



Designation: F1938 – 98 (Reapproved 2009)

## Standard Guide for Safer Use of Movable Soccer Goals<sup>1</sup>

This standard is issued under the fixed designation F1938; 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.

### 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 U.S. Consumer Product Safety Commission (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 often are very heavy and unstable.

The majority of movable soccer goals are constructed of metal, typically weighing 150–500 lbs. 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 injuries or death 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 also can 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.

### 1. Scope

1.1 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.

1.2 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.

1.3 These guidelines are intended to address the risk of movable soccer goal tipover.

1.4 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

### 2. Design and Construction

2.1 While a movable soccer goal appears to be a simple structure, a correctly-designed goal is constructed carefully with counterbalancing measures incorporated into the product.

2.2 The common dimensions of a full-size goal are approximately 24 ft (7.3 m) in width by 8 ft (2.4 m) in height, and depth equal to or exceeding the height of the goal (see Fig. 1).

2.3 The stability of a soccer goal depends on several factors.

2.3.1 One effective design alternative uses a counterbalancing strategy by lengthening the overall depth of the goal to effectively place more mass further from the goal’s front posts (more mass at the back of the goal).

2.3.2 A second design selects light materials for the goal’s front posts and crossbar and provides much heavier materials

<sup>1</sup> This provisional standard is under the jurisdiction of ASTM Committee F15 on Consumer Products and is the direct responsibility of Subcommittee F15.43 on Soccer Goal Safety.

Current edition approved Dec. 15, 2009. Published April 2010. Originally approved in 1998. Last previous edition approved in 2004 as F1938 – 98 (2004). DOI: 10.1520/F1938-98R09.

