



## Standard Specification for Basic Tumbling Mats<sup>1</sup>

This standard is issued under the fixed designation F1676; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

### 1. Scope

1.1 This specification describes the characteristics and use of a basic tumbling mat. The intent of this specification is to provide a mat that will minimize the potential dangers associated with basic tumbling exercises.

1.2 This standard is not intended to apply to advanced tumbling activities that may require different performance tests and parameters as defined by various national and international gymnastics and tumbling organizations.

### 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

**F355** Test Method for Shock-Absorbing Properties of Playing Surface Systems and Materials

### 3. Terminology

3.1 *Definitions of Terms Specific to This Standard*:

3.1.1 *basic tumbling, n*—refers to all skills listed in the United States Gymnastics Federation (USGF) Safety Manual section entitled “Floor Exercise and Tumbling Skill Progression,” except the following skills:

3.1.2 forward salto,

3.1.3 backward salto,

3.1.4 aerial cartwheel,

3.1.5 round off flip-flop backward salto (tuck), and the

3.1.6 russian lift forward salto.

3.1.7 *basic tumbling mat, n*—a resilient surface upon which gymnastic tumbling activities are performed.

3.1.8 *playing surface, n*—the area of the mat surface on which tumbling activities are performed, excluding any safety area.

### 4. Materials and Manufacture

4.1 The manufacturer shall supply as part of the purchase of a basic tumbling mat the following items:

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard’s Document Summary page on the ASTM website.

4.1.1 *Core*, made of a shock absorbent material;

4.1.2 *Cover*, which may be separate from or an integral part of the core;

4.1.3 *Instructional Materials*;

4.1.4 *Assembly Instructions* (where applicable);

4.1.5 *Care and Maintenance Instructions*;

4.1.6 *Sources of Instructional Materials Specific to Use*; and

4.1.7 *Warning Labels*.

### 5. Performance Requirements

5.1 The appropriate governing association shall specify the mat(s) size(s). See **Appendix X1** for listings of associations and their addresses.

5.2 Test the mat, core, and cover combined for shock attenuation properties using Test Method **F355**, Procedure A, with an impact velocity of 424 cm/s (167 in./s).

NOTE 1—424 cm/s is equivalent to a free fall drop of 91 cm (3 ft). The impact velocity is specified, rather than drop height, because of varying degrees of friction in the guide rails of the equipment.

5.3 The maximum severity index shall be 350.

5.4 Design the cover of the mat so there is a smooth playing surface.

5.5 The playing surface normally shall be one piece. If more than one section is used, securely fasten both sections together with a stepoff of no greater than 1.5 mm ( $1/16$  in.).

### 6. General Requirements

6.1 With each mat, the manufacturer shall supply materials clearly marked: “These are assembly, care, maintenance and instructional materials. Read carefully before assembling and using this mat.” The package shall contain the following items:

6.1.1 *Assembly Instructions*—Unless specified otherwise in the rules of the organization governing the competition, place the tumbling mats on a firm, level surface at least 1.8 m (6 ft) from walls, obstructions or protrusions. The minimum overhead clearance of 3.7 m (12 ft) is recommended.

6.1.1.1 Use the mat in well-lighted areas. If artificial illumination is provided, it is recommended that such artificial illumination meet the standards for gymnasiums and field houses in the Illuminating Engineering Society (IES) RP-6, Recommended Practice for Sports Lighting.

6.1.1.2 Place the mat in an area where traffic flow from the tumbling activity does not conflict with other activities.