



Standard Guide for Construction and Maintenance of Skinned Areas on Sports Fields¹

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^{ε1} NOTE—Section 5.1.3.7 was editorially corrected in May 2003.

1. Scope

1.1 This guide covers techniques that are appropriate for the construction and maintenance of skinned areas on sports fields. This guide provides guidance for the selection of materials, such as soil, sand, gravel, crushed stone, crushed brick, calcined clay, calcined 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 parts of this guide are specific to baseball/softball, it has application to other skinned playing surfaces where ball bounce, ball roll, and/or player footing are of importance.

1.2 Decisions in selecting construction and maintenance techniques are influenced by existing soil types, climatic factors, level of play, intensity of use, equipment available, budget, and training and ability of management personnel.

1.3 The values stated in SI units are to be regarded as the standard. The values in parentheses are for information only.

1.4 *This standard may involve hazardous materials, operations, and equipment. This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory requirements prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

- C 33 Specification for Concrete Aggregates
- C 144 Specification for Aggregate for Masonry Mortar
- C 242 Terminology of Ceramic Whitewares and Related Products
- D 422 Test Method for Particle-Size Analysis of Soils
- D 653 Terminology Relating to Soil, Rock, and Contained Fluids
- D 4318 Test Method for Liquid Limit, Plastic Limit and

Plasticity Index of Soils

- D 5853 Guide for Use of Rotary Kiln Produced Expanded Shale, Clay, or Slate (ESCS) as a Mineral Amendment in Topsoil Used for Landscaping and Related Purposes
- E 11 Specification for Wire-Cloth Sieves for Testing Purposes
- F 405 Specification for Corrugated Polyethylene Tubing and Fittings
- F 1632 Test Method for Particle Size Analysis and Sand Shape Grading of Golf Course Putting Green and Sports Field Root zone Mixes

3. Terminology

3.1 *Definitions*—Except as noted, soil related definitions are in accordance with Terminology D 653.

3.1.1 *calcined clay*—granular, lightweight material produced by calcining clay minerals, such as montmorillonite and attapulgite, at temperatures of about 700°C or higher. Those used as soil amendments should be hard, resistant to physical breakdown, and screened to appropriate sizes. Calcined clay is a manufactured product that lacks the particle size and plasticity properties that would allow it to be included in the definition of clay. (1)

3.1.2 *calcined diatomite*—stable, lightweight granules produced by calcining diatomite (diatomaceous earth), a hydrated silica mineral derived from the remains of diatoms. (1)

3.1.3 *clay*—clay can be defined in terms of a particular size fraction of a soil, a soil textural class, a soil particle size class, a soil textural group, soil mineralogy, or, in engineering terms, as materials that exhibit plastic soil properties when at appropriate water contents.

3.1.3.1 *Discussion*—Ideally, the term “clay” should be appropriately defined when used to describe soils or top mixes for skinned areas. For example, a 60 % sand/40 % clay mixture could imply either 60 % sand/40 % clayey soil (or other soils with textures containing enough clay (<0.002 mm) to exhibit plasticity) or 60 % sand (2 to 0.05 mm)/40 % clay (<0.002 mm).

3.1.3.2 *clay*—(1) as a particular size fraction of a soil, a soil separate consisting of particles <0.002 mm (fine earth fraction) in equivalent diameter. (2) as a textural class, soil material that

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