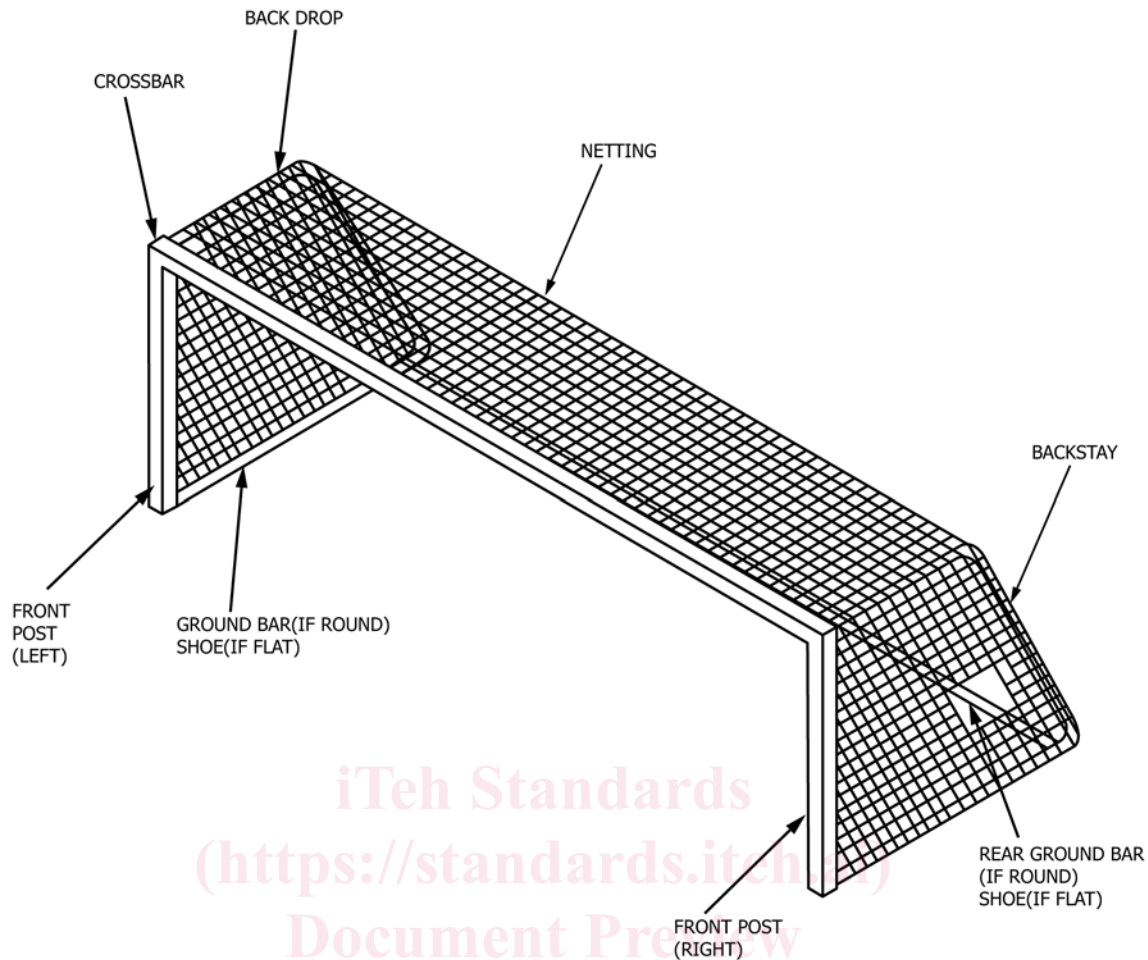


FIG. 1 Components of a Movable Soccer Goal

ASTM F1938-98(2009)

for the rear ground bar and frame members. This design tends to counterbalance the forces working to tip the goal forward.

2.3.3 Another design uses a heavy rear framework and folds flat when not in use, making the goal much less likely to tip over.

2.3.4 No matter what counterbalancing strategy is used, it is imperative that all movable soccer goals be anchored firmly in place at all times (see Section 3).

### 3. Anchoring, Securing, and Counterweighting

3.1 Secure the goal in place (preferably at the rear of the goal) making sure the anchors are used in accordance with the manufacturer's specifications and are clearly visible. It is imperative that all movable soccer goals are always anchored properly through the use of either weights or staking (see Fig. 2).

3.2 There are several different ways to secure soccer goals.

3.3 The number and type of anchors to be used will depend on a number of factors, such as types of playing surface, soil type, soil moisture content, and total goal weight.

#### 3.4 Anchor Types:

3.4.1 *Auger-Style Stake*—This style anchor (see Fig. 2) is helical-shaped and is screwed into the ground.

3.4.2 *Peg- or Stake-Style Stake*—This style (see Figs. 2 and 3) is of varying lengths and diameters and range in size from 10 in. (250 mm) to 24 in. (600 mm) in length.

3.4.3 *J-Hook-Shaped-Stake Style*—This style (see Fig. 3) is of varying lengths and diameters. The curved-top portion is designed to fit over goal members to secure it to the ground.

3.4.4 *All-Stake Styles*—A minimum of two stakes must be used for each goal. More may be required depending upon goal size, soil conditions, and stake size. All stakes must be fully engaged in accordance with manufacturer's specifications. J-Hook and peg-stake styles must be driven in fully and angled toward the front of the goal. Auger-style stakes must be screwed in fully. All stakes must be flush with ground or clearly visible to persons within proximity of the soccer goal.

#### 3.4.5 Sandbags/Counterweights:

3.4.5.1 Sandbags or other counterweights (see Fig. 4) could be an effective alternative on hard surfaces, such as artificial turf, where the surface cannot be penetrated by a conventional anchor, that is, an indoor practice facility.

3.4.5.2 The number of bags or weights needed will vary and must be adequate for the size and total weight of the goal being supported.

