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Standard Guide for Ceiling Suspended and Wall Mounted Basketball Backstops¹

This standard is issued under the fixed designation F3731; 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 (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This standard provides guidance for the design, manufacturing and safety requirements for ceiling suspended and wall mounted backstops. Ceiling suspended and wall mounted backstops include both stationary and retractable equipment that is permanently installed.

1.2 Unlike a specification that dictates specific criteria and tolerances, this Guide offers a broad perspective of considerations for the design, manufacture, installation and maintenance of ceiling suspended and wall mounted backstops to aid in improved safety and performance.

1.3 This guide is intended to reduce the potential hazards resulting from a mechanical failure of a ceiling suspended or wall mounted backstop component.

1.4 The values stated in SI units are commonly regarded as the standard. The values given in parentheses are typically provided as additional information.

1.5 *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

A413/A413M Specification for Carbon Steel Chain

¹ This guide is under the jurisdiction of ASTM Committee F08 on Sports Equipment, Playing Surfaces, and Facilities and is the direct responsibility of Subcommittee F08.69 on Commercially-Installed Sports-Specific Equipment for Use in Public Venues.

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

A449 Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use

F1145 Specification for Turnbuckles, Swaged, Welded, Forged

F3125/F3125M Specification for High Strength Structural Bolts and Assemblies, Steel and Alloy Steel, Heat Treated, Inch Dimensions 120 ksi and 150 ksi Minimum Tensile Strength, and Metric Dimensions 830 MPa and 1040 MPa Minimum Tensile Strength

2.2 SAE Standard:³

SAE J429_201405 Mechanical and Material Requirements for Externally Threaded Fasteners

2.3 ISO Standard:⁴

ISO 898-1:2013 Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread

2.4 AWS Standard:⁵

AWS D1.1 Structural Welding Code – Steel

2.5 CSA Standard:⁶

CSA W47.1:19 Certification of Companies for Fusion Welding of Steel

2.6 NACM Standard:⁷

National Association of Chain Manufacturers Welded Steel Chain Specifications

2.7 Applicable Basketball Rules Books:

National Federation of State High School Association NFHS 2018-19 Basketball Rules Book⁸

³ Available from SAE International (SAE), 400 Commonwealth Dr., Warrendale, PA 15096, <http://www.sae.org>.

⁴ Available from International Organization for Standardization (ISO), ISO Central Secretariat, Chemin de Blandonnet 8, CP 401, 1214 Vernier, Geneva, Switzerland, <https://www.iso.org>.

⁵ Available from American Welding Society (AWS), 8669 NW 36 St., #130, Miami, FL 33166-6672, <http://www.aws.org>.

⁶ Available from Canadian Standards Association (CSA), 178 Rexdale Blvd., Toronto, ON M9W 1R3, Canada, <http://www.csagroup.org>.

⁷ Available from National Association of Chain Manufacturers, 28345 Beck Road, Suite 209, Wixom, MI 48393.

⁸ Available from National Federation of State High School Associations, PO BOX 690, Indianapolis, IN 46206.

National Collegiate Athletic Association NCAA 2022-23
Men's Basketball Rules Book⁹
International Basketball Federation FIBA 2022 Official Basketball Rules¹⁰

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *backboard*, *n*—synonym for basketball backboard; see **basketball backboard**.

3.1.2 *backboard edge padding*, *n*—cushion on bottom edge and 15 in. (38 cm) up each side of a rectangular-shaped basketball backboard to provide player protection.

3.1.2.1 *Discussion*—Required by National Federation of State High School Associations (NFHS), National Collegiate Athletics Association (NCAA), and International Basketball Federation (FIBA) rules.

3.1.3 *backstop*, *n*—a synonym for basketball backstop; see **basketball backstop**.

3.1.4 *backstop hoist*, *n*—mechanism to wrap or unwrap cable or belt that causes a basketball backstop to fold or lower to playing position.

3.1.4.1 *Discussion*—The backstop hoist may be manually or electrically operated.

3.1.5 *backstop winch*, *n*—synonym for backstop hoist; see **backstop hoist**.

