Standards and Certification Training

Module B – Process

B1. ASME Organizational Structure

UPDATES

06/24/25	Updated to reflect current ASME Organizational Structure
06/22/17	Updated to reflect current ASME Organizational Structure.
09/20/12	Revised completely to reflect the updated ASME organizational structure and to remove items that are covered in other S&C Modules.
11/22/10	Changed "Codes and Standards Board of Directors" to "Council on Standards and Certification" throughout.

MODULE B COURSE OUTLINE

B1. ASME Organizational Structure

B2. Standards Development: Staff and Volunteer Roles and Responsibilities

B3. Conformity Assessment: Staff and Volunteer Roles and Responsibilities

B4. Initiating and Terminating Standards Projects

B5. Consensus Process for Standards Development

B6. The Basics of Parliamentary Procedure

B7. The Appeals Process

B8. International Standards Development

B9. ASME Conformity Assessment Programs

B10. Performance Based Standards

B11. Consensus Process for Standards Interpretation and Code Cases

Module B contains eleven submodules. We will start with B1 – ASME Organizational Structure.

LEARNING OBJECTIVES

At the end of this module you will be able to:

- Describe the organizational structure of ASME and its sectors
- Describe the organization of the Standards and Certification (S&C) Sector
- Identify the types of codes, standards or conformity assessment programs covered by each of the Supervisory Boards reporting to the Council on Standards and Certification
- Understand the roles of ASME Learning and Development and ASME ST-LLC within the S&C Sector

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- Understand the roles of ASME Learning and Development and ASME ST-LLC within the S&C Sector.

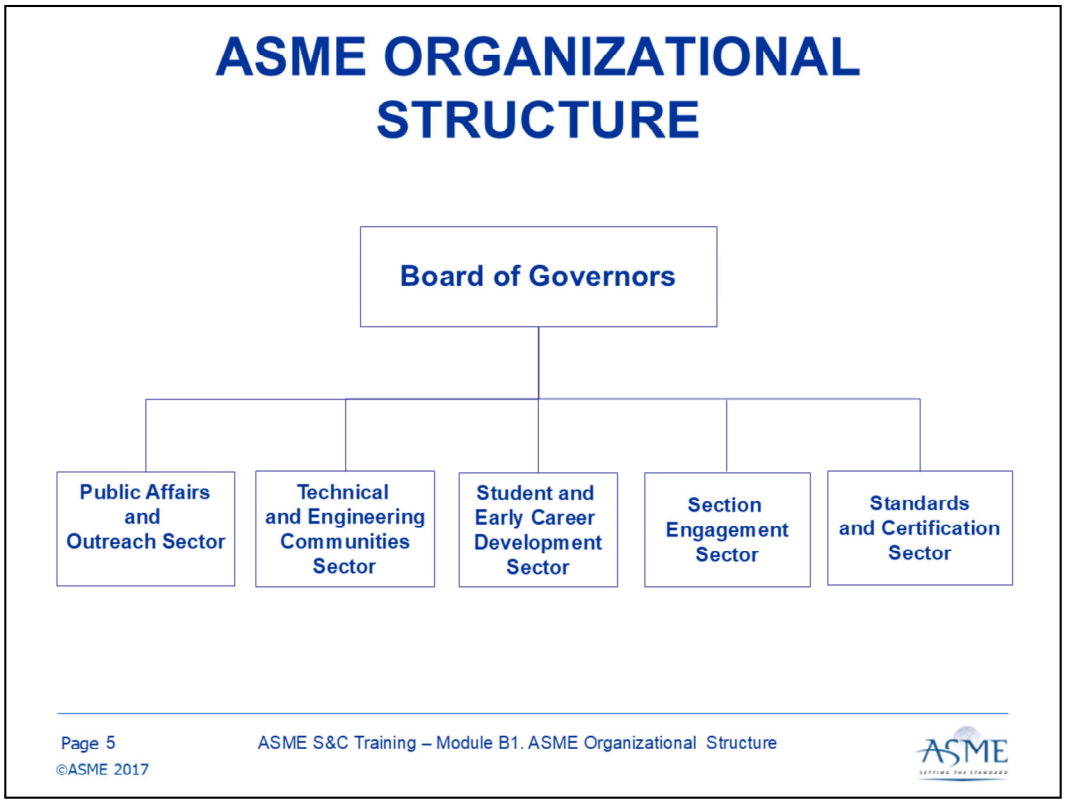
ASME's MISSION, VISION AND STRATEGIC PRIORITY

- **Mission statement**
  To advance engineering for the benefit of humanity
- **Vision**
  To be the premier resource for the engineering community globally
- **Five Strategic Technologies**
  - Advanced Manufacturing (Additive Manufacturing, Industry 4.0, etc.)
  - Pressure Technology (Design, Materials, Inspection, Maintenance, etc.)
  - Robotics (Industrial Automation, UAVs Field, Mobile, Autonomous, etc.)
  - Clean Energy (Solar, Wind, Biomass Storage, Nuclear, etc.)
  - Bioengineering (Cellular Manufacturing, Tissue Engineering, etc.)

