Each and every day, consumers around the world use various products with the confidence that they will work in a reliable and safe manner. ASTM International consumer product standards play a critical role in building trust between manufacturers and consumers about the performance of a wide variety of goods.
ASTM standards empower manufacturers to deliver high quality products.

By helping to improve product reliability, ASTM standards empower manufacturers to deliver high quality products and ultimately give consumers confidence that the products they purchase are safe and ready to use.

**ASTM Product Safety Standards: Focus on Emerging Hazards**

Achieving a goal of safer products requires cooperation that goes beyond the responsibilities of an individual manufacturer. Safer products are ensured when all industry stakeholders work together: manufacturers, government regulators, trade and consumer groups, and individual consumers.

ASTM International brings together diverse stakeholders with a shared interest in making consumer products as safe as possible. The open ASTM system allows all those concerned to engage directly in the standards development process and cooperate in achieving common goals. Through this openness and transparency, ASTM facilitates the development of standards that truly reflect the demands of the global marketplace. And while the use of ASTM standards is voluntary, government regulators have given them the force of law by citing them in legislation, regulations and codes, as evidenced in the Consumer Product Safety Improvement Act of 2008, discussed later.

In the consumer field, ASTM standards address a wide range of areas, including toys, other infant and child products like cribs and playground equipment; household items like candles; cleaning-related tools such as vacuum cleaners, brooms and mops; sports equipment such as safety helmets; leisure activities like amusement rides; and many others. Several ASTM technical committees develop these standards, each of which contributes to enhancing product safety and building consumer confidence.

**ASTM Committee F15: Setting Standards for Consumer Safety**

ASTM International’s largest consumer product standards committee is F15 on Consumer Products, a group that has played an important role in developing product safety standards for more than 40 years.

– The committee’s broad global membership of more than 900 includes stakeholders from the manufacturing and retail environment as well as representatives from government agencies and internationally respected trade and consumer groups.

– F15’s activities encompass more than 50 standards-writing subcommittees, each of which focuses on a specific product area. F15 stakeholders work proactively in the public interest, forming new task groups on an ongoing basis to address urgent safety issues and newly identified hazards in various products.

**ASTM F963: Ensuring Safer Toys**

As new concerns about toys and other child-related safety issues have been raised during the last few years, the impact of ASTM International standards has again been brought to the forefront. With new toys regularly introduced in the marketplace, ASTM standards play a vital role in supporting children’s safety. An important contributor to that safety is the consumer safety specification for toy safety (F963), which establishes safety requirements for toys intended for use by children under the age of 14.

– ASTM F963, which is under the jurisdiction of Subcommittee F15.22 on Toy Safety, includes guidelines and test methods to prevent injuries from choking, sharp edges and other potential hazards. First drafted in 1971, the standard has been enhanced numerous times over the years to address new product technologies and innovations.

– The value of ASTM F963 was underscored in 2008 when it became mandatory through the landmark U.S. Consumer Product Safety Improvement Act. As part of this law, all toys sold in the United States must meet F963 safety requirements.

– Recent revisions to F963 address such hazards as magnet ingestion, jaw entrapment, acoustics issues, flammability testing, impaction and other critical areas.
Keeping People Safe in and around the Home

Numerous F15 standards facilitate the safe use of products in and around the home, including a wide range of indoor items such as bed rails, bunk beds, mattresses, wall coverings, bathtub and shower structures, bean bag chairs, dressers, baby monitors, infant sling carriers and many other product areas.

- Inside the home, F15 has developed safety specifications for full-size baby cribs (F1169) and non-full-size baby cribs/play yards (F406), which promote safe sleeping environments for infants through requirements and tests to determine structural integrity, address entanglement on corner post extensions, and include warning labels and instructional materials. In addition, a safety specification for crib mattresses (F2933) adds to the group of standards for this infant and toddler furniture. The standard covers, among other topics, the gap between a mattress and crib rails, the crib height from the top of a mattress and mattress thickness. In addition, a specification for bedside sleepers (F2906) has been incorporated in the Consumer Product Safety Improvement Act.

