

Experts on the Field, Partners in the Game.

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The STMA Collection of ASTM Standards for Athletic Fields

ASTM International is one of the largest voluntary standards development organizations in the world. It has become a trusted source for technical standards for materials, products, systems and services, and it guides design, manufacturing and trade in the global economy.

STMA, with the support of its charitable foundation, SAFE, has compiled the ASTM standards recommended for athletic field facilities into this convenient, at-a-glance collection. STMA's goal is to provide its members with information to help them produce safe, playable surfaces to maximize the performance of the field and protect athletes. These standards address important safety issues as well as testing and proper construction of athletic field surfaces.

STMA is the not-for-profit, professional association for the men and women who manage sports fields. Its 2,800 members oversee sports fields and facilities at schools, colleges and universities, parks and recreational facilities, and professional sports stadiums. Since 1981, the association and its dozens of local chapters have been providing education, information and sharing practical knowledge in the art and science of sports field management.

Instructions on how to purchase these standards on the ASTM website can be found on the last page.

Standard Test Methods for Athletic Field Rootzones

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 sand-based root-zone mixes. Particles larger than 0.05 mm are determined by sieving. The silt and clay percentages are determined by a sedimentation process. This procedure was developed for putting green rootzone mixes, those assumed to have sand contents of 80 % by weight or greater. This test method also describes a qualitative evaluation of sand particle shape.

Designation: F1632-10

Organic Matter Content of Athletic Field Rootzone Mixes

This test method outlines laboratory procedures for determining the amount of organic matter in a sports turf root-zone mix.

Designation: F1647-11

Saturated Hydraulic Conductivity, Water Retention, Porosity, and Bulk Density of Athletic Field Rootzones

These test methods cover the measurements of saturated hydraulic conductivity, water retention, porosity, and bulk density on sand-based root zone mixes to be used for construction of 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.

Designation: F1815-11

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Standard Guides for Athletic Surface Construction and Maintenance

Construction of High Performance Sand-Based Rootzones for Athletic Fields

This standard is to athletic fields what the USGA specifications are to golf course putting greens. The standard outlines techniques that are appropriate for the construction of sand-based sports turf rootzones. The standard provides guidance for the selection of materials including soil, sand, gravel, and peat, as well as an overview of appropriate design and construction practices.

Designation: F2396-11

Construction and Maintenance of Skinned Areas on Baseball and Softball Fields

This standard covers techniques for constructing and maintaining skinned areas on baseball and softball fields. The standard provides guidance for selecting suitable construction materials (soil, sand, etc.). Construction techniques are outlined along with minimum maintenance procedures such as scarification, irrigation, and the use of conditioners.

Designation: F2107-08

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.

Designation: F2270-12

Construction and Maintenance of Grass Tennis Courts

This standard outlines techniques that are appropriate for the construction and maintenance of grass tennis courts. The standard provides guidance for the selection of soil materials and turfgrass species to be used.

Designation: F1953-10

Maintaining Cool Season Turfgrasses on Athletic Fields

This standard outlines the minimum requirements for maintaining cool-season turfgrass athletic fields. Practices covered include mowing, fertilization, irrigation, core cultivation, overseeding, and pest management.

Designation: F2060-11

Maintaining Warm Season Turfgrasses on Athletic Fields

This standard outlines the minimum requirements for maintaining warm-season turfgrass 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.

Designation: F2269-11

Standard Terminology Relating to Soil and Turfgrass Characteristics of Natural Playing Surfaces

This terminology covers terms related to characteristics of soils and turfgrass for use in the development of standards and specifications for natural playing surfaces. Terms pertain to natural playing surfaces used for sports and may include those surfaces supporting the growth of turfgrass or bare soil playing surfaces that are constructed with natural materials.

Designation: F2651-10

Standard Test Method for Playing Surfaces

Measuring Impact-Attenuation Characteristics of Natural Playing Surface Systems Using Lightweight Portable Apparatus

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.

Designation: F1702-10

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Shock-Absorbing Properties of Playing Surface Systems and Materials

This test method covers the measurement of certain shock-absorbing characteristics, the impact force-time relationships, 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.

Designation: F355-10a

Evaluating the Force Reduction Properties of Surfaces for Athletic Use

This test method measures the force reduction properties of a surface used for athletic activity. It may be an indicator of the performance, safety, comfort, or suitability of the surface.

Designation F2569-11

Standard Specification for Impact Attenuation of Turf Playing Systems as Measured in the Field

This specification covers a test method and the corresponding performance requirement for the maximum impact attenuation in all types of turf playing systems installed for North American football fields that is intended to establish a method for identifying and reporting areas within an existing playing system where shock-absorbing properties exceed recommended threshold values. Testing applies to synthetic turf systems with resilient padding, natural turf systems, combination turf systems, and infill synthetic turf systems.

