** The basic structure of this standard will be modeled after MIL-STD-100, Engineering Drawing Practices. The detailed content, however, will make extensive reference to applicable, existing standards, and specify industry practices as agreed upon by the consensus of the subcommittee.