



# **Standards and Certification Training**

## Module B – Process B8. ASME International Standards Development

## 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
  - B5a. Project Management
- B6. The Basics of Parliamentary Procedure
- B7. The Appeals Process
-  **B8. International Standards Development**
  - B8a. US TAG to ISO Standards Development
- B9. ASME Conformity Assessment Programs
- B10. Performance Based Standards
- B11. Standards Inquiries, Interpretations and Cases

Module B contains eleven modules. This is Module B8. International Standards Development

# REVISIONS

DATE	CHANGE
6/13/16	Reformatted entirely and revised or added notes throughout. Deleted Pop Quizzes and revised presentation to reflect current ASME policy. Moved all items related to U.S. TAGs and ISO standards process to Module B8a.
11/22/10	Changed "Codes and Standards Board of Directors" to "Council on Standards and Certification" throughout.

## LEARNING OBJECTIVES

At the end of this module you will know...

- What makes a Standard International
- The process by which ASME Standards are developed meet the WTO TBT principles for international standards development
- How to incorporate references to US standards in other international SDO and ISO documents

At the end of this module you will know...

- What makes a Standard International
- The process by which ASME Standards are developed meet the WTO TBT principles for international standards development.
- How to incorporate references to US standards in ISO documents and other methods of developing international ASME standards

# AGENDA

- I. ASME International Standards
- II. International Participation in ASME Standards Development Process
- III. Other Methods of Developing ASME International Standards

These topics will be discussed during this presentation

## I. ASME International Standards

Many ASME standards are considered international standards. The ways in which ASME standards meet the criteria to be considered an international standard will be discussed in the next few slides.

## WHAT MAKES A STANDARD "INTERNATIONAL"?

- Criteria
  - A development process characterized by openness, transparency, impartiality and consensus, effectiveness and relevance, coherence and development dimension (WTO principles)
  - A record of success in meeting or a potential to meet global marketplace and public safety needs
  - International participation in the standards development process

In some countries there is a perception that international standards equate to ISO standards. However, not all ISO developed standards are internationally accepted and used, and conversely, there are numerous standards accepted and used internationally, including some ASME standards.

The three components for a good international standard include:

- A standards development process that provides openness, transparency, impartiality and consensus, effectiveness and relevance, coherence and development dimension, allowing for fair and open access and international participation. These are essentially the principles for international standards development, as established by the World Trade Organization (WTO) in the Technical Barriers to Trade (TBT) Agreement.
- A record of success in meeting or a potential to meet international market and safety needs.
- International participation in the standards development process.

## INTERNATIONAL STANDARDIZATION

- ASME develops standards intended to meet needs of industries and governments on global basis.
- ASME standards developed under process that meets WTO principles for international standards development.
- To address global relevance, an ASME committee may take various approaches, including:
  - Development of performance based and prescriptive standards as means of compliance with regulations or essential safety requirements;
  - Normative or informative references to non-ASME international, regional, or national standards; and
  - Encouragement of international participation in the standards development

- ASME develops standards intended to meet needs of industries and governments on global basis.
- ASME standards developed under process that meets WTO principles for international standards development defined in WTO/G/TBT/1/Rev.8, 23 May 2002, (02-2849), “Decisions and Recommendations Adopted by the Committee Since 1 January 1995”, Section IX – [http://www.wto.org/english/tratop\\_e/tbt\\_e/tbt\\_e.htm](http://www.wto.org/english/tratop_e/tbt_e/tbt_e.htm).
- To address global relevance, an ASME committee may take various approaches, including:
  - development of performance based and prescriptive standards as means of compliance with regulations or essential safety requirements
  - normative or informative references to non-ASME international, regional, or national standards, and
  - encouragement of international participation in the standards development. This will be covered further in the presentation.



## ASME INTERNATIONAL STANDARDS

- Examples of ASME codes and standards in international use:
  - Boiler and Pressure Vessel Code (over 100 countries)
  - B31 Piping Codes
  - B16 Standards on Valves, Flanges, Fittings and Gaskets
  - Bioprocessing Equipment Standard

Examples of ASME codes and standards which meet the criteria for an international standard and which are recognized and used in countries around the world are:

- The Boiler and Pressure Vessel Code, used in over 100 countries around the world and identified as “An International Code” on the cover
- The B31 Piping Codes
- The B16 Standards on Valves, Flanges, Fittings, and Gaskets
- The Bioprocessing Equipment Standard, which is identified as “An International Standard” on the cover

Having an ASME standard as the international standard makes the most sense:

- When committees of experts are already established
- For existing standards, when users of the standard can continue to reference the familiar standard
- For new standards, when the standard is strongly related to existing ASME standards
- For new standards, when prospective users of the standard want ASME to be the responsible standards development organization (SDO)
- When it is desirable for ASME to have control of the content of the standard
- When a standard requires continuous revision
- When the one-country-one-vote principle makes it difficult to achieve technical consensus (ISO process)

## II. INTERNATIONAL PARTICIPATION IN ASME STANDARDS DEVELOPMENT PROCESS

The membership of most standards committees includes international members, there are also other categories of membership available to international members to encourage participation in the committee that will be discussed further in this part of the module.