The Society's Mission Statement is "To advance engineering for the benefit of humanity." ASME's vision is to be the premier resource for the engineering community globally

In order to achieve this mission, five strategic technologies have been identified through which ASME will serve these aspirations:

- Advanced Manufacturing – Both traditional industrial production and emerging areas including Additive/3D and Digital Manufacturing.
- Pressure Technology – Technologies involved in the design, analysis, materials, fabrication, construction, inspection, operation, nondestructive evaluation, and failure prevention of pressure vessels, piping, pipelines, power and heating boilers, heat exchangers, reactor vessels, pumps, valves, and other pressure and temperature-bearing components.
- Robotics – Traditional industrial machine systems that typically have three degrees or more of articulation as well as emerging areas such as drones and autonomous vehicles.
- Clean Energy – Technologies to support the generation of electric power while minimizing environmental impact.
- Bioengineering- The applications of engineering skills and analysis to the development of pharmaceuticals, biological devices, food supplements, and other products.



At the top of ASME's organizational structure is the Board of Governors.

Reporting to the Board of Governors are four groups called "Sectors." These are:

- Public Affairs and Outreach
- Technical and Engineering Communities
- Student and Early Career Development
- Section Engagement Sector, and
- Standards and Certification

Each of these Sectors has responsibility for a specific area and carries out activities designed to further the objectives of the society.

Let us briefly look at the responsibilities of the Board and each of the Sectors, starting with the Board of Governors.

BOARD OF GOVERNORS

- Develops overall policy for the Society
- Delegates responsibility to subsidiary bodies to ensure fulfillment of ASME's mission
- Members
  - President
  - President-elect
  - Immediate past President
  - Nine governors (staggered three-year terms)
  - Executive Director (non-voting)

The Board of Governors is responsible for developing the overall policy for the Society and delegating responsibility to subsidiary bodies including Subordinate Committees and Sectors to ensure fulfillment of ASME's Mission and Vision.

The Board of Governors is made up of twelve voting members and the Executive Director of the Society, who is a non-voting member.

ASME SECTORS

Public Affairs and Outreach (PAO)

- Mission is to expand global awareness, knowledge, and application of engineering and technology through education, outreach, and advocacy with the public, industry, academia, and government.
- Boards and Committees:
  - Committee on Government Relations
  - Committee on Engineering for Sustainable Development (ESD)
  - Committee on Engineering Education
  - Pre-College Education Committee

The Public Affairs and Outreach Sector's mission is to expand global awareness, knowledge, and application of engineering and technology through education, outreach, and advocacy with the public, industry, academia, and government.

The Public Affairs and Outreach Sector is led by a council which currently has the following Board and Committees reporting to it:

- Committee on Government Relations
- Committee on Engineering for Sustainable Development (ESD)
- Committee on Engineering Education
- Pre-College Education Committee

ASME SECTORS

Technical and Engineering Communities (TEC)

- Aims to advance engineering, deliver content, and provide growth opportunities to our multifaceted community of engineers.
- Technical Divisions
  - Collaborative community of peers – ASME members select 5 when they join
- Leadership & Volunteer Opportunities
- Student & Early Career Activities
- Networking and Career Development
- Technical Conferences
- Technical Publications (conference papers and journals)

The underlying purpose of ASME's Technical and Engineering Communities (TEC) Sector is to advance engineering, deliver content, and provide growth opportunities to our multifaceted community of engineers.

This goal is achieved through numerous programs including:

- Technical Divisions
  - Technical Divisions are a Collaborative community of peers – ASME Society members select 5 divisions when they join
- Leadership & Volunteer Opportunities
- Student & Early Career Activities
- Networking and Career Development
- Technical Conferences
- Technical Publications (conference papers and journals)

ASME SECTORS

Student & Early Career Development (SECD)

- Provide advocacy leadership for students and early career engineers
- Create opportunities for students and early career engineers to influence the “path forward” for ASME
- Committees:
  - Early Career Engineer Programming Committee
  - Student Programming Committee
  - E-Fest Steering Committee

The Student & Early Career Development Sector’s mission is to provide a voice for students and early career engineers. This Sector will provide advocacy leadership and create opportunities for students and early career engineers to influence the “path forward” for ASME.

