



Standards... Enabling the Way to a Sustainable Future





Today's Goals

❖ Introduction to ASTM International

Overview of ASTM, Infrastructure, Operation and scope of activities

❖ Efforts on Energy Efficiency

Solar, Geothermal, Energy Star

❖ Improvements toward Water Efficiency

Water Sense

❖ Support for Sustainability Efforts

Life Cycle Assessments



Introduction to ASTM

Primary Objective:

...is to be the foremost developer and provider of consensus standards, related technical information, and services having globally recognized quality and market relevance





Introduction to ASTM

General

- ❖ Founded in 1898
- ❖ Developing and Revising voluntary, consensus standards for materials, products, systems & services world-wide through direct-member participation
- ❖ ASTM International has approximately 12,000 standards used internationally
- ❖ Over 31,000 members from 130 countries participate on ASTM International committees; users from 175 countries



Introduction to ASTM

Forum

- ❖ All stakeholders involved
- ❖ Every member has equal say
- ❖ Consensus-based procedures
- ❖ Private and public sector cooperation



Examples:

Manufacturers, Regulatory agencies, Associations, Professional societies, Professionals and Consultants, Academia, Research Institutions and laboratories



Introduction to ASTM

How are ASTM Standards Used?

- ❖ Developed voluntarily and used voluntarily
- ❖ Cited in a contract
- ❖ Government agency reference them in codes, certification, regulations, and laws (US: P.L. 104-113)
- ❖ Used by tens of thousands of individuals, companies, and agencies globally
- ❖ Over 3,300 ASTM International standards are used as the basis for national standards by reference in regulation in over 72 countries



Introduction to ASTM

Support Structure

- ❖ 160 person staff to manage & support the technical committees
- ❖ Managers & editors ensure efficient operation & provide management and administrative support

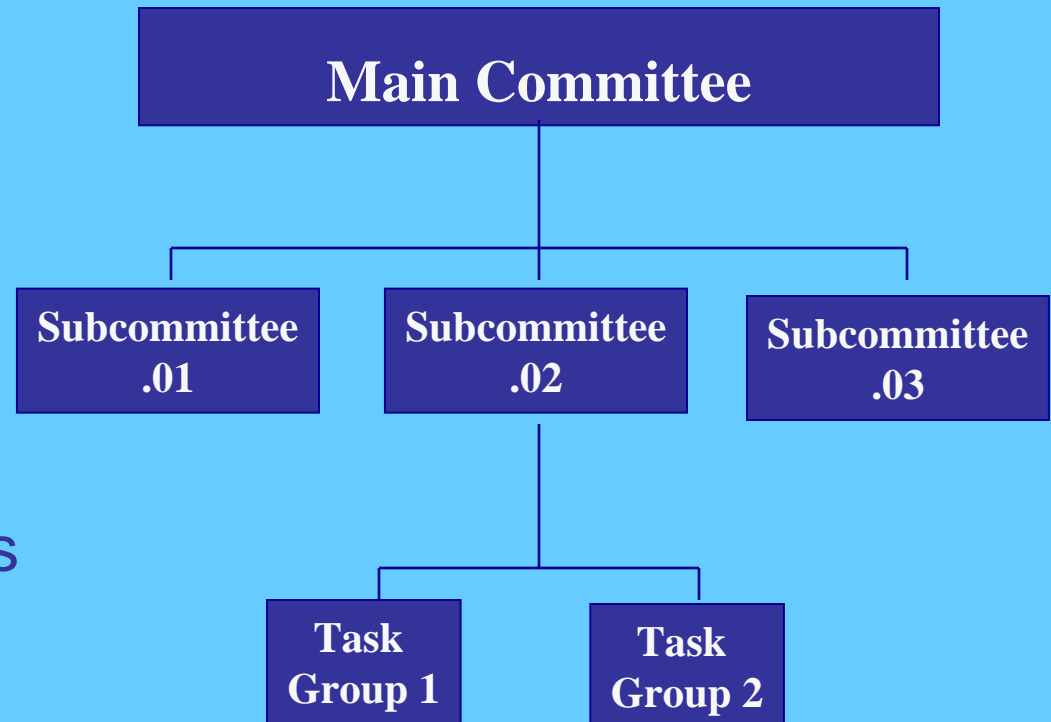




Introduction to ASTM

Technical Committee Organization

- ❖ Formed to address specific industry subjects
- ❖ Subcommittees address subsets of specialized subject matter
- ❖ Subcommittees organize their expertise into Task Groups to write standards
- ❖ Direct Member Participation





Introduction to ASTM

Time Frame for Standards Development



- ASTM's average standard development time is 19 months
- New committees average lesser times (7 – 14 months)



- Complexity of the job
- Urgency of needs
- Time devoted by members
- Utilization of new informational technologies



Energy Efficiency

E44 Solar, Geothermal and Other Alternative Energy Sources

- ❖ Advanced Energy Conversion, including Wind Energy
- ❖ Photovoltaic Generation of Electricity
- ❖ Thermal Conversion Power Generation
- ❖ Active and Passive Space Heating and Cooling
- ❖ Heating of Domestic Hot Water
- ❖ Process Heating



Energy Efficiency

Photovoltaic Electric Power Conversion

- To provide recommended standards for evaluating the design and performance of photovoltaic power systems.
- Systems shall include all components necessary for the conversion, conditioning, storage, control and distribution of power to an application load.
- **Key standards covering:**
 - Electrical Performance of PV Cells Using Reference Cells Under Simulated Sunlight
 - **Test Method for Rating Electrical Performance of Concentrator Terrestrial PV Modules and Systems Under Natural Sunlight**
 - **Specification for Solar Simulation for Terrestrial Photovoltaic Testing**



