



THE ARCHITECT'S GUIDE

TO SPECIFYING THE
RIGHT FLOORING
SOLUTIONS

Selecting Synthetic Floors for Sports and School Settings

DISCOVER WHAT WORKS BEST FOR:

- Basketball Courts
- School Gymnasiums
- Fitness Areas
- Tennis/Pickleball Courts
- Locker Rooms/Restrooms
- Classrooms

Action[®]
FLOOR SYSTEMS

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Introduction:

Synthetic Sports Flooring Specification Made Easy

Overseeing design and construction of projects at K-12 schools, colleges, and universities involves a seemingly unending list of decisions. Questions abound from building owners, administrators, athletic directors, coaches, and board members.

Projects need to stay within scope as you look for creative solutions that ultimately deliver satisfaction to your clients and a project your architecture firm can be proud of.

While specifying the right flooring is just one of many decisions, it greatly impacts a building's design, functionality, and aesthetics. **Sports flooring** involves additional considerations as you need solutions that provide performance attributes for specific athletic activities.

Action Floor Systems® developed this e-book as a tool architects can use to begin narrowing down synthetic sports flooring options while validating product recommendations with your clients and/or general contractor.

We'll explain sports flooring solutions as well as unique alternatives for non-sports applications using examples from real-life projects.

Insights in this e-book come from experts at Action Floors who've acquired a deep knowledge of sports flooring, including testing and certification processes, installation, and project management.



Meet the Action Floors Experts



DON BROWN
Technical Director



CORY CORULLO
Director of Synthetic Sales



GARY ZANDER
Midwest Regional Sales

At Action Floors, we understand that every project is different and every client has unique expectations. That's why we work with architects and our network of flooring professionals to **customize sports floor systems** to meet project needs.



First Things First:

Where to Begin When Specifying Flooring for Schools and Sports

Flooring is one of the many areas of architecture where form and function meet. In school construction and renovation projects, you must balance design and aesthetics with the physical requirements outlined by the purpose of certain areas inside the building.

Architects are also tasked with balancing clients' budgets and expectations while striving to bring a vision to life. Synthetic sports floors, such as pad and pour systems, are an ideal option for a wide variety of sports-related areas.



Investing in quality sports floors is a decision your clients will be glad they made, because it pays off in the long run. But, if you need to explain why, here's how to make your case.

Pad and Pour Floor Basics

Explaining the Option to Clients

Pad and pour synthetic sports floors are quite simple. In fact, it's all in the name.

The basic components are a mat (or pad), which is often made of recycled rubber, and a polyurethane surface, which is poured over the rubber layer. The cushioned underlayment combined with the durable, yet flexible, surface layer creates a dual durometer floor system.

With Action Floors' pad and pour systems, the rubber mat can vary in thickness from 2 mm to 9 mm or more, depending on the desired level of shock absorption, which is also known as force reduction.

The mat is glued to the concrete slab, and a seal coat goes between the rubber and polyurethane.

The poured polyurethane is typically 2 mm thick but can be increased for purposes such as spike resistance or to handle wheelchairs, roller-skates, or inline skates. The top layer provides a seamless surface consisting of a self-leveling product and a water-based topcoat.



Sports Flooring 101

Understanding Elasticity | Hardwood vs. Synthetic

When it comes to shock absorption, there are two main types of sports floors, with a third that is achieved when combining a pad and pour system with subflooring.

Area Elastic Sports Floors

Resilient hardwood maple sports floor systems are **area elastic**.

Area elastic floors have a wider area of deflection where the athlete impacts the floor and therefore provide higher shock absorption percentages. With this type of floor, energy produced by an athlete's movement is dispersed across the surface.



Point Elastic Sports Floors

Synthetic floors are **point elastic**. They still provide adequate shock absorption, with a smaller area of deflection, which occurs only at the point of impact with the floor.

While point elastic floors keep energy from a player's movement localized, they also create a very uniform playing surface in which shock absorption and ball rebound are consistent.