The Student and Early Career Development Sector is led by a council which currently has the following Committees reporting to it:

- Early Career Engineer Programming Committee
- Student Programming Committee
- E-Fest Steering Committee

ASME SECTORS

Section Engagement (SES)

- Provides resources, support, and governance for professional and student sections.
- Vision: to develop and improve the global ASME volunteer experience through engagement with the local community
- Mission: to engage and diversify section membership while expanding ASME's role in an engineer's journey
- Over 500 student sections
- Over 150 professional sections

The Section Engagement Sector (SES) provides resources, support, and governance for professional and student sections.

The vision of SES is to develop and improve the global ASME experience through engagement with the local community. The mission of SES is to engage and diversify section membership while expanding ASME's role in an engineer's journey.

Currently ASME has:

- Over 500 student sections
- Over 150 professional sections

STANDARDS AND CERTIFICATION SECTOR

S&C Vision

- To develop products and services that meet the needs of the engineering community globally.

S&C Mission

- To advance engineering for the benefit of humanity through the development, maintenance, and promulgation of ASME codes, standards, conformity assessment programs, and related products and services, by involving the best and brightest people from around the world.

The issue of standards was discussed at the very first ASME meeting in 1880 with the topic being standardized sizes for screw threads. For over 125 years, ASME Standards and Certification has continually strived to develop the best, most applicable codes, standards, and conformity assessment programs in the world for the benefit of humanity.

The S&C Vision is to develop products and services that meet the needs of the engineering community globally.

The S&C Mission is to advance engineering for the benefit of humanity through the development, maintenance, and promulgation of ASME codes, standards, conformity assessment programs, and related products and services, by involving the best and brightest people from around the world.

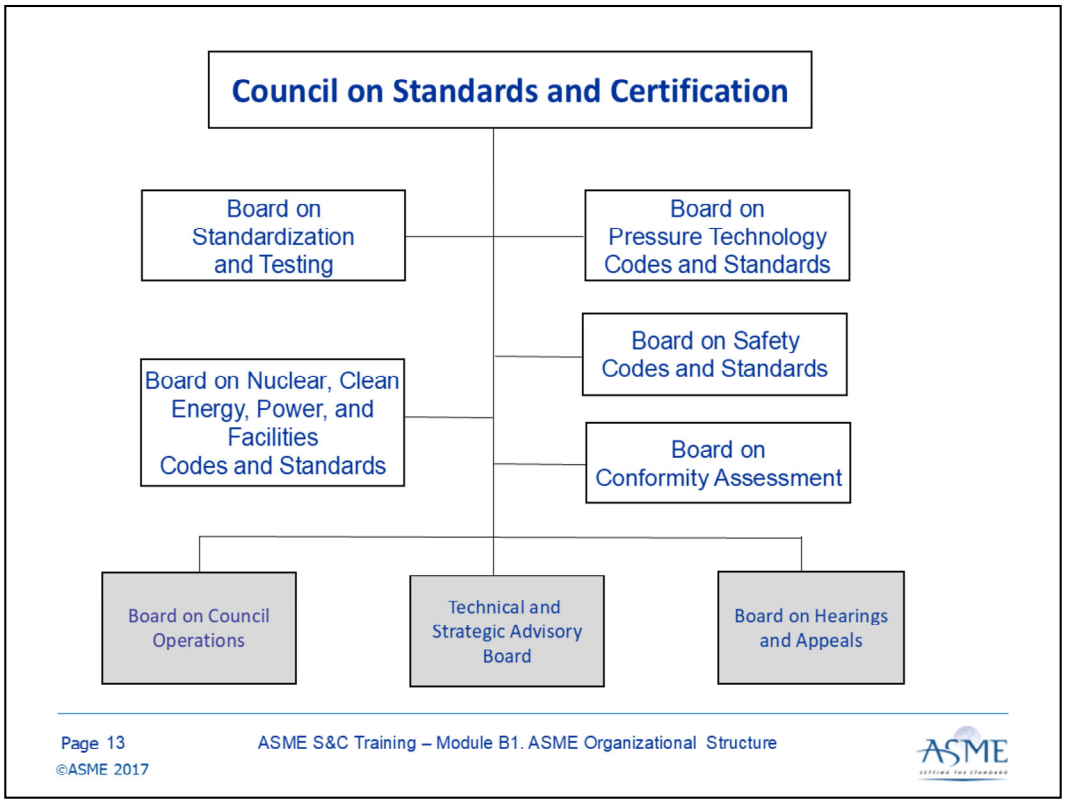
STANDARDS AND CERTIFICATION SECTOR

- Worldwide Scope
  - Over 500 codes and standards
  - 6,400 active individuals
  - Over 1,500 technical experts from outside U.S.
  - Used in over 100 countries
  - ASME-certified manufacturers in approximately 80 countries

To date, ASME currently has over 500 codes and standards in print. Standards and Certification committee activities involve about 6,400 individuals, mostly volunteers, of which over 1,500 of these individuals reside outside the U.S. Not all active individuals are ASME members, though membership in ASME is encouraged.