#### 3.4.6 Semipermanent:

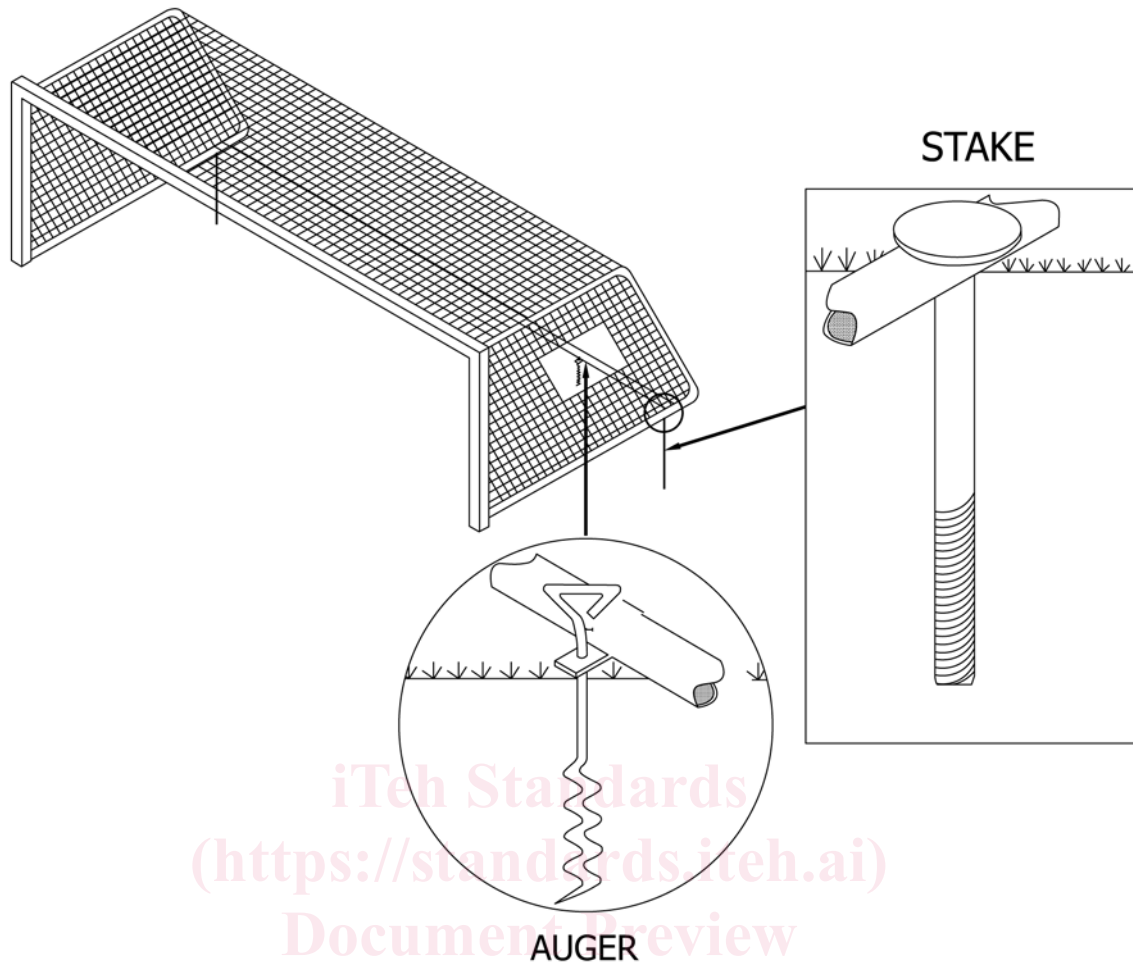


FIG. 2 Goal Anchoring

ASTM F1938-98(2009)

<https://standards.iteh.ai/catalog/standards/sist/f4683629-4ed3-4fff-8ed3-30b8feff429f/astm-f1938-982009>

3.4.6.1 This anchor type usually is comprised of two or more functional components.

3.4.6.2 The main support requires a permanently secured base that is buried underground.

3.4.6.3 One type (see Fig. 5) of semipermanent anchor connects the underground base to the soccer goal by means of two tethers.

3.4.6.4 Another design (see Fig. 6) utilizes a buried anchor tube with a threaded opening at ground level.

3.4.6.5 The goal is positioned over the buried tube and the bolt is passed through the goal ground shoes (bar) and rear ground shoe (bar) and screwed into the threaded hole of the buried tube.

3.5 *Net Pegs*—These tapered, metal or plastic stakes, or both, should only be used to secure the net to the ground (see Fig. 7). Net pegs must not be used to anchor the movable soccer goal.

#### 4. Safety Instructions for Use and Storage

4.1 Check for structural integrity and proper connecting hardware before every use. Replace damaged or missing parts or fasteners immediately.

4.2 Ensure safety/warning labels (see Fig. 8) are clearly visible (placed under the crossbar and on the sides of the down-posts at eye level).

4.3 Securely anchor or counterweight movable soccer goals at all times (see Fig. 9).

4.4 Instructs players, managers, coaches, trainers, teachers, maintenance, and all other personnel who might come into contact with the goal on the safe handling of and potential dangers associated with movable soccer goals.

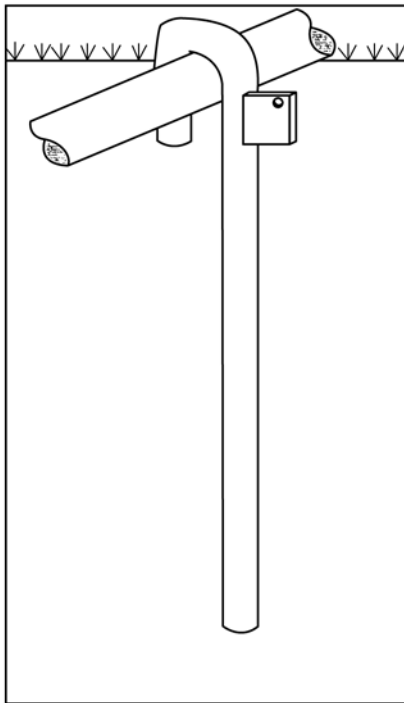
4.5 Always exercise caution and provide adequate manpower for the size and weight of the goal being moved. Movable soccer goals only should be moved by authorized and trained personnel.