Energy Efficiency

Heating & Cooling Systems & Materials

- To promote knowledge and the development of standards relating to methods and applications of solar energy conversion.
- These methods and applications shall include active systems for the following: Heating of swimming pools; heating of domestic water; and space heating and cooling.
- Key standards covering:
 - E424- Standard Test Methods for Solar Energy Transmittance and Reflectance (Terrestrial) of Sheet Materials
 - E1160- Guide for On-Site Inspection and Verification of Operation of Solar Domestic Hot Water Systems



Energy Efficiency

Geothermal Field Development, Utilization and Materials

Scope:

- Exploitation of geothermal fluid and earth heat
- Electric power generation from geothermal resources including steam, two-phase, flash and organic rankine cycle (binary) power general systems
- Applications involving earth-coupled heat pumps, direct-use heating and cooling, industrial processing, greenhouses, agriculture, aquaculture and mineral extraction



Energy Efficiency

Glass for Solar Applications

Newest E44 activity

- Standards for glass and glass coatings for solar applications that include, but are not be limited to, PV, solar thermal, and concentrating applications. Standards will address the characteristics that affect performance, durability and reliability.



Energy Efficiency

New E44 Standards Underway:

- ❖ **WK21327** the Installation of Roof Mounted PV Arrays
- ❖ **WK22009** Reporting PV Non-Concentrator System Performance
- ❖ **WK22010** Weathering of PV Modules
- ❖ **WK25362** Accelerated Life Testing of PV Modules
- ❖ **WK27688** Minimum Surface Compression Requirements in Heat-Treated Glass Used for Solar Cell Modules and Panels
- ❖ **WK28273** Terminology for Glass for Solar Applications
- ❖ **WK28356** Edge Classifications for Glass Used in Solar Applications



Energy Efficiency

Committee F26.06 on Commercial Food Service Equipment

- ❖ Test methods for determining the energy and water consumption
- ❖ Methods for production performance
- ❖ Establish performance ratings
- ❖ 34 published standards, 3 new standards under development



Energy and Water Efficiency

Energy Star Program

❖ Of 8 EStar programs for FSE, 6 require the use of 8 ASTM F26 test methods

- Griddles
- Fryers
- Ovens
- Dishwashers
- Hot Food Holding Cabinet
- Steam Cookers

Water Sense Program

❖ Pre-Rinse Spray Valves

❖ Under development, currently referencing ASTM F2324



Life Cycle Cost & Sustainability

F26.05 Goal:

Develop standards to evaluate the total cost of ownership (life cycle cost) and total environmental impact of commercial food service equipment.

- ❖ F2687 Practice for Life Cycle Cost Analysis of Commercial Food Service Equipment
- ❖ WK24910 Determining the Sustainability Rating of Commercial Food Service Equipment



ASTM & Sustainability

Many ASTM International committees address sustainability: infrastructure/built environment, water, agriculture, energy, products, waste, materials, and toxics (partial list):

- C01 on Cement
- C09 on Concrete and Concrete Aggregates
- C16 on Thermal Insulation
- D02 on Petroleum Products and Lubricants
- D03 on Gaseous Fuels
- D04 on Road and Paving Materials
- D05 on Coal and Coke
- D18 on Soil and Rock
- D19 on Water
- D20 on Plastics
- D22 on Air Quality
- D34 on Waste Management
- E06 on Performance of Buildings
- E35 on Pesticides and Alternative Control Agents
- E44 on Solar, Geothermal and Other Alternative Energy Sources
- E47 on Biological Effects and Environmental Fate
- E48 on Biotechnology
- E50 on Environmental Assessment, Risk Management and Corrective Action
- F40 on Declarable Substances in Materials



ASTM & Sustainability

E60 Facts & Figures

- Committee Established October 2008
- 700+ Members
- Technical Subcommittees
 - E60.01 Buildings and Construction
 - E60.02 Hospitality
 - E60.80 General Sustainability Standards
- Administrative Subcommittees
 - E60.90 Executive
 - E60.91 Strategic Planning
 - E60.95 Student Liaison and Affairs





ASTM & Sustainability

❖ Current Sustainability Standards

- **10+ published standards for sustainable buildings and construction**
- **Key document: ASTM E2432, Standard Guide for General Principles of Sustainability Relative to Buildings**
- **Standards for building product sustainability assessment, green roofing systems, water reclamation, environmental life cycle assessment and more**





ASTM & Sustainability

- **Draft Standards**

- **6 draft standards related to sustainability in infrastructure/buildings**

- ◇ Minimum requirements for a building promoting sustainability, assessing rain water quality, water stewardship, marketing and product claims related to sustainable buildings, and more

- **9 draft standards for sustainability in hospitality**

- ◇ Practices for evaluating and selecting hotel and meeting accommodations, other event spaces, food and beverage, and more



- **Planned Work**

- **Topics:**

- ◇ Infrastructure
- ◇ Packaging

- **Forum Discussions:**

- ◇ Plastic
- ◇ Life Cycle Assessment



Participate

Technical Committees

- Open to all areas of the industry

Technical Meetings

- Open to members and non-members

Standards Activities

- Initiated by industry everyday



For More Information...

Visit the ASTM table at IAMPO ETS

Visit the ASTM International Website:

www.astm.org

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