- Outside the home, an ASTM specification for residential pool alarms (F2208) helps lower the risk of children drowning in family swimming pools. This important standard details performance requirements for residential swimming pool and spa alarms; it covers devices that provide for rapid, automatic detection and alarm in cases of a 1-year-old or older child entering a swimming pool either unintentionally, unsupervised or accidentally.

- Another safety issue around the home is preventing falls from windows, and in this area, two companion ASTM standards help keep small children safe. A safety specification for window fall prevention devices for non-emergency escape (egress) and rescue (ingress) windows (F2006), establishes device requirements intended to address the risk of injury and death to children 5 years old and younger through accidental falls from open windows more than 75 feet (23 m) above the ground. Another specification for window fall prevention devices with emergency escape (egress) release mechanisms (F2090) addresses the requirements for release mechanisms on window fall prevention devices applied to windows less than 75 feet (23 m) above the ground.

- The Children’s Gasoline Burn Prevention Act requires that portable gasoline containers have child-resistant closures conforming to an ASTM specification for determination of child resistance of portable fuel containers for consumer use (F2517). The law applies to all gasoline containers sold in the United States.

- Committee F15 has developed standards for children’s and adult jewelry (F2923 and F2999) that help mitigate known hazards in jewelry and establish requirements and test methods for specified elements and certain mechanical hazards.

- Additional standards that benefit babies include a specification for baby monitors (F2951), which provides requirements for corded baby monitors and their labeling, instructional material and packaging, and a standard for infant sling carriers, which enables manufacturers to double-check that they are creating the safest possible sling carriers.
Committee F15’s child safety standards activities also consider home playground equipment and play devices.
Among the more than 35 standards published by Committee F11 is the widely referenced test for evaluating the effectiveness of household/commercial vacuum cleaners in removing dirt embedded in carpets (F608).

Other F11 tests include a method that helps assess the carpet cleaning effectiveness of a wet extraction cleaning system (F2828), which predicts how such products will work in the home.

Manufacturers can use an F11 standard method for central vacuum cleaners that helps determine sustained air performance and exhaust emissions (F2826). The standard will enable manufacturers to ensure that their products can be rated for consumers to select a product that meets their needs and price point.

Safety while Playing
Committee F15’s child safety standards activities also consider home playground equipment and play devices.

– ASTM playground standards address equipment for both public and home use, including issues such as head and neck entrapment, playground layout, accessibility, maintenance and labeling. The standards include a performance specification for playground equipment for public use (F1487), which covers equipment used by children from 2 to 12 years old, and a performance specification for public use play equipment for children 6 months through 23 months (F2373). Residential play equipment is addressed by an ASTM standard specification for home playground equipment (F1148). All three of these standards are currently being revised to reflect the latest industry developments.

– Another standard for impact attenuation of surfacing materials (F1292) covers performance requirements for playground surfaces and surfacing materials and references several other related ASTM playground safety standards.

– A standard for constant air inflatable play devices for home use (F2729) specifies various types of the amusements intended for children ages 2-12. In addition to general requirements, the standard covers calibration, marking/labeling and instructional literature.

Standards Enhance Quality of Vacuum Cleaner Systems
While the standards of Committee F15 cover a wide variety of products used in and around the home, another ASTM committee is specifically focused on one familiar household product. Committee F11 on Vacuum Cleaners, formed in 1972, develops standards that enhance the filtration efficiency, durability and air performance characteristics of vacuum cleaners.

– Among the more than 35 standards published by Committee F11 is the widely referenced test for evaluating the effectiveness of household/commercial vacuum cleaners in removing dirt embedded in carpets (F608).

– Other F11 tests include a method that helps assess the carpet cleaning effectiveness of a wet extraction cleaning system (F2828), which predicts how such products will work in the home.

– Manufacturers can use an F11 standard method for central vacuum cleaners that helps determine sustained air performance and exhaust emissions (F2826). The standard will enable manufacturers to ensure that their products can be rated for consumers to select a product that meets their needs and price point.

