ASTM International  Formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards. Today, some 12,000 ASTM standards are used around the world to improve product quality, enhance safety, facilitate market access and trade, and build consumer confidence. ASTM’s leadership in international standards development is driven by the contributions of its members: more than 30,000 of the world’s top technical experts and business professionals representing 150 countries. Working in an open and transparent process and using ASTM’s advanced electronic infrastructure, ASTM members deliver the test methods, specifications, guides, and practices that support industries and governments worldwide.

The ASTM documents listed are available for purchase through the ASTM website (www.astm.org)
FIELDS - GENERAL

ASTM F 2107-08 Standard Guide for Construction and Maintenance of Skinned Areas on Baseball and Softball Fields
This guide covers techniques that are appropriate for the construction and maintenance of skinned areas on baseball and softball fields. This guide provides guidance for the selection of materials, such as soil, sand, gravel, crushed stone, crushed brick, calcined clay, diatomaceous earth, vitrified clay, etc., for use in constructing or reconditioning skinned areas and for the selection of management practices that will maintain a safe and playable skinned surface. Although this guide is specific to baseball/softball, it has application to other sports where ball bounce, ball roll, or player footing, or a combination thereof, are of importance.

ASTM F 2270-12 Standard Guide for Construction and Maintenance of Warning Track Areas on Sports Fields
This guide covers techniques that are appropriate for the construction and maintenance of warning track areas on sports fields. This guide provides guidance for the selection of materials, such as soil and sand for use in constructing or reconditioning warning track areas and for selection of management practices that will maintain a safe and functioning warning track. Although this guide has applications to all sports where a warning track surface may be required or desired, it has specific applications to baseball/softball.

ASTM F 2000-10 Standard Guide for Fencing for Baseball and Softball Fields
This guide provides recommended minimum requirements for various types of fences used in softball and baseball ballfields and other sports facilities, and practices for installation.

This guide presents directions for the installation, use, and storage of full-size or nearly full-size movable soccer goals. It is expected that these guidelines can help prevent deaths and serious injuries resulting from soccer goal tipover. These guidelines are intended for use by parks and recreation personnel, school officials, sports equipment purchasers, parents, coaches, and any other members of the general public concerned with soccer goal safety.

ASTM F 2056-09 Standard Safety and Performance Specification for Soccer Goals
This standard specifies safety and performance requirements aimed at providing for safer use of soccer goals and reducing injuries and fatalities. This standard applies to soccer goals for training and competition in outdoor sports facilities and indoor arenas. This standard addresses the risk of accidental tipover or pullover of soccer goals. This standard is based upon safety and design requirements listed in EN 748.

ASTM F 2673-08 Standard Safety Specification for Special Tip-Resistant Movable Soccer Goals
This specification covers safety requirements aimed at providing for safer use of soccer goals and reducing injuries and fatalities. This specification addresses the risk of accidental tip over or pull over of soccer goals. This specification applies only to movable goals whose inside measurements are 6½ to 8 ft (2 to 2.4 m) high and 18 to 24 ft (5.5 to 7.3 m) wide. This specification applies only to movable goals meeting all criteria in Guide F 1938 and Safety and Performance Specification F 2056 and, in addition, meets criteria for tip resistance before installation. This specification covers special tip-resistant goals that are intended to complement standard goals meeting Guide F 1938 and Safety and Performance Specification F 2056. These goals are designed to provide some additional degree of safety if, by accident, they are not tied down or tied down incorrectly.
FIELDS - NATURAL GRASS/ROOTZONE

ASTM F 2396-11 Standard Guide for
Construction of High Performance Sand-Based Rootzones for Sports Fields
This guide covers techniques that are appropriate for the construction of high performance sand-based rootzones for sports fields. This guide provides guidance for the selection of materials, including soil, sand, gravel, peat, and so forth, for use in designing and constructing sand-based sports turf rootzones.

ASTM F 1632-10 Standard Test Method for
Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Rootzone Mixes
This test method covers the determination of particle size distribution of putting green and other sand-based rootzone mixes. Particles larger than 0.05 mm (retained on a No. 270 sieve) are determined by sieving. The silt and clay percentages are determined by a sedimentation process, using the pipet method. This procedure was developed for putting green rootzone mixes, those assumed to have sand contents of 80 % by weight or greater. Particle size analysis of soils may be performed by this test method or Test Method D 422. This test method also describes a qualitative evaluation of sand particle shape.