## INTERNATIONAL PARTICIPATION in ASME STANDARDS DEVELOPMENT

- International participation enhances international acceptance and use.
- Membership is open to all qualified individuals
- Additional membership options:
  - Delegates
  - International Working Groups (IWG)
  - Interest Review Groups (IRG)

- International acceptance and use of ASME standards can be enhanced if those standards truly consider the viewpoints of interested parties outside of the U.S. and Canada.
- International participation on ASME committees is encouraged and membership is open to qualified individuals from all countries.
- Recognizing the existing barriers to international participation (e.g., attending meetings in U.S., and communicating in English language), ASME has created a few further options to encourage international membership on committees. Different committees may allow one or more options:
  - delegate memberships,
  - international working groups (IWGs), and
  - interest review groups (IRGs).

The differences between these categories of membership will be discussed in the next few slides. It should be noted that these options are selected by the committees and if selected, the requirements for these members should be added to the standards committee supplemental procedures.

## DELEGATES

- Delegate position on ASME Committees
  - Represents recognized group of interested parties (e.g., individuals from a jurisdiction, professional society, trade organization, users group)
  - Represented group reviews/comments on work of committee or submits proposals
  - Group works in own country, in native language.
  - Delegate on standards committee has first consideration voting privilege on standards actions.

- A delegate represents an organization located outside of the U.S. and Canada, which is recognized within its country.
  - The organization represented can be a group of individuals from a jurisdiction, a professional society, a trade organization, a users group, and other group with a meaningful interest in the work of the committee.
  - The group being represented will review and comment on committee's proposals, or submit new proposals for committee consideration. Group can meet in their own country and communicate in their own language.
  - Delegate serves as link between group and committee, therefore, should have proficiency in English.
  - Delegate on standards committee is afforded first consideration voting rights on standards actions of that committee.

## INTERNATIONAL WORKING GROUPS (IWGs)

- Accommodates participation by members in a common geographic location who would otherwise be unable to meet the attendance expectations of ASME standards committees.
- IWGs operate as subordinate groups but,
  - IWGs are populated by virtue of a common geographic location
  - IWGs typically conduct all of their meetings outside of the U.S. and Canada.
  - IWGs may choose to conduct their meetings in a language other than English.

- International Working Groups (IWGs) can be formed to accommodate participation by members in a common geographic location who would otherwise be unable to meet the attendance expectations of ASME standards committees that meet principally in the United States and Canada.
- IWGs operate as subordinate groups (i.e. working groups, subgroups, etc.) in that they should be expected to both develop and review proposed standards actions for subsequent consideration by their respective standards committees.
  - But, unlike other subordinate groups, IWGs are populated by virtue of a common geographic location
  - IWGs typically conduct all of their meetings outside of the U.S. and Canada, and
  - IWGs may choose to conduct their meetings in a language other than English.

## BENEFITS OF IWGs

- IWGs provide additional subordinate technical resources to standards committees.
- Offers global stakeholders a forum to discuss ASME standards issues and experiences.
- Active participation by IWGs will help to improve the usability and acceptance of the ASME standards around the world.
- Participation may strengthen IWG members' individual and collective understanding of ASME standards requirements.

IWGs provide a benefit to standards committees, global stakeholders, ASME Standards and Certification and to the members themselves.

- IWGs provide additional subordinate technical resources to standards committees by helping to identify, understand and address stakeholder issues in countries or regions outside of the U.S..
- For global stakeholders, IWGs may facilitate discussion of ASME standards issues and experiences and an IWG may serve as a possible first line of support for local stakeholder's inquiries, in coordination with its standards committee and ASME staff.
- The benefits to ASME Standards and Certification include:
  - Improving the usability and acceptance of the ASME standards around the world, to foster the development of potential S&C volunteer leaders.
- Participation in the standards development process may strengthen IWG members' individual and collective understanding of ASME standards requirements.

## IWG MEMBERSHIP

- All typical privileges and benefits of participation as a standards committee subordinate group.
  - CS-Connect accounts and member access.
  - Vote on IWG proposals and administrative matters.
  - Opportunity to provide comments when the IWG is included in “Review & Comment” distributions.