3.1.6 *basketball backboard*, *n*—rigid vertical surface to which the goal attaches and may be rectangular or fan shaped and constructed of glass, fiberglass, wood, steel, aluminum, or other rigid material.

3.1.6.1 *Discussion*—Backboard, size, material, and shape are determined by the governing body that sanctions play at a facility.

3.1.7 *basketball backstop*, *n*—complete basketball system consisting of a rigid structure, basketball backboard, basketball goal, lifting system (if folding), goal height adjustment mechanism (if present) and other accessory items.

3.1.7.1 *Discussion*—Basketball backstops are considered permanently installed systems and attached to a building ceiling, floor, or wall, or a combination thereof.

3.1.8 *basketball goal*, *n*—horizontal circular metal ring through which players try to throw the basketball and may be rigid (stationary) or moveable (breakaway) and will have a method to attach a basketball goal net.

3.1.8.1 *Discussion*—Basketball goal size and style is set by the governing body that sanctions play at a facility.

3.1.9 *ceiling suspended backstop*, *n*—complete basketball system attached to a building ceiling structure.

3.1.9.1 *Discussion*—It includes the horizontal and vertical structure and supports, backboard, goal, accessories, and lifting system (if folding). The backstop may be stationary or folding.

3.1.10 *direct goal attachment*, *n*—mechanism or method or both of attaching a basketball goal with hardware passing

through the basketball backboard to the rigid support structure behind the backboard.

3.1.10.1 *Discussion*—This reduces stress on the backboard and decreases the likelihood of breaking a backboard.

3.1.11 *height adjuster*, *n*—mechanism to allow goal height to be moved from the normal 10 ft (3 m) playing height.

3.1.11.1 *Discussion*—May be operated manually with a screw rod mechanism or electrically.

3.1.12 *limit switch*, *n*—switch that stops upper and lower travel of electrically operated gymnasium equipment products such as basketball backstops, height adjusters, gym divider curtains, and ceiling suspended volleyball systems.

3.1.13 *mast*, *n*—vertical drop assembly for a basketball backstop.

3.1.13.1 *Discussion*—Mast may be single post or dual post designs and often includes sway braces and a top member. Mast is often the folding portion of a basketball backstop, but a mast may also be non-folding.

3.1.14 *overhead superstructure*, *n*—part of a ceiling suspended basketball backstop or other ceiling suspended gymnasium equipment apparatus that is attached to building structure.

3.1.14.1 *Discussion*—The overhead superstructure is provided as transitional structural support to allow the basketball backstop or other apparatus to hang over the correct position on the playing surface when attaching directly to the building structure does not allow such a location.

3.1.15 *safety strap*, *n*—safety device for folding backstops.

3.1.15.1 *Discussion*—Intended to prevent backstops from falling in the event of lift cable or hoist failure.

3.1.16 *wall mounted backstop*, *n*—complete basketball system that attaches to a wall and includes the horizontal structure and supports, backboard, goal, accessories, and lifting system (if folding).

3.1.16.1 *Discussion*—Backstop may be stationary, lift to the wall, or fold to the side.

4. Significance and Use

4.1 This guide is to aid the specifier, designer, owner/operator, and others, when determining the best practices for ceiling suspended and wall mounted backstops.

4.2 This guide can be helpful in most applications where ceiling suspended or wall mounted backstops are being considered.

5. Factors to Consider in the Selection and Specification of Ceiling Suspended and Wall Mounted Backstops

5.1 *Welding*—All welding of manufactured ceiling suspended and wall mounted backstops, overhead superstructure and fittings should meet standards that ensure sufficient strength and longevity. Refer to AWS-D1.1, Structural Welding Code – Steel, or CSA W47.1, Fusion Welding of Steel for more information.

5.2 *Hardware*—All load supporting hardware should be of sufficient strength to handle the loads expected.

⁹ Available from National Collegiate Athletic Association, 700 W Washington St, Indianapolis, IN 46202.

¹⁰ Available from International Basketball Federation, Route Suisse 5, 1295 Mies – Switzerland.