ASTM F 1647-11 Standard Test Methods for
Organic Matter Content of Putting Green and Sports Turf Root Zone Mixes
These test methods cover the determination of the percent organic matter of a putting green root zone mixture using a loss on ignition method or the Walkley Black method. These test methods are useful for quantifying the organic matter content of volume ratio mixed root zone mixes. Test Methods D 2974 is recommended for peat and other organic soils.

ASTM F 1815-11 Standard Test Methods for
Saturated Hydraulic Conductivity, Water Retention, Porosity, and Bulk Density of Putting Green and Sports Turf Root Zones
These test methods cover the measurements of saturated hydraulic conductivity, water retention, porosity (including distribution of capillary and air-filled porosity at a known soil suction), and bulk density on sand-based root zone mixes to be used for construction and topdressing of golf course putting greens including United States Golf Association (USGA) recommended greens, golf course tees, sand-based sports fields, or other highly trafficked turfgrass areas. These test methods are designed for sand-based mixes and are not intended for use with fine or medium textured soils, for example, sandy loams and loams.

ASTM F 2060-11 Standard Guide for
Maintaining Cool Season Turfgrasses on Athletic Fields
This guide covers the minimum requirements for maintaining cool season turfgrasses used for natural surface athletic fields. Practices covered include mowing, fertilization, irrigation, core cultivation, overseeding, and pest management.

ASTM F 2269-11 Standard Guide for
Maintaining Warm Season Turfgrasses on Athletic Fields
This guide covers the minimum requirements for maintaining warm-season turfgrasses used for natural surface athletic fields. Practices covered include mowing, fertilization, irrigation, core cultivation, winter overseeding, pest management, and requirements for management of dormant turf winter overseeded with cool-season turf (see also Guide F 2060).
FIELDS - SYNTHETIC TURF

These test methods establish a recommended list of test methods to be used for the identification of physical property characteristics and comparison of the performance properties of synthetic turf systems or components for athletic and recreational uses, or both.

ASTM F 2765-09 Standard Specification for Total Lead Content in Synthetic Turf Fibers
This specification applies to the maximum content of lead in fibers used in synthetic turf. This specification outlines a test method for sample preparation and a test method for analyzing the total lead content in synthetic turf fibers. This specification outlines guidelines for reporting total lead content in synthetic turf fibers. This specification applies only to synthetic turf fibers manufactured after Sept. 1, 2009.
Note 1—It is the goal of the industry to reduce lead content to 100 mg/kg (ppm) by Sept. 1, 2011

This test method is applicable to both laboratory and field measurement of synthetic turf surfaces used for sports. Data obtained from the procedure of this test method are indicative of the relative abrasiveness of fabric or carpet type synthetic playing surfaces.

This test method may be used to determine the permeability rate of synthetic turf playing field systems, playing field systems with pad or premolded drainage boards, or both, playing field systems with premolded panel base systems, porous and non porous pavement systems, or base stone systems in the field, or a combination thereof, by non-confined area flood test method. This system is suitable for use on the finish synthetic turf playing surface and on the stone base system below the playing system.
FIELDS - IMPACT ATTENUATION

This test method covers the measurement of certain shock-absorbing characteristics, the impact force-time relations, and the rebound properties of playing surface systems. This test method is applicable to natural and artificial playing surface systems and to components thereof. Typical playing surfaces are wrestling mats, football fields, soccer fields, playgrounds, and so forth.

This specification establishes an in situ test method and maximum impact attenuation value for all types of turf playing systems and for a number of sport-specific field layouts. It also includes a protocol for determining test point locations on fields that are lined for multiple sports.

This test method is used to determine the impact-attenuation characteristics of natural turfgrass and soil playing surface systems with a lightweight portable apparatus. This test method can be used to compare the impact attenuation characteristics of natural playing surface systems, as well as assessing the effects of management practices on the impact attenuation characteristics. This test method also can be used to assess the compactibility of natural playing surfaces by recording g-max values or penetration of successive impacts, or both. This test method provides a procedure for assessing impact attenuation characteristics in the field, on both actual playing surfaces and research plots. Numerical data will not be comparable to data obtained using a different missile mass or geometry, different drop height, or different standard method, for example, Test Method.

This terminology covers terms related to impact test methods and impact attenuation specifications of sports equipment and surfaces.
RUNNING TRACKS

ASTM F 2157-09 Standard Specification for Synthetic Surfaced Running Tracks
This specification establishes the minimum performance requirements and classification when tested in accordance with the procedures outlined within this specification. All documents referencing this specification must include classification required.

This test method covers the quantitative measurement and normalization of impact forces generated through a mechanical impact test on an athletic surface. The impact forces simulated in this test method are intended to represent those produced by lower extremities of an athlete during landing events on sport or athletic surfaces.