ASME standards are used in over 100 countries around the world.

Finally, ASME has certified manufacturers of products related to ASME codes and standards in approximately 80 countries.



There are eight Boards that report to the Council on Standards and Certification. Five Supervisory Boards and the three advisory Boards shown in grey.

The membership on the Council and the responsibilities of these Boards will be discussed briefly in the next several slides.

S&C COUNCIL MEMBERSHIP

- Chair and Vice Chair are appointed by the Board of Governors
  - Chair, Senior Vice President of S&C
  - Vice Chair of Operations
    - Serves as the Chair of the Board on Council Operations (BCO)

The Chair and two Vice Chairs of the Standard & Certification Council are appointed by the Board of Governors.

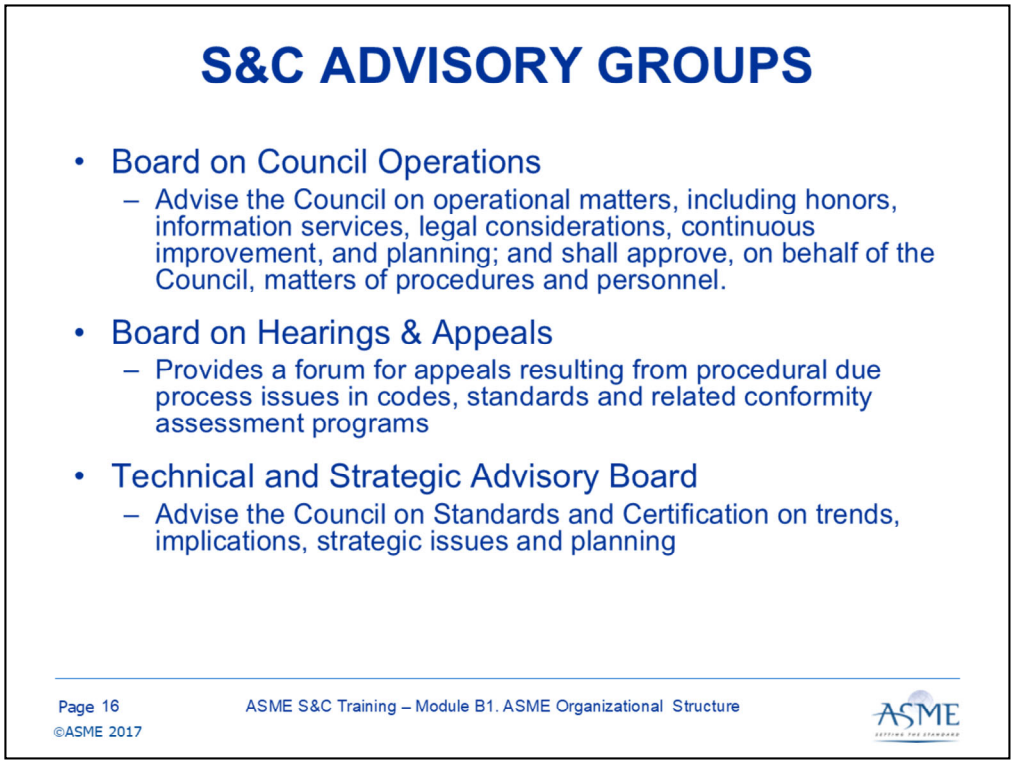
- The Chair of the Council is also known as the Senior Vice President, Standards and Certification
- The Vice Chair of Operations who will also serve as the Chair of the Board on Council Operations (BCO)

S&C COUNCIL MEMBERSHIP

- Council Membership:
  - Chairs of all Supervisory Boards
  - Chair of the Board on Hearings and Appeals
  - Twelve members-at-large
  - Sr. Managing Director, S&C (non-voting)
  - Sr. Director, S&C (non-voting)

Council Membership Includes:

- The Chairs of all Supervisory Boards
- The Chair of the Board on Hearings and Appeals
- Twelve members-at-large
- Sr. Managing Director, S&C (non-voting)
- Sr. Director, S&C (non-voting)

