

ASTM F2772: THE AMERICAN SPORTS FLOORING SAFETY STANDARD



To evaluate which sports or multi-purpose flooring is appropriate for your facility, use the American Society for Testing and Materials (ASTM) F2772: **Standard Specification for Athletic Performance Properties of Indoor Sports Floor Systems**. Developed in 2009, it establishes clear standards by setting minimum criteria and categories for use in North America.



*The ASTM F2772 is the **only material testing method recognized in the United States** by the American Society for Testing and Materials for indoors sports flooring. Ask for a certificate of compliance from your flooring manufacturer or work with a Gerflor Taraflex® Sports Flooring professional.*

HOW CAN YOU PREVENT SPORTS INJURIES IN YOUR FACILITY?

- ▶ Children are more susceptible to sports related injuries because they are still growing and gaining motor and cognitive skills.
- ▶ Overuse injuries are responsible for nearly half of all sports injuries to middle and high school students.
- ▶ Over 3.5 million children ages 14 and under receive medical treatment for sports related injuries each year.
- ▶ 62% of sports injuries occur during practice rather than games.
- ▶ 21% of all traumatic brain injuries among children in the United States are associated with participation in sports and recreational activities.
- ▶ 50% of all organized sports related injuries are preventable.

WHAT DOES IT MEASURE?

To meet the ASTM F2772 standard, floors are evaluated on the following four sports criteria and then classified into one of five performance-level classifications (from C1 to C5). The criteria are:

1. **Shock Absorption:** measures the floor's ability to reduce the force of impact. Increased shock absorption translates to a safer floor for athletes of all ages in **reducing the risk of long-term injuries**.
2. **Vertical Deformation:** measures the floors ability to deform or "give" when an athlete jumps or falls. It is associated with flooring comfort and the **reduction of immediate injuries**. Too much "give" is like running on sand and is unstable, while too little may result in immediate injuries on impact or falls.
3. **Ball Bounce:** measures the accuracy of the vertical ball behavior. The higher and more uniform the ball rebound, the better playability.
4. **Sliding Effect:** also referred to as coefficient of friction or slip-and-slide. It is the floor's optimal level of grip and slide in all directions and allows for safe and easy movement or pivoting.



VCT is not a sports floor. It does not meet the ASTM F2772 for indoor sports flooring and does not provide sports flooring properties that reduce the risk of immediate or long term injuries. Eliminate liability risks by specifying a safe and approved sports flooring.

TARAFLEX® SPORTS FLOORING

TRUE OR FALSE

FLOORS IN CLASS C4 AND C5 OFFER THE BEST FLOORING SOLUTIONS?

FALSE – High classification means higher shock absorption, but this may not be the best solution for your needs or your athletes.

If you are looking for multi-purpose flooring that you can play sports on and have events with tables and chairs, you must find the best compromise between safety, shock absorption and indentation resistance. In these cases, a floor in class C2 might be the best option.

ASTM F2772 MINIMUM PERFORMANCE LEVELS & CLASSIFICATION

To meet ASTM F2772 standards, all floors must adhere to vertical deformation, ball bounce and sliding effect criteria. Once achieved, they are divided into five classes of shock absorption ranging from C1 to C5. The performance levels are listed below:

- ▶ **Shock Absorption:** must be a minimum of 10%
- ▶ **Vertical Deformation:** must be less than 3.5mm for synthetic floors
- ▶ **Ball Bounce:** minimum of 90% ball rebound
- ▶ **Sliding Effect:** value must be between 80-110

Any floor that does not meet these four criteria is not compliant with the current ASTM F2772 Standard for indoor sports and multi-purpose flooring.

	Non-Compliant	Class 1	Class 2	Class 3	Class 4	Class 5
Shock Absorption	Below 10%	≥10% to ≤21%	≥22% to ≤33%	≥34% to ≤45%	≥46% to ≤57%	≥58%
Vertical Deformation	Synthetic sport floors: Max 3.5mm in all categories Wood sport floors: Max 5.0 mm in all categories					
Ball Bounce	Min 90% rebound height (ball bounce) compared to concrete required for all categories					
Sliding Effect	Sliding coefficient value: between 80-110 in all categories					
Type of Use	▶ Hallways ▶ Entry areas	▶ Classrooms ▶ 80% Multi-purpose	▶ 50% Multi-purpose ▶ 50% Sport activities	▶ Competitive sports ▶ 80% Sport activities	▶ Aerobics ▶ High impact training ▶ Kindergarten	▶ Custom solutions
Flooring Solutions	▶ VCT ▶ Carpet ▶ Linoleum	▶ REC 30	▶ REC 45 & 60 ▶ MULTI-USE 6.2 ▶ SPORT M PLUS	▶ SPORT M PERF.	▶ SPORT M COMFORT	▶ Specialty solutions

WHAT ABOUT DIN AND EN STANDARDS?

DIN 18032 and EN 14904 are German and European sports flooring properties respectively. They were the standards often used before the creation of ASTM F2772 in 2009.

SHOULD I USE ALL THREE STANDARDS?

Only use the ASTM F2772 standard; it's the only one recognized in the U.S. today.

It considers the multi-purpose and sports needs of American facilities, while the DIN and EN norms only addressed European Sports Halls. Gymnasiums and community centers across the U.S. host a variety of multi-purpose activities and level of sports play. Thus, using only DIN and EN standards may exclude multi-purpose flooring solutions. Adherence to the ASTM F2772 standard ensures that a flooring solution considers multi-purpose use, as well as the appropriate level of shock absorption and safety for light recreation to intense sports activity.