

**Safety and Health in the Home:
Helping Students Understand the Role of
Standards**

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Learning Objectives

- Gain an understanding of the U.S. standards system and the benefits of standards to manufacturers, consumers and government regulators
- Learn how consumer concerns are taken into account in the development of standards
- Introduce participants to standards resources that can be utilized in FCS education



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Why Develop Standards?

- *Roughly 80 percent of global merchandise trade is affected by standards and by regulations that embody standards.*

Source:

National Institute of Standards and Technology
Testimony before the U.S. House of Representatives
Committee on Science, Subcommittee on Technology
September 13, 2000



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Definitions

- **Standard** – a document, established by a consensus of subject matter experts and approved by a recognized body, that provides guidance on the design, use and performance of products, processes, services, systems or personnel
- **Conformity Assessment** – the process of evaluating or measuring products, processes, services, systems or personnel against a standard



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Types of Standards

- Voluntary Consensus Standards
 - Developed via a formal process characterized by private/public sector cooperation and openness, consensus and due process (e.g., American National Standards)
- Consortia Standards
 - Developed outside the formal process by companies working together to solve a specific market need
 - Participation may be limited to members of the consortium and a significant financial commitment may be required
- Government Unique Standards / Regulatory Specifications
 - Written or adopted by government agencies (Milspecs)
- De Facto Standards
 - The marketplace determines acceptance (Microsoft Windows)



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Examples of American National Standards for the home environment

- Safety of appliances
 - electric coffee makers (UL 1082)
 - household trash compactors (UL 1086)
- Performance of appliances (AHAM)
 - household refrigerators and freezers (ANSI/AHAM HRF-1)
 - portable air cleaners (ANSI/AHAM AC-1)
- Indoor air quality (ANSI/ASHRAE 62.1)
- Energy-efficient design (ANSI/ASHRAE 90.2)
- Safe electrical installation (NFPA 70)



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The U.S. standards system

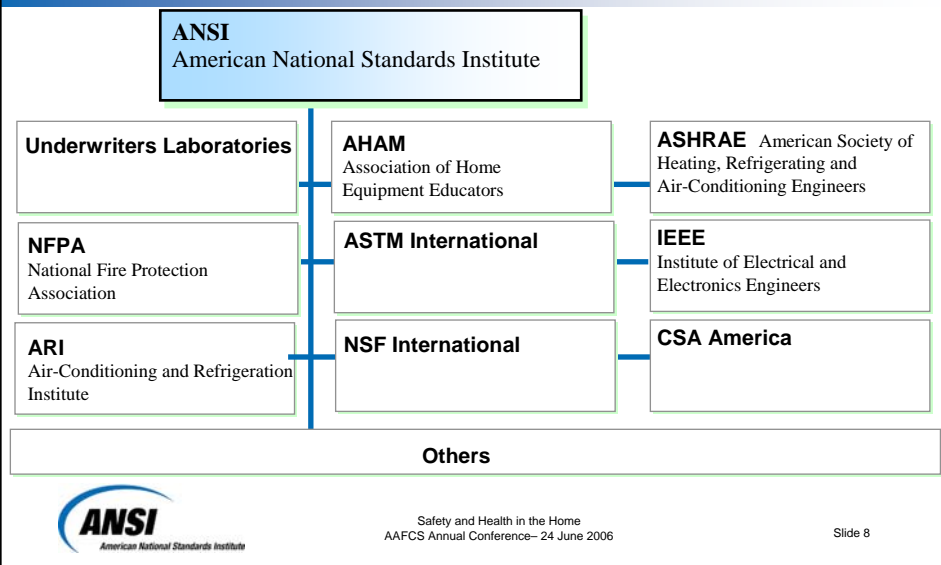
- Is decentralized, sector-based and market-driven
- Includes both standards-setting and conformity assessment programs
- Includes more than 95,000 recognized standards.
- These documents are developed by
 - some 600 standards developing organizations (SDOs), about 200 of which are accredited by ANSI, with the twenty largest of these organizations producing about 80% of the standards
 - at least 150 consortia
 - hundreds of committees addressing the technical requirements of standards



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Examples of ANSI Accredited Standards Developers



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Standards serve industry

- Provide common methodologies, language and understanding
- Improve product design, performance and interoperability
- Reduce costs and time-to-market
- Open markets / reduce barriers to trade
- Achieve competitive advantage
- Help supplement regulatory frameworks
- Reduce anti-trust and product liability exposure



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Standards address basic consumer concerns

