

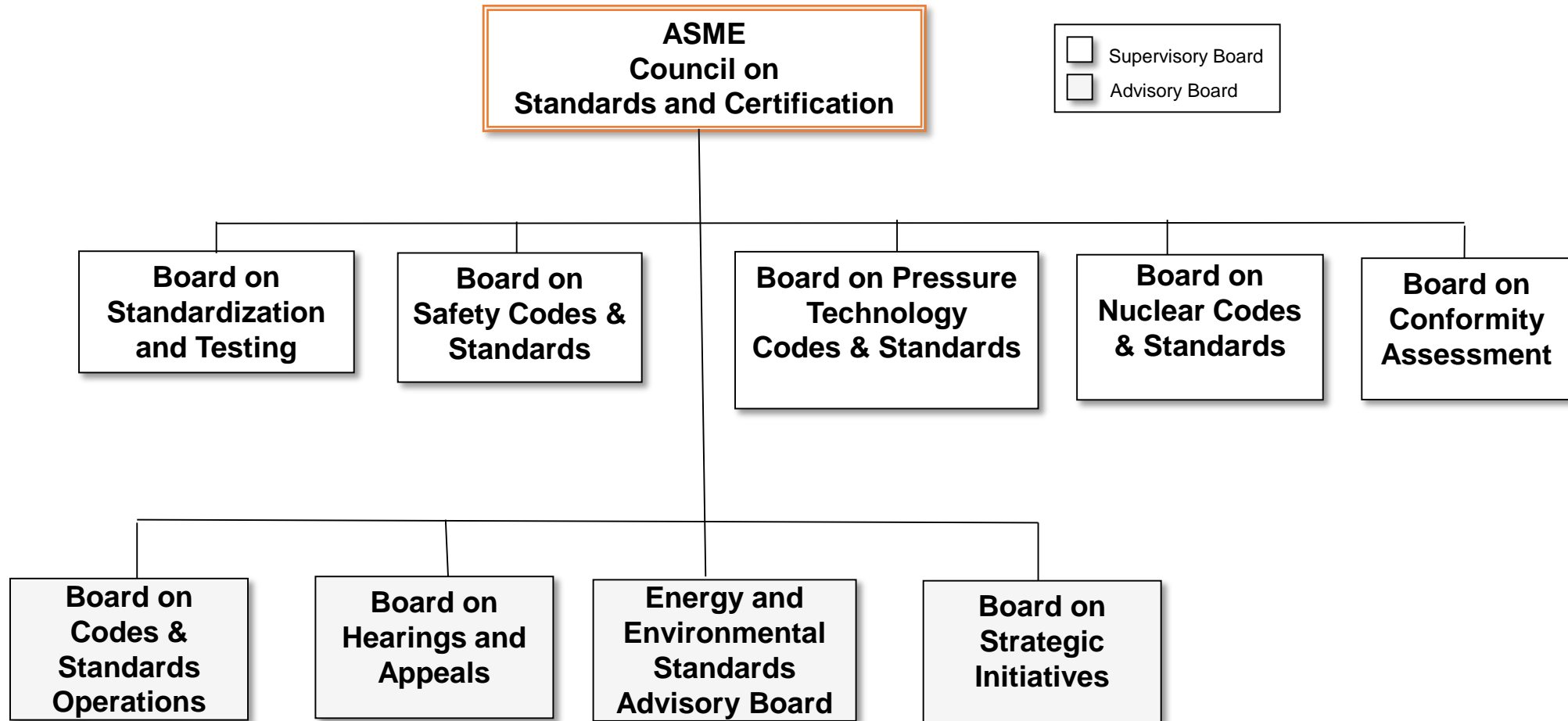
The American Society of Mechanical Engineers

Setting the Standards for Safety and Global
Relevance

Angel L. Guzman Rodriguez
S&C Project Engineer, Standardization & Testing Department



ASME S&C Organization Chart



ASME S&C Scope of Activities

- Pressure Technology

boilers, pressure vessels, piping & pipelines, materials, welding valves, flanges, fitness for Service, post construction

- Safety

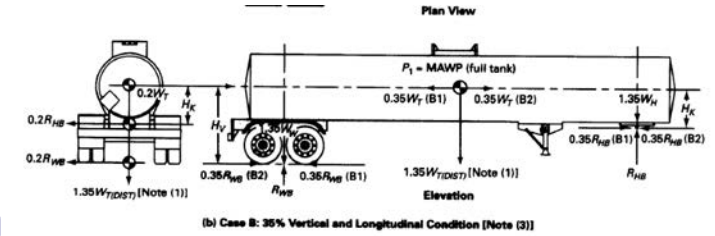
elevators & escalators, cranes, automotive lifts, conveyors, rail transit

- Nuclear

component design, containment, quality assurance, risk assessment, air and gas treatment, inservice inspection

- Standardization & Testing

geometric dimensioning & tolerancing, dimensional metrology, plumbing, fasteners, chains, machine tools, energy assessment, performance test codes of power plant equipment, verification & validation in computational modeling & simulation



Emerging Areas / New Activities

- Standards development has historically been a reactive process
- S&C involvement in new tech areas is much earlier than ever before
- This requires more interaction with industry to develop guidelines or Draft Standards for Trial Use early on even as the technology is developing
- Other possibilities:
 - White paper, Technical Report, Guidelines
 - Training Programs, Free Webinars, Journals
- Increased engagement of other engineering societies, regulatory and government agencies helps focus early efforts and ensure that sharing of guidance documents and best practices throughout the development process fosters acceleration of innovation.