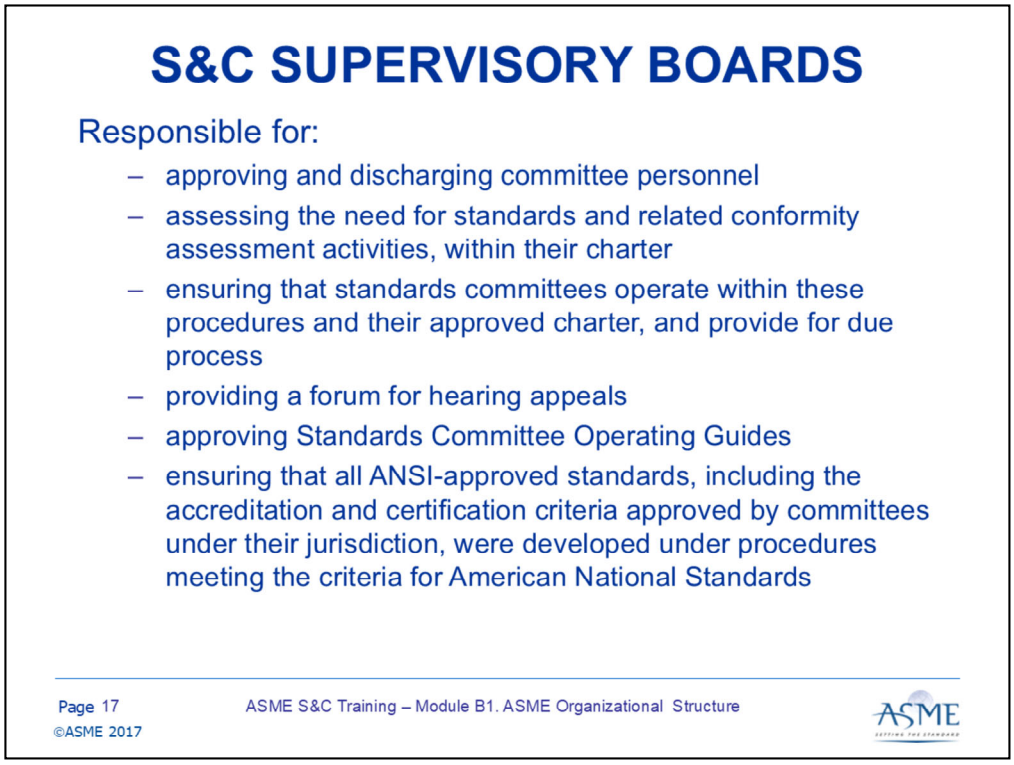


The Advisory Groups are primarily forums for discussion of issues associated with standards development. They are tasked with making recommendations for Council on Standards and Certification action in their respective areas and taking action on items delegated by the Council on Standards and Certification.

- The Board on Council Operations deals with honors, informational services, legal considerations, procedures and planning; considers action on items delegated by Council on Standards and Certification (e.g., standards committee charters, procedures, personnel).

- The Board on Hearings and Appeals provides a forum for appeals resulting from alleged grievances related to procedural due process in codes, standards and related conformity assessment programs. The Board will first evaluate the validity of the alleged grievance to determine whether a hearing should be scheduled.

- The Technical and Strategic Advisory Board advises the Council on Standards and Certification on trends, implications, strategic issues and planning.



The Supervisory Boards are responsible for creating and supervising the committees that develop new and revised standards. Each Board is specifically responsible for:

- approving and discharging committee personnel
- assessing the need for standards and related conformity assessment activities, within their charter
- ensuring that standards committees operate within these procedures and their approved charter, and provide for due process
- providing a forum for hearing appeals
- approving Standards Committee Operating Guides
- ensuring that all ANSI-approved standards, including the accreditation and certification criteria approved by committees under their jurisdiction, were developed under procedures meeting the criteria for American National Standards

Each Supervisory Board presides over Standards and Certification activities which focus on a particular area of interest. The areas covered by each of the five supervisory Boards will be described in the following slides.

BOARD ON STANDARDIZATION AND TESTING (BST)

- Dimensional, design, application, drafting and other standards
- Determination of performance of mechanical equipment designed to meet specified criteria of performance and operability
- Examples of Documents
  - A112.19.7M, Whirlpool Bathtub Appliances
  - B18.1.1, Small Solid Rivets
  - MUS-1, Use of Unmanned Aircraft Systems (UAS) for Inspections
  - V&V 20, Verification and Validation in Computational Fluid Dynamics and Heat Transfer
  - Y14.5M, Dimensioning and Tolerancing

The areas of responsibility for the Board on Standardization and Testing includes management and supervision of the dimensional, design, application, drafting and other standards, as well the determination of performance of mechanical equipment designed to meet specified criteria of performance and operability (also known as performance test codes).

Examples of some of the standards developed under this Board are:

- A112.19.7M, Whirlpool Bathtub Appliances
- B18.1.1, Small Solid Rivets
- MUS-1, Use of Unmanned Aircraft Systems (UAS) for Inspections
- V&V 20, Verification and Validation in Computational Fluid Dynamics and Heat Transfer
- Y14.5M, Dimensioning and Tolerancing

Safety Codes and Standards address the safety requirements in the construction, installation, operation, inspection and maintenance of cranes, elevators, escalators and similar equipment.