4.6 Never allow anyone to climb on the net or goal framework.

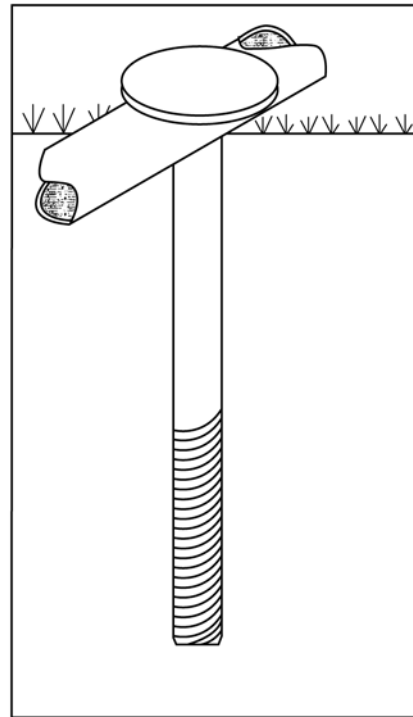
4.7 Movable soccer goals only should be used on level (flat) surfaces, never on a slope or hilly area.

4.8 Remove nets when goals are not in use.

4.9 Most of the tipover injuries occurred when goals were unattended. Anchor or chain one goal to another (see Fig. 9), to



J-HOOK ANCHOR



PEG OR STAKE STYLE ANCHOR

FIG. 3 Anchors—Not Predrilled

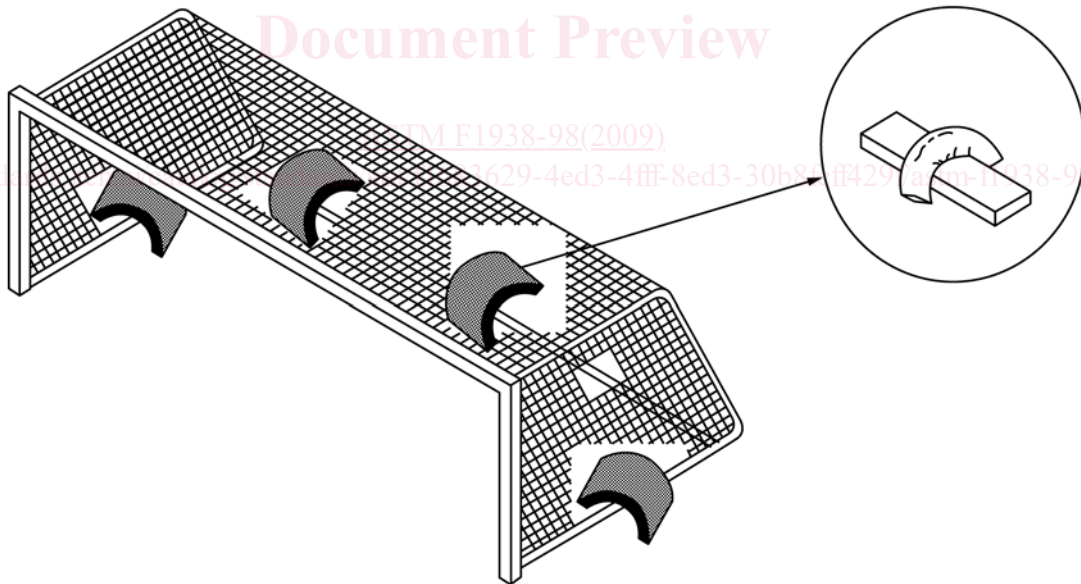


FIG. 4 Sandbag Method of Anchoring

itself in a folded down position, or to nearby fence posts, dugouts, or any other similar sturdy fixture when not in use. If this is not practical, store movable soccer goals in a place where children cannot have access to them.

4.10 Fully disassemble goals for seasonal storage.

## 5. Labels

5.1 Labels should be used on all goals (see Fig. 8).

## 6. Keywords

6.1 safety labels; soccer goals