Safer Sports, Thanks to ASTM F08
Whether aimed at serious professional athletes or the millions of people who enjoy recreational activities, the standards of ASTM Committee F08 on Sports Equipment, Playing Surfaces and Facilities assist in making sports safer for all who participate.

– Formed in 1969, Committee F08 develops standards to reduce the inherent risk of injuries. Committee F08 includes more than 800 members who participate on one or more of 25 technical subcommittees that have responsibility for more than 170 standards. These standards cover a wide scope of sports areas, including headgear and helmets, bicycles, paintball, athletic footwear, eye safety, baseball and softball equipment, camping, fitness products, playground surfacing systems and much more.

– Committee F08 works closely with third-party groups that certify products as meeting ASTM International or other standards so that the groups understand the intent of the test methods and specifications and better implement testing practices in their facilities. In addition, many rules from the National Collegiate Athletic Association and the National Federation of State High School Associations reference F08 standards.

“The standards of ASTM Committee F08 on Sports Equipment, Playing Surfaces and Facilities assist in making sports safer for all who participate.”
Better Headgear and Helmets

One of Committee F08’s most active subcommittees is F08.53 on Headgear and Helmets, which is responsible for 20 standards, including headgear for martial arts, soccer, bicycling, football, baseball, pole vaulting and speed skating, among other sports — and most recently, bull riding headgear with faceguards.

- A specification for helmets used for recreational snow sports (F2040) is the standard to which all skiing and snowboarding helmets comply in North America.
- Helmets used in short track speed ice skating are covered in a specification that focuses on helmets used in this internationally popular winter sport (F1849).
- In soccer, where minor head injuries among players are common, another specification addresses performance requirements for soccer headgear, which is intended to reduce the forces reaching the impact area of the head (F2439).
- A specification for protective headgear used in horse sports and horseback riding covers performance criteria and test methods for equestrian headgear (F1163).

Enhancing the Performance of Sports Equipment

Several ASTM Committee F08 standards also contribute to the performance quality and reliability of equipment used in numerous team and individual sports.

- Among the F08 standards for sports equipment is a specification for body protectors used in equine racing, which covers minimum performance criteria and describes test methods for body protectors for use in equine racing in a controlled environment (F2681).
- For bicycling, F08.10 on Bicycles is responsible for a number of standards, including several specifications for frames. The durability and strength of bicycle frames are verified with the help of standard procedures in another F08.10 standard (F2711). Another standard includes a test, warnings and owner manual content for bicycle trailer cycles (F2917).
- Protecting athletes’ eyes is the purpose of Subcommittee F08.57 on Eye Safety for Sports, which has developed a standard covering eye protection for selected sports, including women’s lacrosse, field hockey, basketball, baseball and soccer plus skiing and paintball (F803). A standard is under way for eye protection for airsoft, a growing recreational gaming activity similar to paintball. F08 has developed other airsoft-related standards, for airsoft field operation (F2940) and play safety briefing (F2941).
- A standard from Subcommittee F08.12 on Gymnastics and Wrestling Equipment alerts and reminds users about hazards and handling issues related to wrestling mats (F2983); the guide for labeling and care instructions for wrestling mats provides recommendations for manufacturers.
- Inclusive fitness equipment standards specify universal design of equipment for use by people with functional limitations and impairments (F3021) and a test to evaluate the equipment design (F3022).

Standards Improve Athletic Fields

Another important topic of interest for the standards development activities of Committee F08 is athletic field improvement. Through the efforts of several of its subcommittees, F08 has contributed standards that have enhanced the quality of a variety of natural and artificial playing surfaces.