Designation F1936-10

Standard Terminology Relating to Impact Testing of Sports Surfaces and Equipment

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

Designation F2650-07

Standard Guides for Synthetic Surfaces

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.

Designation: F2765-09

Standard Test Method for Relative Abrasiveness of Synthetic Turf Playing Surfaces

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.

Designation: F1015-03(2009)

Standard Test Methods for Comprehensive Characterization of Synthetic Turf Playing Surfaces and Materials

These test methods are used to identify physical property characteristics and comparison of the performance properties of synthetic turf systems or components for athletic and recreational uses, or both.

Designation: F1551-09

Standard Test Method for Permeability of Synthetic Turf Sports Field Base Stone and Surface System by Non-confined Area Flood Test Method

This test method can be used to determine in-place permeability of synthetic turf playing field systems, playing field systems with pad and/or premolded drainage boards, playing field systems with premolded panel base systems, porous and non porous pavement systems in order to confirm compliance with design specifications and or evaluate existing as-built conditions. Synthetic turf field systems tend to drain under several flow regimes and this test method can provide a clear indication of actual in-field permeability flow rates with limited effect of lateral flow through base systems and no effect from head pressure.

Designation: F2898-11

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Standard Specification for Synthetic Surfaced Running Tracks

This specification establishes the minimum performance requirements, classification, and test methods for synthetic surfaced running tracks. The requirements for which newly installed synthetic surfaces shall be tested on and consequently comply to are imperfections, evenness, thickness, drainage, force reduction, modified vertical deformation, texture influence when wet, tensile properties, color in grey scale, weathering, spike resistance, and flammability.

Designation: F2157-09

Work Items Under Development by ASTM:

New Guide for Characterizing Performance Properties of Synthetic Turf Systems

This guide establishes a recommended list of standards and specifications for characterizing the performance properties of synthetic turf systems. This guide can be used by sport governing bodies or other groups that specify the performance requirements for synthetic turf systems used for athletic competition.

Designation: WK15822

New Guide for Specifying, Measuring, and Managing Impact Attenuation of Synthetic Turf Playing Systems

This standard is applicable to outdoor and indoor infilled synthetic turf playing systems regardless of the intended use in sports. The guide is not intended for natural or synthetic turf systems without an infill component. The guide is intended to provide a compendium of information related to specifying, measuring, and managing acceptable impact attenuation of synthetic turf playing systems.

Designation: WK33396

Standard Guides for Soccer Goals

Standard Safety and Performance Specification for Soccer Goals

This standard outlines safety and performance requirements for soccer goals aimed at providing for safer use of soccer goals and reducing injuries and fatalities. Properties such as strength, stability, and weight are discussed.

Designation: F2056-09

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. It 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.

Designation: F2673-08

Guide for Safer Use of Movable Soccer Goals

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.

Designation: F1938-98(2009)

Standard Guides for Pole Vault

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.

Designation: F2949-12

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.

Designation: F1162/F116M-12

Standard Guides for Fences

Standard Guide for Fencing for Baseball and Softball Fields

This standard provides recommended minimum requirements for various types of fences used in softball and baseball ballfields and other sports facilities. Installation practices are discussed as well.

Designation: F2000-10

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Standard Practice for Construction of Chain-Link Tennis Court Fence

This standard covers proper techniques for constructing chain-link fencing around tennis courts. Various types of chain-link fabric and framework materials are discussed, in addition to appropriate installation procedures.

Designation: F969-11

Standard Practice for Installation of Chain-Link Fence for Outdoor Sports Fields, Sports Courts, and Other Recreation Facilities

This practice is designed to be used for developing the chain-link fence, design, layout and installation for sports and recreation facilities such as sports fields and sports courts. It includes the internal fencing required for safety, separation of activities, security, crowd control, access, or other requirements.

Designation: F2631-07

Work Items Under Development by ASTM:

New Guide for Safety Inspection of Installed Fencing In and Around Athletic, Recreation and other Outdoor Facilities

The purpose of this safety guideline is to provide an awareness document including The Fence Safety Inspection Check List that will trigger the necessary attention to, and the required actions for, the maintenance, repair and/or replacement of chain link or other fencing in and around athletic, recreation and other facilities. It also contains appendices of examples of how this information is to be encompassed in a Management System.

Designation: WK24076

Purchasing ASTM Standards

To purchase the ASTM standards, please visit the ASTM website (www.astm.org). By clicking on Standards in the left hand column, you can then enter the Designation code listed above to view a summary and purchase the standard guides.