PDHonline Course G150 (2 PDH)

Why Standards Matter

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WHY STANDARDS MATTER

Lesson 2 – Standards in the World Around You

Topic: Lesson Overview

Standards are something that most of us accept as part of our daily lives, but probably never think about. Whether we realize it or not, practically everything we do in our business or in our private lives is governed by standards.

In this lesson, we will demonstrate the impact standards have on everyone's life. Who needs standards? Homeowners and tenants, motorists, mechanics, automakers, builders, architects, construction workers, teachers, bankers, doctors, and computer technicians. We all need standards in our homes, in our workplace, in our travels, and when we buy products and services. Without standards, simple tasks would be a challenge.

- An "AA" battery fits into a flashlight;
- A nut screws into a bolt;
- The plug on your toaster fits into the wall outlet.

We take these conveniences for granted, but they are not lucky accidents. They result from the use of standards produced by the voluntary standards system.

Standards mean variety, interchangeability, safety, and satisfactory performance. What is a standard? There are many ways to define a standard. One definition is "a set of characteristics or qualities that describes features of a product, process, or service" whether it be in manufacturing, construction, quality performance, environmental protection or safety. A standard is typically a written document that can range from one to several hundred pages. In the case of batteries, for

example, the specifications for materials, safety, performance, and dimensions have been standardized.

When you complete this section, you will be able to:

- Identify what a standard is;
- Provide examples of types of standards;
- Identify some of the standards affect your life.

Key Terms and Acronyms for this Section – You can find a complete list of terms and Acronyms in the Glossary for this course, but here are ones you will need to know for this section.
• Standard • Building code • Model building codes • ANSI • Regulation • Interoperability • Accredited standard developing organization

Whether buying clothing for personal or industrial use, the fit, durability, care, and **suitability** are all important considerations. Product standards and test methods exist for clothing and for the textiles used to make garments. The American Association of Textile Chemists and Colorists (AATCC) is the primary standards developer in the area of textile dyeing, finishing technologies, and cleaning. ASTM International is the principal standards organization in the area of physical test methods for textiles. ASTM has also developed a series of standards for body measurements for infants, children and adults to facilitate proper sizing of garments. See ANSI News for standards information on "What's My Size?"

There are two major organizations in the United States responsible for developing protective clothing standards – ASTM International and the NFPA (National Fire Protection Association). ASTM develops test methods to measure the performance of the materials used in protective clothing. NFPA is responsible for establishing the acceptance criteria for protective clothing such as that used for firefighters and emergency medical operations.

Topic: The Three Little Pigs - Standards for Shelter

You are probably familiar with the story of the three little pigs who built their houses of straw, sticks, and bricks.


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You are probably familiar with the story of the three little pigs who built their houses of straw, sticks, and bricks. Only the house of bricks was strong enough to resist the Big Bad Wolf. Had the first two little pigs used standards when building their houses of straw and sticks, perhaps their houses would have survived the wolf's destruction.

The brick house in the fairy tale "The Three Little Pigs" didn't get blown down, but this twist on the story works quite well to illustrate building regulations and safety standards.

In the United States, building codes and standards are the primary way that building construction is regulated to assure the safety of the public.

Buildings are inspected at several stages, before, during, and after construction. First, architects and consulting engineers verify the design against the applicable codes and standards and submit the designs to the local building authority to obtain a permit for construction. Then government code officials check the work against the codes and standards. If the relevant codes and standards are met, a permit is obtained and construction starts. During construction, inspections are done periodically. After construction is completed, architects and consulting engineers check the building again and request an occupancy permit. The building authority then inspects the building for the final permit.

Several organizations are involved in developing building codes and standards used in the construction of homes and commercial or industrial buildings. They include the International Code Council (ICC), Building Officials and Code Administrators, Inc. (BOCA), International Conference of Building Officials (ICBO), and the Southern Building Code Congress International, Inc. (SBCCI). The NFPA's "Building Construction and Safety Code"™ is an approved

American National Standard (ANS). These organizations have developed the **model building codes** used throughout the United States.