Examples of some of the standards developed under this Board are:

- A17.1, Safety Code for Elevators and Escalators
- B30.5, Safety Standard for Mobile and Locomotive Cranes
- CSD-1, Safety Standard for Controls and Safety Devices for Automatically Fired Boilers
- RT-2, Safety Standard for Structural Requirements for Heavy Rail Transit Vehicles
- TES-1, Safety Standard for Thermal Energy Storage Systems: Molten Salt

BOARD ON PRESSURE TECHNOLOGY CODES AND STANDARDS (BPTCS)

- Rules governing the design, fabrication and inspection of non-nuclear pressure-containing equipment
- Examples of Documents
  - B16.5, Pipe Flanges and Flanged Fittings
  - B31.1, Power Piping
  - BPE, Bioprocessing Equipment
  - BPVC Section I, Rules for Construction of Power Boilers
  - BPVC Section VIII, Rules for Construction of Pressure Vessels (Div. 1, 2 and 3)
  - RTP-1, Reinforced Thermoset Plastic Corrosion-Resistant Equipment

Pressure Technology covers rules governing the design, fabrication and inspection of non-nuclear pressure-containing equipment.

Examples of some of the standards developed under this Board are:

- B16.5, Pipe Flanges and Flanged Fittings
- B31.1, Power Piping
- BPE, Bioprocessing Equipment
- BPVC Section I, Rules for Construction of Power Boilers
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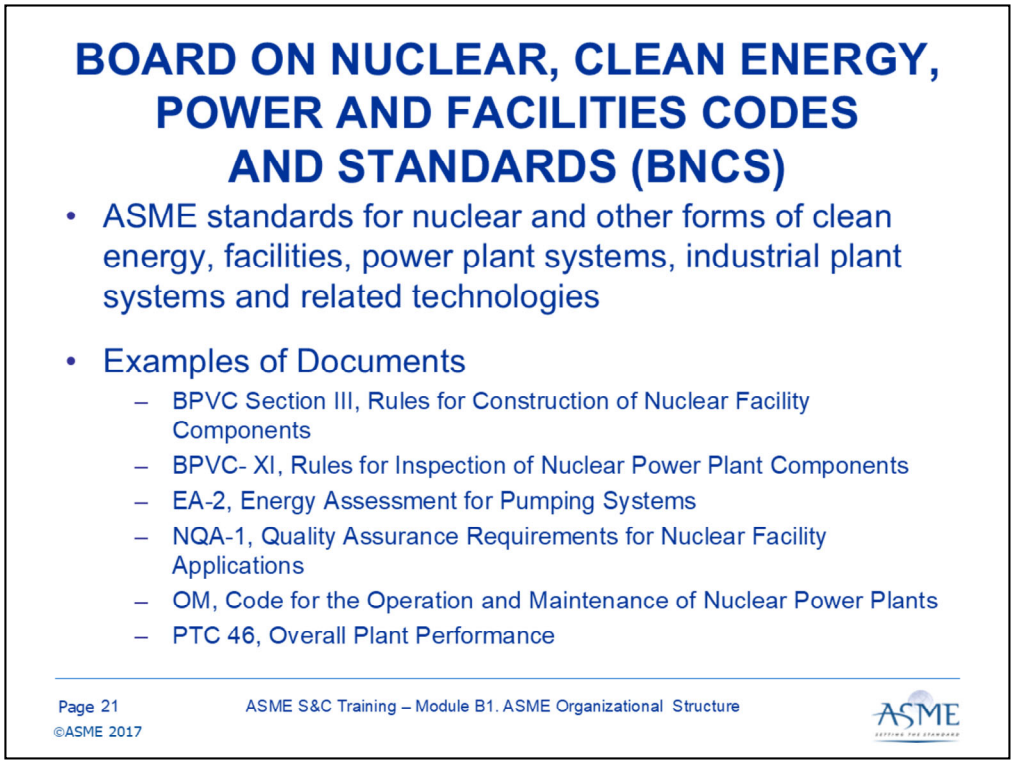


Nuclear Codes & Standards covers standards for nuclear facilities and technology.

Examples of some of the standards developed under this Board are:

- BPVC Section III, Rules for Construction of Nuclear Facility Components
- BPVC- XI, Rules for Inspection of Nuclear Power Plant Components
- EA-2, Energy Assessment for Pumping Systems
- NQA-1, Quality Assurance Requirements for Nuclear Facility Applications
- OM, Code for the Operation and Maintenance of Nuclear Power Plants
- PTC 46, Overall Plant Performance

BOARD ON CONFORMITY ASSESSMENT (BCA)

- Operation of accreditation, product certification, personnel certification, and management system certification programs
- Examples of Programs:
  - Authorized Inspection Agencies
  - Boilers and Pressure Vessels – BPVC Sections I, IV,VIII, X and XII
  - Nuclear Components – BPVC Section III, Div. 1, 2 & 3
  - Geometric Dimensioning and Tolerancing Professionals
  - Bioprocessing Equipment

The main role of the Board on Conformity Assessment is to oversee the operation of accreditation, product certification, personnel certification, and management system certification programs established by standards committees under the jurisdiction of other Supervisory Boards.