- Sports like baseball and football, which rely heavily on natural grass surfaces, are aided by F08 standards, among which is a guide for maintaining cool season turfgrasses on athletic fields (F2060).
- Sports stadiums and fields outfitted with artificial turf gain a valuable assist from the standards developed by Subcommittee F08.65 on Artificial Turf Surfaces and Systems. Notable standards include a specification for impact attenuation of turf playing systems as measured in the field (F1936).
- F08.65 is also addressing the issue of drainage failures, one of the major problems confronting owners and operators of synthetic turf sports fields. One such standard provides a vertical permeability test of synthetic turf that is of use to designers, testing agencies and contractors in minimizing problems associated with field drainage (F2898).
- To evaluate athletic field or golf course soil quickly, Subcommittee F08.64 on Natural Playing Surfaces has developed a standard that will assess the turf growing medium density without any of the delays associated with formal lab testing programs (F3013). The method determines in-place density of topsoil and blended soils prior to planting.

**Women’s Lacrosse Goggles**

Subcommittee F08.57 on Eye Safety for Sports has developed a standard covering eye protection for women’s lacrosse.
– Other notable F24 standards include a guide for auditing amusement rides and devices (F2974); and practices addressing the design, manufacture and operation of water slide systems (F2376) and inflatable amusement devices (F2374).

– The Bolivian government has accepted amusement ride safety standards from F24. IBNORCA, the national standards body of Bolivia, has a memorandum of understanding that made the incorporation of the standards possible. ASTM worked with IBNORCA to facilitate review of the official Spanish translations of the F24 standards.

– Manufacturers, owners/operators, risk managers, regulators and consumer advocates have developed a standard that addresses the design, manufacture, installation, operation, maintenance, inspection and modification of trampoline courts (F2970).

– An ASTM group on parasailing has developed a standard about monitoring weather for safe parasail operation (F2993); it will guide parasail operators in tracking weather in an appropriate manner.

– A standard on selecting release torque values for alpine ski bindings (F939) facilitates proper performance of the ski-boot-binding system. F939 is particularly useful to ski binding manufacturers in their installation and use instructions, and to ski shop operators for making adjustments on already mounted ski bindings.

– For snowboards, an ASTM test evaluates the binding to snowboard insert retention strength (F3030); it can also be used to compare the durability of different materials and designs.

– Helmets for recreational skiing, snowboarding and other alpine sports are detailed in a standard specification (F2040) from Committee F08. The standard details such performance requirements as anvil testing, acceleration and retention tests.

– Special Technical Publication 1553, Skiing Trauma and Safety: 19th Volume (www.astm.org/STP1553), continues a series of works collecting the latest research for identifying and evaluating all aspects of safety in skiing, snowboarding and skiboarding. Topics include wrist guards, jumping, resort safety, epidemiology, helmets and hip injuries.

– Other notable F24 standards include a guide for auditing amusement rides and devices (F2974); and practices addressing the design, manufacture and operation of water slide systems (F2376) and inflatable amusement devices (F2374).

– The Bolivian government has accepted amusement ride safety standards from F24. IBNORCA, the national standards body of Bolivia, has a memorandum of understanding that made the incorporation of the standards possible. ASTM worked with IBNORCA to facilitate review of the official Spanish translations of the F24 standards.

– Manufacturers, owners/operators, risk managers, regulators and consumer advocates have developed a standard that addresses the design, manufacture, installation, operation, maintenance, inspection and modification of trampoline courts (F2970).

– An ASTM group on parasailing has developed a standard about monitoring weather for safe parasail operation (F2993); it will guide parasail operators in tracking weather in an appropriate manner.

– Aerial adventure courses are the topic of a standard that covers functional, operational and patron participation requirements for zip lines, ropes courses, challenge courses, aerial trekking courses and canopy tours (F2959).

– Annual subscriptions to ASTM amusement ride standards, in English, French, Japanese and Spanish are available (www.astm.org/COMMITTEE/F24_pubs).

Keeping People Safe on the Slopes
Committee F27 on Snow Skiing helps protect people when skiing or snowboarding through equipment standards that work to reduce the potential risk of injury. F27 standards provide valuable tools and guidance for ski equipment manufacturers and retail and rental shop operators in stockpiling durable, well-functioning equipment.

– A standard on selecting release torque values for alpine ski bindings (F939) facilitates proper performance of the ski-boot-binding system. F939 is particularly useful to ski binding manufacturers in their installation and use instructions, and to ski shop operators for making adjustments on already mounted ski bindings.