Standards developed by a number of ANSI accredited standard developing organizations, such as the American Concrete Institute (ACI), American Society of Mechanical Engineers (ASME), and American Society of Civil Engineers (ASCE), are used as a basis for the building codes to determine such things as the quality of the materials and the workmanship.

Topic: Planes, Trains and Automobiles - Standards for Transportation

What do cars, trucks, off-highway equipment, trains, and airplanes have in common? They are all required to meet standards for safety, materials, manufacture, and operation.

The Society of Automotive Engineers (SAE) is responsible for developing standards used in designing, building, maintaining, and operating self-propelled vehicles for use on land or sea, or in air or space.

The American Association of State Highway and Transportation Officials (AASHTO) represents highway and transportation departments in the 50 states, the District of Columbia and Puerto Rico. AASHTO develops standards, material specifications, test methods, and recommended practices for all five transportation modes: air, highways, public transportation, rail and water. Its primary goal is to foster the development, operation and maintenance of an integrated national transportation system.

In addition to using industry and government standards, most companies have internal documents that outline their production processes, material characteristics, and purchasing requirements. Company standards are used throughout the automotive industry. For example, Ford Motor Company has developed corporate Engineering Material Specifications, Laboratory Test Methods, Global Manufacturing Standards and other internal requirements that are used in production and by suppliers to Ford.

Topic: Don't Drink the Water! - Standards in Water

Groundwater Contamination - "Erin Brockovich" and "A Civil Action"

The human suffering caused by groundwater contamination has been dramatized in films such as "Erin Brockovich" and "A Civil Action." ASTM International standards are behind the scenes to help ensure safe drinking water and provide proof of contamination when necessary.

Throughout history, a safe drinking water supply has been among the top criteria for the sustained development of a community. It is not surprising that successful ancient civilizations engineered their water supplies to get a safe source to their citizenry. Although something was known then about what made water good or bad to drink, much of what we know today has been learned in the past 50 years. The 1980s brought an enormous number of site investigations for soil and ground water contamination in response to regulations by national agencies such as the U.S. Environmental Protection Agency. Monitoring well technology, sampling procedures, and analytical techniques were developed and many were defined in ASTM standards.

For more information about standards that protect our water supply, look at the Standardization News Home Page or AWWA's website.

Is Our Water Safe to Drink? - Drinking Water Quality and Treatment

Consumers today are becoming increasingly concerned about their drinking water. Both tap water and bottled water have come under scrutiny by the media, and regulation by federal and state authorities continues to expand as new contaminants are discovered in both public and private water supplies. Even individuals with private wells are expressing more concern about possible contaminants entering their own water supplies. NSF International, The Public Health and Safety Company™, has been a leader in the development of standards and independent testing programs related to bottled water, home water treatment devices, and even rainwater catchment systems.

Go to **NSF International: Consumer Information on Drinking Water Quality and Treatment** for more information.

AWWA is involved in the international standards development in the area of drinking water supply and sewage.

Topic: "Can you hear me now?" - Standards in Communication

One of the country's major cell phone service providers has a television advertising campaign that portrays a technician in various remote locations checking the signal by asking, "Can you hear me now?" While dropped calls and weak signals are annoying, most of the time the technology works. How is it possible that we are able to make a telephone call, whether from a cell phone, pay phone, or our home, to almost anywhere in the world? In a word - standards. Telecommunications carriers, service providers, and equipment manufacturers all use standards to ensure reliable transmission and interoperability between equipment.

The two major U.S telecommunications standards developing organizations (SDO) are the Telecommunications Industry Association (TIA) and the Alliance for Telecommunications Industry Solutions (ATIS). TIA is responsible for developing standards for telecommunications equipment that connects to the U.S. telecommunications network. ATIS is involved in the U.S. national telecommunications standards for the network to which the equipment attaches. Other groups within ATIS are responsible for developing standards, guidelines and operating procedures that make the interoperability of existing and emerging telecommunications products and services possible.

Go to Standards Overview: Avoiding Surprises at American National Standards Institute (ANSI) website to find more examples of standard in the world around you.