Examples of these programs include, but are not limited to:

- The accreditation of Authorized Inspection Agencies,
- Product certification for Boilers and Pressure Vessel components and Nuclear Components,
- Personnel certification for Geometric Dimensioning and Tolerancing Professionals, and
- Management system certification for Bioprocessing Equipment.

BOARD ON CONFORMITY ASSESSMENT (BCA)

- Examples of Documents
  - CA-1, Conformity Assessment Requirements
  - QAI-1, Qualifications for Authorized Inspection
  - QRO-1, Standard for the Qualification and Certification of Resource Recovery Facility Operators

Examples of some of the standards developed under this Board are:

- CA-1, Conformity Assessment Requirements
- QAI-1, Qualifications for Authorized Inspection
- QRO-1, Standard for the Qualification and Certification of Resource Recovery Facility Operators

STANDARDS COMMITTEES

- Where the relevant technical expertise resides
- Responsible for developing consensus on standards proposals
- May delegate certain standards development activities to one or more Subordinate Groups

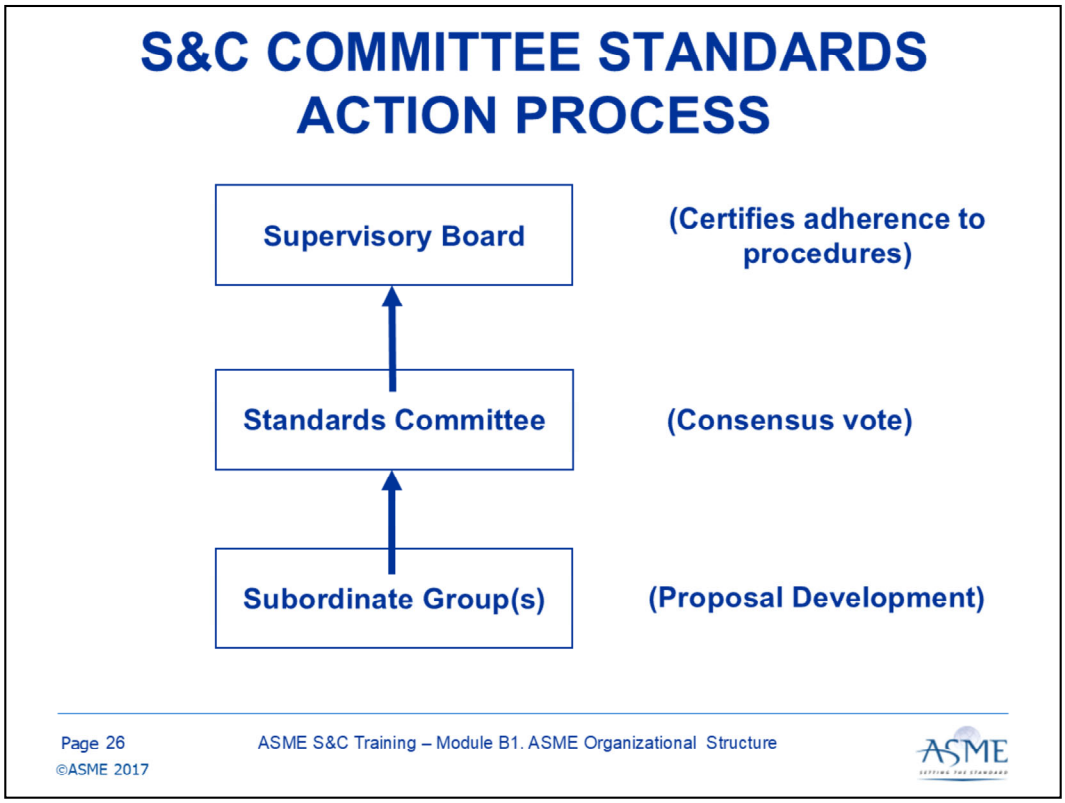
Each Supervisory Board has numerous of standards committees that reports directly to them. The Standards Committee is a group of technically qualified experts that are responsible for developing consensus on standards proposals. However, in many cases, the standard development activities are delegated to one or more Subordinate Groups.

