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Standard Safety and Performance Specification for Soccer Goals¹

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INTRODUCTION

There are approximately 225 000 to 500 000 soccer goals in the United States. Many of these soccer goals are unsafe because they are improperly designed, manufactured, or installed (unstable and are either unanchored or not properly anchored or counter-balanced). These soccer goals pose an unnecessary risk of tipover to children who climb on goals (or nets) or hang from the crossbar.

The CPSC knows of four deaths in 1990 alone and at least 21 deaths during the past 16 years (1979-1994) associated with movable soccer goals. In addition, an estimated 120 injuries involving falling goals were treated each year in U.S. hospital emergency rooms during the period 1989 through 1993. Many of the serious incidents occurred when the soccer goals tipped over onto the victim. Almost all of the goals involved in these tipovers appeared to be homemade by high school shop classes, custodial members, or local welders, not professionally manufactured. These homemade goals are often very heavy and unstable.

The majority of movable soccer goals are constructed of metal, typically weighing 150 to 500 lb. The serious injuries and deaths are a result of blunt force trauma to the head, neck, chest, and limbs of the victims. In most cases this occurred when the goal tipped or was accidentally tipped onto the victim. In one case an 8-year-old child was fatally injured when the movable soccer goal he was climbing tipped over and struck him on the head. In another case, a 20-year-old male died from a massive head trauma when he pulled a goal down on himself while attempting to do chin-ups. In a third case, while attempting to tighten a net to its goal post, the victim's father lifted the back base of the goal causing it to tip over striking his 3-year-old child on the head, causing a fatal injury.

High winds can also cause movable soccer goals to fall over. For example, a 9-year-old was fatally injured when a goal was tipped over by a gust of wind. In another incident, a 19-year-old goalie suffered stress fractures to both legs when the soccer goal was blown on top of her.

<https://standards.iteh.ai/catalog/standards/sist/c3a24079-1de1-43ba-a59e-cb81622fc723/astm-f2056-00>

1. Scope

1.1 This standard specifies safety and performance requirements aimed at providing for safer use of soccer goals and reducing injuries and fatalities.

1.2 This standard applies to soccer goals for training and competition in outdoor sports facilities and indoor arenas.

1.3 This standard addresses the risk of accidental tipover or pullover of soccer goals.

1.4 This standard is based upon safety and design requirements listed in EN 748.

1.5 This standard applies only to goals whose inside measurements are 6½ to 8 ft high and 18 to 24 ft wide.

1.6 This standard replaces PS 75–99.

2. Referenced Documents

2.1 *ASTM Standards*:²

F 1148 Consumer Safety Performance Specification for Home Playground Equipment

2.2 *ANSI Standard*:³

ANSI Z535.4 Guidelines for the Design and Safety Signs and Labels for Application to Products

2.3 *EN Standard*:

¹ This safety and performance specification is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.43 on Soccer Goal Safety.

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² 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.

³ Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.

EN 748 Playing Field Equipment—Football Goals—Requirements and Test Methods Including Safety

3. Terminology
3.1 Definitions:

3.1.1 *movable goal, n*—any free-standing soccer goal designed to be moved from field to field or on and off a field before, during, or after a practice or a game.

3.1.2 *permanent goal, n*—any goal fixed by concrete or other material to ground, with or without net supports.

3.1.3 *semipermanent goal, n*—any goal designed to be inserted into a ground sleeve and thereby able to be taken from the field during the off-season.

4. Material

4.1 The goal frame may be made of any material, provided the requirements of this standard are fulfilled.

4.2 All materials related to the construction of the goal frames (net excluded) shall be designed to maintain their integrity for outdoor use for a minimum period of five years with proper maintenance or following manufacturers' suggested maintenance schedule.

4.2.1 Design,

4.2.2 Goal frame—The uprights and the crossbar shall have the same cross section.

4.2.3 Ground sleeves for semipermanent goal—The ground sleeves shall be adapted to the diameter of the poles.

4.2.3.1 The ground sleeves shall be designed to be set in concrete or concrete blocks, ensuring a drainage hole is inserted.