New Activities Related to Robotics

- Five core technologies have been identified by ASME as key to the overall strategy. Robotics was one of those technologies.
- An ASME Robotics Technology Advisory Panel (TAP) of experts in this field was formed to discuss any needs for the industry (e.g., could be standard/guides, a conference, training or other).
- First TAP meeting held 03/31/2017 with a second meeting held 12/13/2017.
- The next TAP meeting has been scheduled to take place 10/23/2018.
- The TAP identified some needed Standards, with a focus on robotic arms:
 - robotic arm terminology
 - a performance standard so purchasers could better compare robotic arm capabilities
- 30 volunteers have expressed interest in this activity
- First teleconference with interested volunteers held July 31, 2018.

New Activities Related to Robotics

- Plan to form a subcommittee on Robotic Arms under the MAM Standards Committee on Manufacturing and Advanced Manufacturing that falls under the Board on Standardization and Testing (BST).
- First teleconference held on July 31, 2018 with fourteen participants.
- Second teleconference with the interested volunteers to be held in late September 2018 or early October 2018.
- Have identified Robotic Standards published by other SDOs (i.e., ISO/TC 299, IRA, IEEE, etc.) and have distributed the report to ASME group
- Interested volunteers are currently evaluating the available published Standard in order to identify any gaps. Based on this, S&C will decide what subject(s) to cover.

New Activities Related to Robotics

New ASME Committee on Mobile Unmanned Systems (MUS) for inspection, monitoring, and maintenance of industrial facilities and power plants as well as equipment, transmission lines, and pipelines

- Task Group was formed to address guidelines and/or standards for power plant inspection using safe and reliably operating unmanned aerial vehicles (i.e. drones).
- Teleconferences held every few weeks
- On May 8th, 2017 during the BPV Code Week, with S&C Staff help, the ASME Staff conducted a panel session on current usage of commercial UAVs for plant inspections
- The event was attended by approximately 70 individuals

New Activities Related to Robotics

- A BPV Section V Special Working Group on the Use of Unmanned Aerial Vehicles/Systems for Inspection was formed using the previous Task Group
- Committee charter: Develop, review and maintain guidelines, standards for requirements and methods for industrial plant (e.g. power, petrochemical, manufacturing, etc.) inspection using safe and reliably operating unmanned aerial systems/unmanned aerial vehicles (UAS/UAVs).
- Document scope and definitions almost completed. SWG is working on the Object of Inspection and Preparation for Inspection and Preliminary mission planning sections.
- Completed the first 2 day ASME Robotics for Inspection and Maintenance (RfIM) Industry Forum this past June in Houston, Texas. 28 Speakers and 100 + attendees.
- Expand the MUS portfolio by developing different robotics type Standards (i. e., crawlers and submersibles).

Activities Related to Robotics (Continued)

B30 Safety Standards Committee for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

B30.31, Self-Propelled, Towed, or Remote Controlled Hydraulic Platform Transporters

- Standard to be developed will contain provisions that apply to the construction, operation, inspection, testing, maintenance, and safe use of hydraulic platform transporters for handling loads and will not apply to commercial truck transportation of loads over public roadways
- Project was approved by the B30 Standards Committee during their May 2017 meeting and the Board on Safety Codes and Standards during their June 2017 meeting
- The team was formed and is currently developing an outline

Activities Related to Robotics (Continued)

B30 Safety Standards Committee for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings

B30.32, Unmanned Aircraft Systems (UAS)

- Standard to be developed will contain provisions that apply to the inspection, testing, maintenance, and safe use of unmanned aircraft systems used in inspection, testing, maintenance and material lifting operations of equipment addressed in the B30 (Cranes and Related Equipment) standards
- Project was approved by the B30 Standards Committee during their September 20, 2017 meeting and the Board on Safety Codes and Standards via ballot
- The team was formed and is currently developing an outline

RELATED TOPICS

V&V Verification and Validation in Computational Modeling and Simulation

- V&V 10-2006 V&V in Computational Solid Mechanics
- V&V 20-2009 V&V in Computational Fluid Dynamics and Heat Transfer
- V&V 30 V&V in Computational Simulation of Nuclear System Thermal Fluids Behavior
- V&V 40 V&V in Computational Modeling of Medical Devices
- V&V 50 V&V in Computational Modeling for Advanced Manufacturing
- V&V 60 V&V in Computational Modeling in Energy Systems

SUMMARY

- ASME is not looking to duplicate any work that has already been published.
- ASME`s objectives are to fill any voids that the industry may have as it relates to Robotic Arms
- Those voids may be topics not currently covered by the Standards currently available or where a Standard does not cover the needs that the North American industry may need
- ASME is not looking to compete with other SDO`s but rather to collaborate where possible
- Those of you that would like to be involve in the ASME effort should contact me