SUBORDINATE GROUPS

- Develop specific proposals for the committee's formal consensus consideration
- May draw on the expertise of individuals outside of the standards committee
- Include Project Teams, Subcommittees, Task Groups, Working Groups and Ad-hoc Groups

Each Standards Committee may have a number of subordinate groups that report to them. These groups:

- Develop specific proposals for the committee's formal consensus consideration.
- May draw on the expertise of individuals who may not be members of the Standards committee. This enables the Standards committee to access expertise unencumbered by requirements of formal membership which may not be possible for all interested individuals.
- Subordinate group names vary by Committee and can include Project Teams, Subcommittees, Task Groups, Working Groups and Ad-hoc Groups.



The S&C Committee standards action development process typically proceeds in a tiered fashion:

- The Subordinate Group develops a formal proposal.
- Technical discussion may occur in related Standards committees, subordinate groups, or with others with necessary expertise.
- Once the proposal is approved by the Subordinate Group(s), it proceeds to the Standards Committee, who then votes on the proposal to achieve consensus.
- Once consensus has been achieved by the Standards Committee, the appropriate Supervisory Board certifies that the procedures have been followed throughout the proposal development and voting process and that the procedural requirements have been met.

Further details into the consensus process for S&C activities are discussed in Modules B5, Consensus Process for Standards Development and/or B9, ASME Conformity Assessment Programs.

LEARNING AND DEVELOPMENT

- ASME Learning and Development provides training for engineers and technical professionals including companion courses for codes and standards and a wide variety of engineering and management courses
- Course Formats include:
  - Online ASME Assessment Based Courses
  - In-Company Training
  - On-line instructor –supported courses
  - Instructor-led courses on various topics world-wide
- ASME Learning and Development Catalog: http://www.asme.org/kb/courses

ASME Learning and Development maintains close relationship with ASME S&C to provide companion courses for codes and standards where there is a need.

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- Online ASME Assessment Based Courses
- In-Company Training
- On-line instructor – supported courses
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ASME Learning and Development Catalog can be found at this web-site address.

ASME STANDARDS TECHNOLOGY, LLC (ST-LLC)

- Not-for-profit Limited Liability Committee with ASME as the sole member of LLC
- Advances application of emerging and newly commercialized technology
- ASME ST-LLC maintains close relationship with ASME S&C Sector
- Provides research and technology development for technical relevance of codes and standards
- ASME Standards Technology LLC Web Site:
  - http://asmestllc.org/

The ASME Standards Technology, LLC (ST-LLC) is a not-for-profit Limited Liability Company, with ASME as its sole member.

The ambition of the ASME ST-LLC is to meet the needs of industry and government by providing new standards-related products and services, which advance the application of emerging and newly commercialized science and technology.

ASME ST-LLC maintains a close relationship with ASME especially the Standards and Certification organization. ASME ST-LLC provides research and technology development needed to establish and maintain the technical relevance of codes and standards.

ASME ST-LLC products and services include government contracting, collaborative research projects, pre-standards offerings, industry/consortia standards and technical services for standards implementation.

All S&C committee web pages contain more information about ASME ST-LLC.

MODULE SUMMARY

- ASME is governed by the Board of Governors who are tasked with fulfilling ASME's Mission.
- Five Sectors report to the Board of Governors. The Standards and Certification Sector is responsible for all ASME Standards and Certification activities.
- Three Advisory Boards and Five Supervisory Boards report to the Council on Standards and Certification.
- The five S&C supervisory boards include Standardization and Testing (BST), Safety Codes & Standards (BSCS), Pressure Technology Codes & Standards (BPTCS), Nuclear, Clean Energy, Power and Facilities Codes & Standards(BNCS), and Conformity Assessment (BCA). Multiple standards committee report to each Supervisory Board.
- Learning and Development and ASME ST-LLC maintain close relationships with ASME S&C committees to provide research and training products related to codes and standards.

In summary:

- ASME is governed by the Board of Governors who are tasked with fulfilling ASME's Mission.
- Four Sectors report to the Board of Governors. The Standards and Certification Sector is responsible for all ASME Standards and Certification activities.
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REFERENCES

- Standards and Certification Sector Operation Guide
  https://cstools.asme.org/csconnect/FileUpload.cfm?View=yes&ID=60056
- Standards and Certification Policies, Procedures and Guidelines
  http://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=A01000000&Action=7609
- Standards and Certification Committee Central
  http://cstools.asme.org/csconnect/CommitteePages.cfm
- Standards and Certification Sector Web Site
  https://www.asme.org/codes-standards/about-standards

ASME Online References

REFERENCES

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- Public Affairs and Outreach Sector Web Site

  https://www.asme.org/about-asme/governance/asme-sectors/public-affairs-outreach

- Technical and Engineering Communities Sector Website

  https://www.asme.org/get-involved/groups-sections-and-technical-divisions/technical-divisions/technical-and-engineering-communities-sector

- Student & Early Career Development Sector Web Site

  https://www.asme.org/asme-programs

ASME Online References