- Performance, quality and reliability
- Interoperability
- Safety, health and the environment
- Ease of use
 - instructions, packaging, accessibility
- Affordability / choice
- Protection from false / misleading claims
- Redress
- Confidence / trust



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Consumer input makes for better standards

- Facilitates the flow of goods and services into the marketplace
- Promotes safer, healthier, more environmentally-friendly products
- Fosters government reliance on voluntary standards and conformity assessment programs
- Raises awareness of consumers with special needs
- Introduces new subjects for standardization and conformity assessment
- Enhances the credibility of the system



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Standards help the government

- Achieve public policy objectives
 - Building codes
 - Consumer Product Safety Act
 - Americans with Disabilities Act
 - Federal Fair Housing Act
- Provide access to private sector technology and “know-how”
- Lower regulatory and procurement costs
- Promote exports, trade, and economic growth



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The Role of Government

- In the U.S., no single government agency has control over standards.
 - Each agency determines which standards meet its needs.
 - The agency is responsible for determining whether a voluntary consensus standard already exists that is appropriate for its needs.
 - If so, they will use the consensus standard.
 - If not, the agency is expected to work with the private sector to develop the needed standard.



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The Role of Government (contd.)

- National Technology Transfer and Advancement Act (NTTAA) (P.L. 104-113 – 1996)
 - Encourages federal agencies to utilize voluntary consensus standards as much as possible for both regulatory and procurement purposes
 - Encourages federal participation in voluntary consensus standards development activities
 - Designates the Department of Commerce’s National Institute of Standards and Technology (NIST) as coordinator of federal government agency standards policy activities



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What is ANSI?

- The coordinator and facilitator of the U.S. voluntary consensus standards and conformity assessment system
- A not-for-profit 501c3 membership organization
- Private-sector led and public-sector supported
 - Founded in 1918 by five professional / technical societies and three federal government agencies

ANSI is not a government agency or a standards developer



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ANSI's Mission

- To enhance both the global competitiveness of U.S. business and the U.S. quality of life by promoting and facilitating voluntary consensus standards and conformity assessment systems, and safeguarding their integrity
- The ANSI By-laws specify that this includes:
 - To benefit the public health, safety, welfare and environment
 - To assure that the interests of the public have appropriate protection, participation and representation in standardization, certification and related activities



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The Federation

**Private Sector
& Public Sector
Working Together** 

Academia
Individuals
Government
Companies
Trade Associations
Professional Societies
Standards Developers
Consumer and Labor Interests



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Roles and Responsibilities of ANSI

- Accredit U.S. standards developing organizations and U.S. technical advisory groups
- Approves standards as American National Standards
- Provides access to international and regional standards bodies
 - U.S. member of International Organization for Standardization (ISO) and, via U.S. National Committee, International Electrotechnical Commission (IEC)
- Offers a neutral policy forum
- Accredits product, personnel and management system certification bodies
- Information provider
- Seller of publications



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The ANSI Process

- Is fair and open, with numerous checks and balances, designed to protect the rights and interests of every participant
- Ensures the integrity of the U.S. voluntary consensus standards system
- Accreditation signifies that standards developing organizations adhere to ANSI's essential requirements for:
 - Openness
 - Balance
 - Due process
 - Consideration of Views and Objections (Public review)
 - Consensus
 - Right to Appeal
- American National Standards are those that have been developed by accredited SDOs in accordance with these principles



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ANSI Strategic Initiatives – U.S. Standards Strategy (USSS)

- Developed by a broad cross-section of standards stakeholders, the U.S. Standards Strategy provides a vision, purpose and common framework that can be used by U.S. stakeholders to achieve their respective standardization goals.
- These include:
 - Improve the responsiveness of the standards system to the view and needs of consumers
 - Establish standards education as a high priority within the United States private, public and academic sectors
- USSS development facilitated by ANSI and strategy has been endorsed by ANSI



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ANSI's Consumer Interest Forum (CIF)

Promoting the education of consumers . . . facilitating the representation of consumer interests in standardization . . . enhancing the effectiveness and credibility of the Institute . . . providing U.S. leadership in ISO Consumer Policy Committee (COPOLCO)

- American Assn. of Family and Consumer Sciences
- Consumer Federation of America
- Council of Better Business Bureaus
- Intertek Testing Services
- Maryland Consumer Rights Coalition
- National Assn. of Consumer Agency Administrators
- National Consumers League
- U.S. Consumer Product Safety Commission
- U.S. Dept. of Agriculture—CSREES
- Underwriters Laboratories
- Telecommunications Industry Assn.
- Toy Industry Assn.
- Individual Consumer Advocates