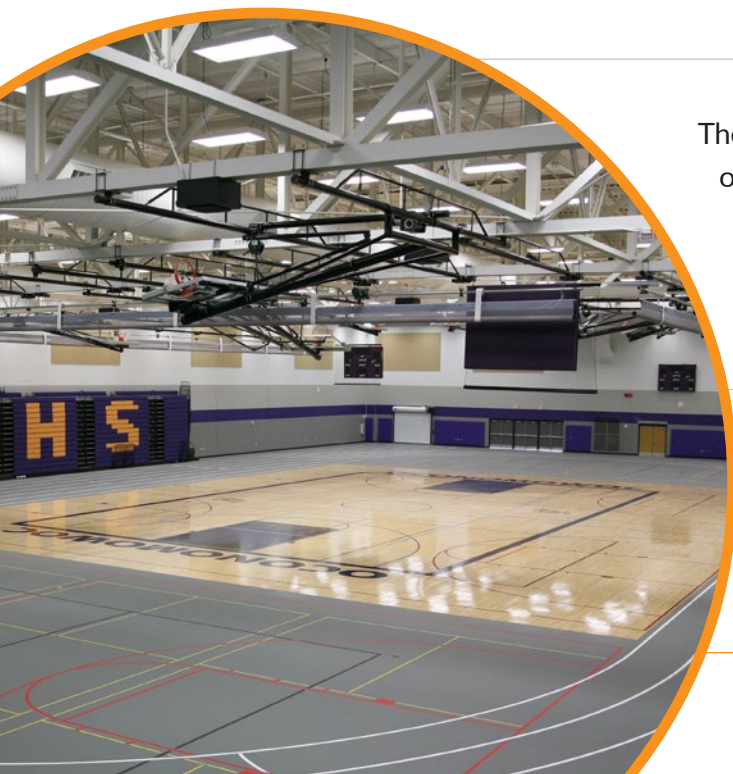
"A helpful way to explain it is the difference between stepping on a sandy beach versus a trampoline," says Director of Synthetic Sales Cory Corullo. "Point elastic floors are like sand because the movement only occurs close to where you step. But with a trampoline, the energy travels across the entire surface."



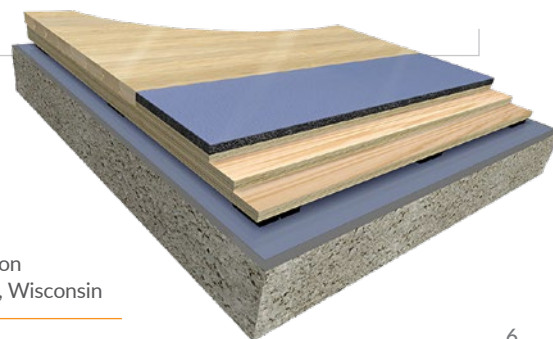
Mixed Elastic Sports Floors

You can achieve attributes of both point and area elastic floors with a **mixed elastic** option, which is essentially a point elastic system with area elastic properties. This creates significantly greater shock absorption.

With an Action Herculan ME system, the synthetic sports flooring is supported by an engineered subfloor fabricated from plywood or hardwood premium sheathing. This is an excellent method for increasing shock absorption levels while taking advantage of the consistency, durability, and ease of maintenance that come with synthetics.



The **Action Ultimate Combination** system is yet another option providing the best of both worlds. You get a hardwood court with a rubber pad that can be surrounded by synthetic sports flooring, and these two sports flooring types share a subfloor system.



Action Ultimate Combination
Oconomowoc High School, Wisconsin

A Tougher Sports Floor

Measuring Durability and Longevity

Most manufacturers tell you their products are high-quality and built to last, but how can architects be confident they're specifying a sports floor system that will stand up to all the activity in a busy school?

Two important attributes used to measure toughness and flexibility of sports flooring are **tear resistance** and **elongation at break**. These factors help you understand how well a polyurethane sports floor can withstand abuse. That includes moving bleachers and various types of equipment across the surface, which can be damaged unless it's designed for resilience and longevity.