– For snowboards, an ASTM test evaluates the binding to snowboard insert retention strength (F3030); it can also be used to compare the durability of different materials and designs.

– Helmets for recreational skiing, snowboarding and other alpine sports are detailed in a standard specification (F2040) from Committee F08. The standard details such performance requirements as anvil testing, acceleration and retention tests.

– Special Technical Publication 1553, Skiing Trauma and Safety: 19th Volume (www.astm.org/STP1553), continues a series of works collecting the latest research for identifying and evaluating all aspects of safety in skiing, snowboarding and skiboarding. Topics include wrist guards, jumping, resort safety, epidemiology, helmets and hip injuries.

Safer Amusement Rides and Devices
Internationally recognized as the premier authority on amusement ride standards, ASTM Committee F24 on Amusement Rides and Devices has been providing standards for high quality amusement ride manufacturing and construction in support of safety in the industry for more than 35 years.

F24’s membership includes a strong global representation, which enhances the acceptance of its standards by a broad range of international stakeholders, including the International Association of Amusement Parks and Attractions, the Outdoor Amusement Business Association, and the Amusement Industry Manufacturers and Suppliers International.

– The committee’s flagship standard covers the design of amusement rides and devices (F2291). Often referred to as the “world standard” for amusement ride design, F2291 details criteria for rides and devices. The standard was developed through the collaborative efforts of ride experts and interested parties from around the globe.

– The construction and maintenance of warning tracks, located on the edges of playing areas to warn players that they are approaching a hazard, are addressed in a standard that guides the building of uniform surfaces with good footing that still have a different texture from the surrounding playing surface (F2270).

– Other notable F24 standards include a guide for auditing amusement rides and devices (F2974); and practices addressing the design, manufacture and operation of water slide systems (F2376) and inflatable amusement devices (F2374).

– The Bolivian government has accepted amusement ride safety standards from F24. IBNORCA, the national standards body of Bolivia, has a memorandum of understanding that made the incorporation of the standards possible. ASTM worked with IBNORCA to facilitate review of the official Spanish translations of the F24 standards.

– Manufacturers, owners/operators, risk managers, regulators and consumer advocates have developed a standard that addresses the design, manufacture, installation, operation, maintenance, inspection and modification of trampoline courts (F2970).

– An ASTM group on parasailing has developed a standard about monitoring weather for safe parasail operation (F2993); it will guide parasail operators in tracking weather in an appropriate manner.

– Aerial adventure courses are the topic of a standard that covers functional, operational and patron participation requirements for zip lines, ropes courses, challenge courses, aerial trekking courses and canopy tours (F2959).

– Annual subscriptions to ASTM amusement ride standards, in English, French, Japanese and Spanish are available (www.astm.org/COMMITTEE/F24_pubs).

Whether it is the countless products that support and enhance our daily lives, or the wide range of leisure and recreational activities we enjoy, consumers everywhere can continue to count on the safety and support provided by ASTM standards.
ASTM International technical committees highlighted in this piece include:

– F08 on Sports Equipment, Playing Surfaces and Facilities
– F11 on Vacuum Cleaners
– F15 on Consumer Products
– F24 on Amusement Rides and Devices
– F27 on Snow Skiing

ASTM INTERNATIONAL
Helping our world work better

Over 12,000 ASTM standards operate globally. Defined and set by us, they improve the lives of millions every day.

Combined with our innovative business services, they enhance performance and help everyone have confidence in the things they buy and use – from the toy in a child’s hand to the aircraft overhead.

Working across borders, disciplines and industries we harness the expertise of over 30,000 members to create consensus and improve performance in manufacturing and materials, products and processes, systems and services.

Understanding commercial needs and consumer priorities, we touch every part of everyday life: helping our world work better.

ASTM International
100 Barr Harbor Drive
P.O. Box C700
West Conshohocken, PA
19428-2959
USA
tel +1.610.832.9500
fax +1.610.832.9555
service@astm.org
www.astm.org