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ANSI's Committee on Education

- Oversees ANSI's education and outreach initiatives to fulfill USSS goal to establish standards education as a high priority
 - Chaired by Dr. William E. Kelly, Professor of Civil Engineering, The Catholic University of America
 - AAFCS represented by JoAnn Emmel, VA Tech
- Aim is to educate next generation of business leaders on strategic importance of standards to U.S. and global economies
 - In fields of study such as engineering, science, technology, government and public policy, business, economics and law
- Oversee development of education programs, training modules and materials that faculty can use in the classroom or online



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ANSI Standards Education Survey

- ANSI asked SDOs what educational resources exist and what needs to be developed to support universities with the tools they need to introduce standards into the classroom
- 32 responses from SDOs representing a broad range of industries
 - Majority engaged in education activities
 - Most involved in continuing education or professional development
 - Forty percent involved in activities for students at university level and younger, and had developed standards materials for use by universities
 - Interest expressed in developing both cross-discipline and discipline-specific education materials for use by universities
 - Some sponsor or fund education activities or receive sponsorship / funding



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ANSI University Outreach

- Pilot Project Phase I – launched Fall 2005 semester
 - 21 schools from a range of disciplines invited/requested to participate
 - Civil, medical, mechanical and agricultural engineering
 - Computer science
 - Industrial technology
 - Geography
 - Law
 - Graphic design
 - Business management
 - Apparel, housing, and resource management
 - ANSI offered fee-waived access to ISO and certain IEC standards for use in the classroom
 - Some U.S. SDOs provided free or discounted access to their standards
 - Discussions underway with U.S. SDOs to provide standards, case studies, model tutorials, guest speakers, and other resources that professors can use



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Survey of Assn. of Home Equipment Educators

- Are you aware of the standards that relate to your academic field?
- Are you familiar with / do you participate in any SDOs?
- Are your students expected to be knowledgeable about standards?
- Do you reference standards in your course materials?
- Do you feel it would be beneficial to do so?
- Would you be interested in free access to ISO / IEC standards?
- What other resources would help you to introduce standards into your course curricula?
- What factors would prevent you from requesting standards or other resources?



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ANSI Educational Resources

- Free, introductory courses on standardization
www.StandardsLearn.org
 - *Why Standards Matter*
 - *U.S. Standards – Today and Tomorrow*
- Standards search engine www.StandardsMall.org
- List of ISO and IEC standards <http://webstore.ansi.org>
- Standards Education Database
 - Links to SDOs, academic institutions and ANSI members that provide standards education
 - http://www.ansi.org/education_trainings/stand_edu_database.aspx?menuid=9



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ANSI Educational Resources (contd.)

- About ANSI www.ansi.org/about
 - Introduction / History / FAQs
- News and publications www.ansi.org/news
 - Published articles
 - Library of speeches & presentations
 - Media tips and case studies www.ansi.org/mediatips
 - Designed as a resource for journalists, consumers and educators/students, uses non-technical language to illustrate the role of standards in daily life.
- National student design competition for sustainability www.ansi.org/p3
 - ANSI's partnership with U.S. EPA's P3 project which provides grants to college student teams and faculty to research, develop, and design sustainable solutions to environmental challenges
- Environmentally preferable purchasing (EPP) www.ansi.org/epp
 - ANSI / EPA presentation on how standards can incorporate EPP provisions to protect the environment, and reflect life-cycle concerns



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Sample Educational Resources of SDOs

- The ISO Cafe www.iso.org/isocafe
 - For students, educators and journalists, provides an overview of ISO standardization and examples / benefits of ISO standards in many areas of life and work
- 100 years of the IEC www.iec.ch/100years
- ASTM International
 - The ASTM Campus www.astm.org
 - Student Membership, Student Forum, Professor's podium and Standards 101
- IEEE Standards Association
 - Standards Development Online
<http://standards.ieee.org/resources/development/index.html>
 - Training materials
 - Standards Companion



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Government & Other Educational Resources

- U.S. government standards portal www.Standards.gov
 - Includes a searchable database of standards referenced by Federal agencies in regulations and procurement activities
- USDA's Cooperative State Research, Education and Extension Service Housing & Indoor Environment Program
 - <http://www.csrees.usda.gov/ProgView.cfm?prnum=5315>
- U.S. Consumer Product Safety Commission www.cpsc.gov
- Electrical Safety Foundation International www.esfi.org



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