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ARPA-E R.E.P.A.I.R. Workshop: Industry Standards Development Overview

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The Importance of Standards

Consensus technical standards play a critical role in the design, specification, implementation, quality and safety of pipe lining technologies

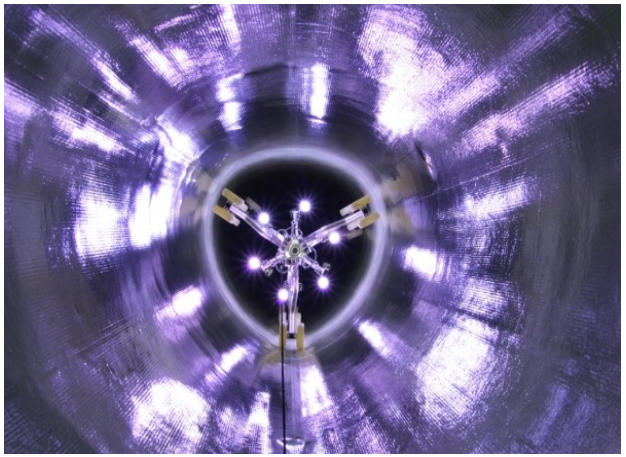
- International standards organizations
  - ASTM International – American Society for Testing & Materials (USA)
  - ISO – International Organization for Standardization (Switzerland)
- ASTM and ISO standards are adopted by incorporation or reference in many federal, state & municipal government regulations

ASTM INTERNATIONAL

ISO International Organization for Standardization

The Importance of Standards

- The 1995 National Technology Transfer & Advancement Act (NTTAA), requires federal government to use privately developed consensus standards whenever possible
- Review, revisions and updates occur on a regular basis
- It is critical that the most up-to-date version of a standard be used or referenced
- Standards can be developed by a variety of stakeholders in a particular industry



ASTM Technical Committees

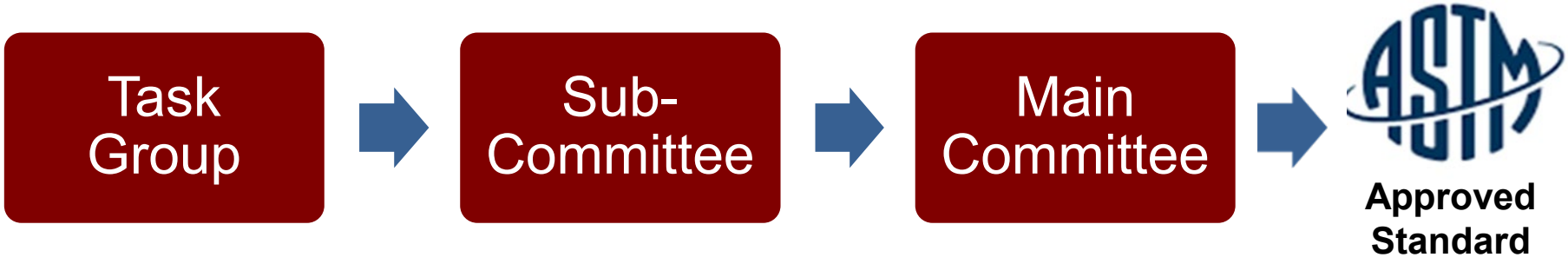
Over 140 industry-specific ASTM technical committees

- ASTM hierarchy consists of three levels:
  Main Committee, Subcommittee, and Task Groups
  - ➢ F17 Plastic Piping Systems Main Committee
    - ✓ F17.60 Gas Piping Subcommittee
    - ✓ F17.67 Trenchless Plastic Pipeline Technology Subcommittee
    - ✓ F17.68 Energy Piping Systems Subcommittee
- Development, revision and approval of standards relies on a cross-section of industry representation that includes competitive interests and a variety of stakeholders (producers, users, and general interest)
- Fairness, transparency and technical correctness are key

ASTM Standards Development Process

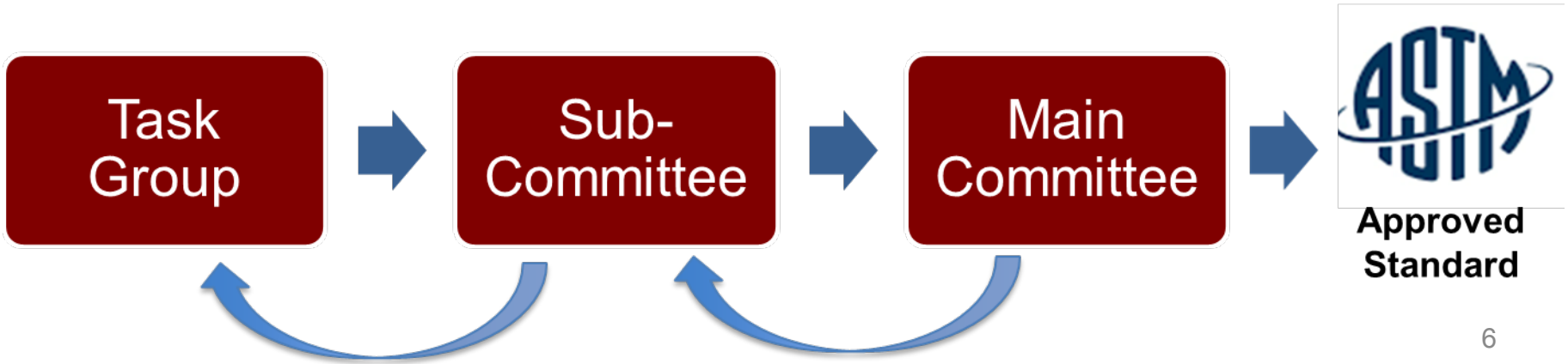
- ✓ A request for a new standard or revision to an existing standard is made at an ASTM Technical Committee
- ✓ Once project is issued, the Task Group level performs most of the “leg work” and research that forms basis of draft standard
- ✓ After Task Group completes its work, draft standards are forwarded through Sub-Committee and Main Committee for review and voting
- ✓ Only eligible voting members can carry an official vote

  (One vote per company)



ASTM Standards Development Process

- ✓ A draft standard must gain Sub-Committee, Main Committee, and Society approval before becoming an official standard
- ✓ The process becomes iterative, if “Negative” votes are received
- ✓ Review of draft standards/ revisions and the voting process can take at least several months, often can be a year or more
- ✓ Procedure is governed by ASTM Regulations Manual and ASTM Form and Style Manual



Questions?

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