IWG members have all of the typical privileges and benefits of participation including:

- CS-Connect accounts and member access.
- Vote on IWG proposals and administrative matters.
- Enjoy the opportunity to provide comments when the IWG is included in “Review & Comment” distributions.

For further information a Guidelines for Establishment of International Working Groups (IWG) can be found in the Nuclear MOM and BPTCS Operations Guides.

## INTEREST/INTERNATIONAL REVIEW GROUPS

- Subordinate group under the standards committee
- All typical privileges and benefits of participation as a standards committee subordinate group.
  - CS-Connect accounts and member access.
  - Opportunity to provide comments on first consideration standards committee ballots when included in "Review & Comment" distributions.

In addition to the Delegate position, International Working Groups and appointment as a full voting member of an ASME Committee, some Committees have established Interest or International Review Groups. These groups have all of the typical privileges and benefits of participation as a standards committee subordinate group.

- CS-Connect accounts and "full" member access.
- Opportunity to provide comments on first consideration standards committee ballots when included in "Review & Comment" distributions.

### Examples:

- **B31.3 (Process Piping) and B31.8 (Gas Transmission Piping) International Review Group**
  - Member of organization involved with process piping outside U.S. and Canada
  - Review and comment on balloted proposals
- **BPV (Boilers and Pressure Vessels) International Interest Review Group (IIRG)**
  - Review and comment on balloted proposals
  - Representatives of national agencies that have accepted at



least one section of ASME BPV Code to meet regulatory requirements.

- **A17, A120 and B30 Interest Review Groups**
  - Review and comment on balloted proposals

### III. Other Methods of Developing ASME International Standards

In addition to ensuring that ASME committees are developing standards that can be used internationally and encouraging international participation in the committees, there are a few other ways in which ASME could ensure international use of the standards.

## ASME International Standards

- Normative References to ASME Standards
- Joint Development of ASME Standards
- U.S. National Adoption of ISO Standards

ASME committees can encourage international use of the standards through one of the following methods:

- Encouraging the use of normative references to ASME Standards
- Jointly developing ASME Standards with other international SDOs, and
- Allowing for potential U.S. National Adoption of ISO Standards

These options will be briefly introduced in the next few slides.

## NORMATIVE REFERENCES TO ASME DOCUMENTS

- Approach
  - Incorporate normative reference to ASME Standard in other Standards Development Organization (SDO) Standards
- Example
  - B31.3 Process Piping Code referenced in ISO 15649:2001, Petroleum and natural gas industries – Piping
- Advantages
  - Maintain control of technical content
  - No need to exert the sometimes extensive effort in creating new standard
  - Users can continue to use familiar requirements

One way to ensure that ASME standards can be used as an equivalent standard to standards developed by other standards development organizations (SDOs) and ISO standards is to incorporate a normative reference to that standard. This approach is appropriate when an existing ASME Standard is a de facto international standard.

### Example:

- An example of this approach came with the publication of ISO 15649:2001, which contained a normative reference to the ASME B31.3 Code on Process Piping, thus making compliance with B31.3 essential in order to comply with the ISO Standard.

As stated in the introduction to ISO 15649, the B31.3 Code "... is presently the worldwide basis for current standards and practices for piping systems for the petroleum and natural gas industries."

### Advantage:

- Unlike some of the other approaches to international standardization, this option allows ASME to maintain control of the technical content of the key document. If an ASME document were submitted to another SDO as the basis for a standard, ASME would have no control over the technical content of the eventual standard, other than participation, as in the ISO example, through the U.S. TAG as one member body of the ISO Technical Committee.
- Similarly, there would be limitations on what changes could be made by ASME to an ISO Standard that had been nationally adopted without jeopardizing that standard's status as a U.S. national adoption.
- This option also precludes the need for potentially extensive effort to create a new standard
- Additionally, this approach would allow users of the referenced standard to continue to use familiar requirements

## JOINT DEVELOPMENT OF STANDARDS

- Rationale
  - Make the ASME standard more internationally recognized
- Requirements
  - Obtain approval from
    - Consensus Committee
    - Supervisory Board
    - Council on Standards and Certification
  - Framework Agreement is developed between organization and ASME on the approval process, maintenance, publication, and copyright
  - Draft is concurrently approved by the ASME and SDO committees under their respective procedures or jointly developed procedures
  - Copyright and intellectual property is jointly owned by ASME and other SDO

- There may be instances where an ASME Standards Committee or U.S. TAG would like to submit an ASME published standard or draft standard to ISO or another SDO for consideration as a joint standard.
  - This might be desirable, for example, where no ISO standard exists and the group would like to make the ASME standard more internationally recognized. Additionally, a business case may need to be developed.
- Approval must be obtained from the Consensus Committee, Supervisory Board, and Council on Standards and Certification.
- A framework agreement is developed between ASME and the other SDO for the approval process, maintenance, publication, and copyright.
- Draft is concurrently approved by the ASME and the SDO committees under their respective procedures, or jointly developed procedures.
- Copyright and intellectual property is jointly owned by ASME and other SDO