5. Safety Requirements

5.1 *General Requirements*—If one of the following requirements (5.1.1, 5.1.2, or 5.1.3) is met, the goal shall be in compliance with this standard and no further testing or labeling are required.

5.1.1 If the goal, when released in the forward and reverse directions from its tipover point of no return, impacts a low profile load button as described in 5.1.1.1-5.1.1.3 with a force of less than 40 lbf.⁴

5.1.1.1 The load button shall be a low profile compression only button.⁵

5.1.1.2 The load button shall be mounted on and testing shall be performed on a hard, flat, level test surface such as concrete or asphalt.

5.1.1.3 The load button shall have a measuring capacity of up to 100 lb.

5.1.2 If the goal including all attachments, such as net, weighs less than 60 lb.

5.1.2.1 The goal shall be weighed using a commercially available scale.

5.1.2.2 The goal shall be weighed together with any and all attachments that will be used with the goal to include, but not be limited to, nets, stakes, net ties, etc.

5.1.3 If the goal, when resting forward on its crossbar at its midpoint at a distance of 12 in. from the field surface (see Fig. 1) exerts a static load of less than 60 lb. Tests to be conducted include all attachments such as net, stakes, net ties, etc.,

5.1.3.1 The goal shall be weighed using a commercially available scale.

5.1.3.2 The goal shall be weighed together with any and all attachments that will be used with the goal to include, but not be limited to, nets, stakes, net ties, etc.

5.2 Goal Frame:

5.2.1 All exposed corners and edges shall be rounded with a radius of at least 0.12 in. (3 mm).

5.2.2 There shall be no free space for pinchpoints between the uprights and the ground frame at the point where the ground frame meets upright.

5.2.3 The cross section of the side parts of the ground frame shall not extend outside of the uprights at the point where the ground frame meets upright.

5.3 Strength:

5.3.1 Permanent, semipermanent, and movable goals should be tested for strength.

5.3.2 When tested in accordance with 6.2, the crossbar shall neither fracture nor collapse.

5.4 Stability:

5.4.1 Movable soccer goals shall be tested for stability.

5.4.2 Goals are to be set up in the same manner as outlined in the manufacturer's instructions including anchoring and/or staking and tested in accordance with 6.3.

5.4.3 During and following testing done in accordance with 6.3, the goal shall neither tilt over nor refuse to return to its original vertical position.

5.5 *Net Attachments/Anchor*—Net attachment shall be strong enough to hold net in place during play.

6. Test Methods
6.1 General:

6.1.1 If not otherwise specified in the following, the requirements are tested by measuring and/or visual inspection.

6.1.2 Tests are to be conducted at 50° to 90° F.

6.2 *Determination of Strength (for Semipermanent, Permanent, and Movable Goals):*

6.2.1 The goal is to be installed (restrained) per manufacturer's instructions.

6.2.2 Apply a downward static force of 396 lb (1800 N) at the center of the crossbar for 1 min +10, -0 s.

6.2.3 Note any fracture or other damage to the goal.

6.3 *Determination of Stability (for Semipermanent and Movable Goals Only):*

6.3.1 *Movable goals*—Apply a horizontal pull force of 242 lb (1100 N) at the top of the front and center of the crossbar for 1 min +10, -0 s.

6.3.1.1 Determine if the unit tilts over or does not return to its original position.

6.3.2 *Semipermanent Goals*—Must be tested individually in accordance with 6.3.1 and 6.3.1.1 after installation.

⁴ This method of test and criteria was selected by the subcommittee (following a great degree of discussion) as the best method for deleting goals that create a lesser or no hazard due to their light weight.

⁵ Such as the LBC or LBO Series by Transducer Techniques (43178 Business Park Drive, Temecula, CA 92590, 1-800-344-3965, <http://www.tlloadcells.com>), or equivalent.