



ATHLETIC FACILITIES AND FLOORING

By Ron Fenhaus

College Athletic Facilities: Starting with Quality Floors

A quality and well-designed sports floor can help bring a university to life. It can support optimum athletic performance, boost event turnout, encourage fitness and amplify school spirit—but it all starts with the foundation of a solid sports floor.

With any big purchase, you should understand your options and the factors that go into making an educated, informed decision. The athletic flooring industry has hundreds of different sports floor systems, each with varying levels of performance. Investing in a quality sports floor can make a big difference.

There are a variety of ways that sports floors contribute to creating vibrant sports programs and top-notch athletic facilities.

Better Flooring Performance for Athletes

When choosing a sports floor, it's important to consider who the primary athlete will be. For instance, the high amount of shock absorption required for a dance floor could tire out a basketball player quickly, but a small amount of shock absorption can lead to sore knees and ankles.

In the sports floor industry, standards exist to measure important performance characteristics. The Maple Flooring Manufacturers Association (MFMA) notes that five standards are commonly used to measure the performance and uniformity for competition sports

floors. These five common measurements can guide your decision and help you understand what flooring attributes matter most to your university.

Shock absorption measures the ability to absorb the impact of the athlete. A consistent sports floor makes players less likely to play tentatively, so the athletes can move across the court as they desire without any surprises to their bodies. Shock absorption can also be customized for synthetic floors including indoor tracks and auxiliary gyms.

Area deflection measures the amount of energy transferred through the floor upon impact. When two athletes are playing side-by-side, the proper amount of area deflection minimizes the floor vibrating and disrupting the other.

The American Society for Testing and Materials' (ASTM) guidelines for sports flooring safety describe vertical deflection as the amount of "give" that a sports surface provides. It measures the ability of the floor to adjust as an athlete jumps (or falls) on the court. Too much of it can hinder performance and stability.

According to the U.S. Environmental Protection Agency, people spend 90 percent of their time indoors. With that much time spent inside, it's essential to recognize the impact building materials used in new construction and renovations could have on students, faculty and the community immediately and over time.

A responsive floor that provides a good bounce is ideal for performance. This is described as ball rebound (bounce), which measures the accuracy and uniformity of a ball's behavior on the surface.

Surface friction, or traction, considers an athletic flooring finish's ability to control the sliding of athletes on a sports surface. While this characteristic is truly a function of the floor's finish versus the flooring system, quality sports floors consider these pieces holistically for safe and easy movement in all directions.

Before choosing a new floor, ask the flooring manufacturer for test results and request information regarding the criteria that matter

most to your athletes. The top performance standards to reference when examining your options and assessing your needs are ASTM F2772, MFMA PUR Standards, EN-14904 and DIN 18032 Part 2.

Improved Safety for All

When it comes to flooring, whether using hardwood or synthetic, quality materials and construction can influence an athlete's safety and wellbeing. And, while a quality floor won't prevent injury, it can help keep students safe.

The American Academy of Podiatric Sports Medicine (AAPSM) concurs. "Different playing surfaces can also have an effect on injuries.

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Indoor wood courts offer the most shock absorption and are considered the safest courts.” When comparing wood courts to the hardest options like concrete, AAPSM notes that hard sports courts can be the “most dangerous in relation to lower extremity injuries.”

Standards that tend to have the most impact on safety include shock absorption, vertical deformation and surface friction. These factors help make jumping, pivoting, running and even falling easier on athletes’ joints and ligaments.

Good shock absorption is more forgiving on an athlete’s body and helps reduce long-term

injuries. The same holds true for vertical deformation. When an athlete jumps on a sports surface, how does the floor respond? Not enough vertical deformation, or give, can lead to increased acute injuries over time. In fact, playing on hard surfaces—such as concrete, asphalt, tile, and tartan surfaces, as well as some of the newer synthetic surfaces—can lead to patellar tendinitis.

When it comes to the floor’s finish, the proper amount of surface friction is vital for keeping athletes safe. Excessive friction or grab on the finish can lead to twisted ankles, and not enough can make athletes slip and fall.

While your flooring manufacturer or dealer should help guide you through these conversations, they are important to understand to make an informed decision. Be sure that you are not only aware of ASTM F2772’s minimum requirements, but understand the ideal measurements for competitive sports.

For instance, ASTM F2772 criteria states shock absorption should be a minimum of 10 percent, although shock absorption greater than 22 percent is ideal for competitive sports. The higher the percentage, the higher classification is awarded to the surface. Anything under 10 percent is considered non-compliant.

Healthier Buildings: Indoor Air Quality

Only the most responsible sports surface manufacturers are well-educated when it comes to healthy building practices and indoor air quality. According to the U.S. Environmental Protection Agency, people spend 90 percent of their time indoors. With that much time spent inside, it’s essential to recognize the impact building materials used in new construction and renovations could have on students, faculty and the community immediately and over time.


A key role of all flooring, including sports flooring, in healthier buildings is reducing the emission level of VOCs in materials and adhesives. When VOCs reach a certain threshold, indoor air quality (IAQ) and health is compromised.

Poor IAQ can contribute to a condition known as sick building syndrome. It has been said that immediate effects of indoor pollutants are similar to the common cold or allergies. Symptoms may include irritated eyes, nose and throat, as well as headaches, dizziness and fatigue.

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Simpler Cleaning and Maintenance

The right sports floor can make your maintenance staff's job easier, and more importantly, keep bacteria buildup at bay. Flooring in a weight room or locker room, for instance, is another location where the right sports floor will truly make a difference over time.

Rolled rubber may be more desirable at first, but over time, the porous surface can lead to odor and bacteria collection. It will only be a few years after your fitness facility begins to smell of sweat, which will cause you to replace your floor much sooner than anticipated.

Commercial carpeting or carpet tiles are inexpensive, but can absorb sweat and stain easily. Since it's harder to clean, the carpet fibers can be a breeding ground for allergens and be very irritating to people dealing with indoor allergies.

To get the most out of your investment, consider non-porous floors like synthetic pad and pour floor systems. They are easier to clean because of the smooth, monolithic top coating.

Amplified School Pride

When students and staff are proud of their team and university, their school spirit shines. School-inspired, thoughtfully designed floors bring the whole experience together and add to part of a student's connection with the university.

Choose a manufacturer that truly cares about your school pride and has experience making it come to life through the design of the floors.

With any epoxy floor surface, school colors can be creatively incorporated into your locker rooms and bathrooms. Different stains and usage of various wood grain can also create a bold, contrasting appearance between game lines adding to the visual impact of a maple floor.

Quality Facilities: Built From Bottom Up

Investing in a sports floor also means investing in your student athletes. Before you make your next sports floor purchase, determine what

characteristics matter most to your university and its students, and make sure you understand the factors that go into high-performing floors.

Take time to find a flooring manufacturer that understands your goals and takes the time to bring your university to life through the little details that make a big difference.



ABOUT THE AUTHOR: Ron Fenhaus is the vice president of sales at Action FloorSystems, LLC, a company that specializes in high-performance sports surface systems to accommodate any application. With more than 20 years of experience in the field, Fenhaus brings insight and innovation to each new project.

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