## JOINT DEVELOPMENT OF STANDARDS

- Examples:
  - API 579-1/ASME FFS-1- Fitness-for Service
  - ASME A17.1/CSA B44-13 - Safety Code for Elevators and Escalators
  - ASME A112.4.2/CSA B45.16 - Personal Hygiene Devices for Water Closets
  - ASME/ANS RA-S - Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications
  - ISO/ASME 14414 - Pump system energy assessment
  - Joint ACI-ASME Committee on Concrete Components for Nuclear Service

Joint standard examples include :

- API 579-1/ASME FFS-1- Fitness-for Service
- ASME A17.1/CSA B44-13 - Safety Code for Elevators and Escalators
- ASME A112.4.2/CSA B45.16 - Personal Hygiene Devices for Water Closets
- ASME/ANS RA-S - Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment for Nuclear Power Plant Applications
- ISO/ASME 14414 - Pump system energy assessment
- Joint ACI-ASME Committee on Concrete Components for Nuclear Service

ASME published the first joint ISO/ASME standard in 2015 using ASME EA-2 as the basis document and Ryan Crane was the Staff contact. In this case, the ISO/TC/WG requested to develop an ISO standard on the same topic and use ASME EA-2 as the basis. The initial response was to include ASME EA-2 as a normative reference in the ISO draft. The response in return claimed the ASME EA-2 did not have sufficient global recognition. Compensation to ASME for the intellectual property was also not an option. As an alternative, it was agreed to develop a joint standard with the intent that the other ASME EA Standards would obtain

additional international recognition. A Framework Agreement provided the approval process by which the joint standard would be developed, as well as the business agreement between the two organizations.

NOTE: With this option, the ASME committee may lose control over the technical content of the resulting joint ISO/ASME Standard and there is no guarantee that the final content will be similar to the ASME standard.

## U.S. NATIONAL ADOPTION

- Definition- Adoption of ISO standard as American National standard
- Procedure
  - Process ISO standard in accordance with
    - ANSI procedures for
      - Identical adoption (and expedited approval), or
      - Modified adoption
    - ASME procedures require approval by appropriate Board and Council on Standards and Certification based on a business case provided by proponents for the action.

Although we currently do not do adoption and publication by ASME of an ISO standard as an American National Standard there is a framework for how to process this type of activity outlined in the S&C Operation Guide:

- Process the standard according to ASME's standards development procedures and ANSI procedures (i.e., consensus body approval).
- ANSI procedures for U.S. national adoptions allow for two forms of adoption: Identical and Modified.

**Identical adoption** is adoption without changes to the wording of the standard. Identical adoption procedures include a special expedited procedure for use in cases where the TAG has voted or plans to vote approval of the draft ISO standard.

**Modified adoption** is adoption with changes to the wording. Modified adoption procedures require that a listing of the technical deviations be included in the nationally adopted standard.

- ASME procedures require that recommendations for U.S. national adoptions be approved by the appropriate Board and the Council on Standards and Certification based on a business case provided by proponents for the action.

Note - If there is an existing ASME standard covering the same area, it would normally be withdrawn or modified to act as a supplement.



## MODULE SUMMARY

- ASME standards meet the requirements for international standards by following procedures that meet WTO requirements, offering a wide range of ways in which international members may participate and allowing use of normative references to other international standards.
- ASME committees membership is open to qualified individuals from all countries. In addition, ASME has created a few further options to encourage international membership on committees such as; delegate memberships, interest review groups, and international working groups.

- ASME standards meet the requirements for international standards by following procedures that meet WTO requirements, offering a wide range of ways in which international members may participate and allowing use of normative references to other international standards.
- International participation on ASME committees is encouraged; membership is open to qualified individuals from all countries. In addition, ASME has created a few further options to encourage international membership on committees such as; delegate memberships, interest review groups, and international working groups.

## MODULE SUMMARY

- The process by which ASME Standards are developed meet the WTO TBT principles for international standards development.

The process by which ASME Standards are developed meet the WTO TBT principles for international standards development.

## REFERENCES

- S&C Sector Operations Guide
- Codes and Standards Policy CSP-4, International Standardization

Both can be found at:

<https://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=L01000000&Action=7609>

- BNCS Management and Operations Manual (MOM)

<https://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=O10000000&Action=2973>

- BPTCS Operations Guide

<https://cstools.asme.org/csconnect/CommitteePages.cfm?Committee=N10000000&Action=3075>