ASTM F 2949-12 Standard Specification for Pole Vault Box Collars
This specification covers minimum requirements of size, physical characteristics of materials, standard testing procedures, labeling and identification of pole vault box collars.

ASTM F 1162/F1162M-12 Standard Specification for Pole Vault Landing Systems
This specification covers minimum requirements of size, physical characteristics of materials, standard testing procedures, labeling and identification of pole vault landing systems.
This specification establishes levels for athletic performance properties of multi-purpose indoor sports floor systems, excluding turf and materials specific to running tracks and tennis courts. These properties include:
- Force Reduction (ASTM Test Method F2569)
- Ball Rebound (ASTM Test Method F2117)
- Vertical Deflection (ASTM Test Method F2157)
- Surface Finish Effect (ASTM Test Method E303)

ASTM F 1869-11 Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
This test method covers the quantitative determination of the rate of moisture vapor emitted from below-grade, on-grade, and above-grade (suspended) bare concrete floors. This test shall not be used to evaluate the rate of moisture vapor emitted by lightweight or gypsum concrete floors containing lightweight aggregate. This test shall not be used to evaluate moisture vapor emissions over coatings on concrete or through reactive penetrants or over patching or leveling compounds.

ASTM F 2170-11 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using In-situ Probes
This test method covers the quantitative determination of percent relative humidity in concrete slabs for field or laboratory tests.

ASTM F 710-11 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring
This practice covers the procedure for determining the acceptability of concrete floors for the installation of resilient flooring. It also includes suggestions for ensuring that the constructed concrete floor is acceptable for such installations but does not cover tests for adequacy of the concrete floor to perform structural requirements. A permanent, effective moisture vapor retarder, of the specified thickness and permeance, is required under all on- or below-grade concrete floors. Concrete floors for resilient floorings should be permanently dry, clean, smooth, structurally sound, and free of substances that may prevent adhesive bonding. Surface cracks, grooves, depression, control joints or other non-moving joints, and other irregularities should be filled or smoothed with latex patching or a recommended underlayment compound. The surface of the floor should be cleaned by scraping, brushing, vacuuming, or any other method. All concrete slabs should be tested for moisture regardless of age or grade level while all concrete floors should be tested for pH before installing resilient flooring.
AMERICAN CONCRETE INSTITUTE (ACI) Founded in 1904 and headquartered in Farmington Hills, MI, USA, the American Concrete Institute is advancing concrete knowledge by conducting seminars, managing certification programs, and publishing technical documents. The American Concrete Institute currently has 99 chapters and 20,000 members spanning 108 countries. (www.concrete.org)

ACI 302.2R Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials
This guide contains materials, design, and construction recommendations for concrete slabs-on-ground and suspended slabs that are to receive moisture-sensitive flooring materials. These flooring materials include sheet rubber, epoxy coatings, vinyl composition tile, sheet vinyl, carpet, athletic flooring, laminates, and hardwood. Chapters 1 through 8 provide an understanding of concrete moisture behavior and drying, and show how recommended construction practices can contribute to successful performance of floor covering materials. This background provides a basis for the recommendations in Chapter 9 to improve performance of floor covering materials in contact with concrete moisture and alkalinity. Because this guide is specific to floor moisture problems and solutions, refer to the most current editions of both ACI 302.1R, “Guide for Concrete Floor and Slab Construction,” and ACI 360R, “Design of Slabs-on-Ground,” for general information. These two documents contain guidance on floor design and construction that is needed to achieve successful floor covering performance.

RESILIENT FLOOR COVERING INSTITUTE The Resilient Floor Covering Institute (RFCI) is an industry trade association of leading resilient flooring manufacturers and suppliers of raw materials, additives, and sundry flooring products for the North American market. The institute was established to support the interests of the total resilient floor covering industry – as well as the people and communities that use its products. (www.rfci.com)

RFCI Recommended Work Practices for Removal of Resilient Floor Coverings
A defined set of instructions addressed to the task of removing all resilient floor covering structures.
TENNIS

ASTM F 1953-10 Standard Guide for
Construction and Maintenance of Grass Tennis Courts
This guide covers techniques that are appropriate for the construction and maintenance of grass tennis courts. This guide provides guidance for selection of soil systems and turfgrass species in court construction and for selection of management practices that will maintain an acceptable playing surface.

ASTM F 969-11 Standard Practice for
Construction of Chain-Link Tennis Court Fence
This practice covers fencing around tennis courts, built from various types of chain-link fabric and framework materials, and installation practices for same.