Elongation at break measures the sports floor's ability to prevent punctures from things such as table and chair legs or spiked shoes. **Tear resistance** measures the strength of the surface against objects moving across the surface.

"These attributes typically go hand in hand," Corullo explains. "So, if you have good elongation at break, you'll also have strong tear resistance."

Be sure to ask whether the sports floor manufacturer has its products tested by an independent third party so you can be sure the results are verifiable. Action Floors' systems are measured against EN ISO 527-1 as well as DIN standards.

"You want sports floors to be tested for real world applications," says Corullo. "During tests for elongation at break, the urethane gets stretched between two clamps, like a rubber band, until it snaps. Tear resistance measures the tendency of the surface to tear along the edge, like a piece of paper."

Action Floors' lowest measurement for elongation at break is 140%, which is a calculation of the relative increase in length when stretched. That's better than many other options and ideal for typical multipurpose applications. We also offer synthetic sports floor systems with elongation at break as high as 340%. These urethane sports floor systems are formulated for spike resistance.

Tear resistance is evaluated using Newton/millimeter (N/mm) to measure the amount of force the surface can bear. With Action Herculan products, a typical system has tear resistance of 23 N/mm and the most-durable system measures at 50 N/mm.



Action Floors Midwest Regional Sales Rep Gary Zander says most poured polyurethane sports floors appear to be the same at first. The difference in quality becomes apparent down the road.

“Any freshly painted sports floor will look beautiful,” he says. “But, use a cheaper system for a few years and suddenly you start seeing rips and punctures in it. Then you know what you really paid for. In the long run, it’s worth investing in durability and longevity.”

Zander adds that requesting samples of synthetic flooring won’t tell you much about durability. Architects don’t put samples in a vice to test themselves. The only way to truly know the level of durability a product provides is to ask about independent, third-party test results.

The Usual Suspects

Examining Sports Floor Options

Older schools often need to replace less-than-desirable flooring materials such as carpet, tile, or vulcanized rubber, which have drawbacks, especially for athletic use. New buildings may want to avoid the downfalls of these options.

- ▶ **Carpeting** is difficult to keep clean and can harbor bacteria and allergens. Yet, you may find it in school sports areas such as weight rooms or even multi-purpose gymnasiums. Carpet alone offers no performance features and is not ideal for sports applications.
- ▶ **Vinyl composite tile** may be a less expensive option, but it can be extremely hard on the joints of student athletes. The tiles may also be easily damaged and cause sustainability concerns as chemicals used in manufacturing release volatile organic compounds (VOCs) into the air inside a building. Older vinyl flooring products may also contain asbestos.
- ▶ **Vulcanized rubber flooring** is a common sports flooring option that does provide cushioning for athletes, but it can get quite costly. Unlike pad and pour systems, rolled rubber flooring will have seams where moisture can get in. Over time, these floors show signs of wear-and-tear and require replacement.

Action Floors offers vinyl sheet flooring as well as recycled rolled rubber and interlocking rubber tile flooring. There are instances when those products are a viable choice. However, we normally recommend pad and pour systems when end users need synthetic sports floors. That’s because they offer exceptional advantages.

Pad and Pour Sports Floors

Explaining the Benefits

Action Floors introduced Action Herculan synthetic sports floor systems to our customers because we believe it is the best option to complement our high-quality hardwood maple sports floors. Here are several of the most notable advantages:

Affordability

Pad and pour systems are competitively priced and cost less than many vulcanized rubber sports floor products. While most high schools and colleges will choose a hardwood maple court for the main gymnasium, elementary and middle schools often choose a synthetic option for budgetary reasons or because the main gym doubles as a cafeteria or auditorium. Synthetic floors are also a popular option for practice/auxiliary gyms.

Playability

Action Herculan systems allow you to specify different thicknesses for the rubber pad and/or polyurethane topcoat so you can choose the right level of comfort and ball rebound. **Shock absorption levels range from 15% to 35%**, which is far better than other sports flooring products and supports athlete safety, health, and wellbeing. Students and coaches notice the difference when they begin using floors designed for sports.

“A pad and pour system can be installed right over the top of old tile floors, which are basically as hard as concrete,” says Corullo. “It gives joint protection and comfort back to student athletes and coaches with superior shock absorption.”



“

“The two most important performance considerations for a sports floor are shock absorption and ball rebound.”

Customizability

In addition to being able to modify the performance attributes of pad and pour sports floors, these systems also offer design versatility. A wide selection of surface colors is available, it's easy to add a school logo, and it's easy to change things up if a school updates school colors or gets a new mascot. That's not possible with vulcanized rubber.

Action Herculan sports floor systems can also be customized with spike resistance, and some installations even combine the use of synthetic floors side-by-side with hardwood courts.

Durability and Longevity

Synthetic sports floors stand the test of time and the rigors of a school that's full of activity. These floor systems are designed to take abuse. You can expect the floors to last for decades, and instead of being replaced, they are easily resurfaced.

Action Herculan sports floor systems have exceptional tear resistance and elongation at break, which means the surface is less likely to incur damage or require repairs than other options.

Easy Maintenance

Because it is a seamless surface, these floors are very hygienic, making maintenance and janitorial work a breeze. We recommend daily dry mopping and weekly wet mopping. There are also far fewer moisture concerns with pad and pour floors compared to hardwood courts.



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“A pad and pour system can be installed right over the top of old tile floors, which are basically as hard as concrete.”

Sustainability

You may not automatically associate the word synthetic with green building efforts, but Action Herculan floor systems are made to be environmentally friendly for several reasons.

Because the floors can be recoated rather than replaced, it greatly reduces landfill waste generated from tearing out old flooring. The pad is made from the rubber of recycled tires, and the polyurethane topcoat is derived from plant-based products, making it renewable material. At the end of the floor's life cycle, the rubber can again be recycled.

"We are one of the only places you can find FloorScore®-certified synthetic floor systems," says Technical Director Don Brown. "Because we spend so much of our time indoors and a lot of pollutants can be found inside of buildings, Action Floors believes it's important to provide synthetic floor options that are safe for the environment and provide low VOC emissions."

VOCs, or volatile organic compounds, are chemicals that have a high vapor pressure at room temperature, which means they off-gas the air that people breathe. Indoor air quality (IAQ) is an important consideration, especially in new construction. Good ventilation helps, but so can avoiding building materials that release VOCs.

When we say our synthetic products are "low VOC," it means these sports floor systems promote good IAQ and can be installed while school is in session with minimal disruptions to daily schedules.

As an added bonus, environmentally friendly flooring material contributes to LEED points.

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"Action Floors believes it's important to provide synthetic floor options that are safe for the environment and provide low VOC emissions."

FloorScore®-certified synthetic sports floors include all pad and pour systems. All of Action Floors' hardwood maple sports floor systems are also FloorScore® certified. Learn more at actionfloors.com/sustainability/FloorScore

Identifying Partners Who Can You Trust?

Architects build teams of reliable experts around them to ensure success in the form of results that produce client satisfaction and a building that makes your architectural firm proud. To accomplish this, you need quality people and building materials.

At Action Floors, quality is top of mind from the beginning. That's why we developed our **System for Success**. Whether it's hardwood maple sports floor systems or synthetic sports flooring, when our name is on it, we want it to be the best. That means providing solutions that exceed expectations with systems installed by flooring experts who thoroughly understand the product.

Of course, it's easy to say that. Every company boasts about quality, sustainability, and expertise. That's why we want to provide **genuine proof** and show you instead.

The following chapters illustrate real projects in which Action Floors provided solutions using our synthetic sports floor systems and our epoxy commercial flooring product.

Discover the possibilities when you review the following case studies from schools, colleges, and fitness facilities around the country and the world.

Keep in Mind ... Everything is Customizable

While these synthetic sports floor systems are designed for different applications, Action Floors is able to modify any product to meet project specifications.

Call Action Floors at 800-746-3512 or contact us online with questions about flooring for your projects.

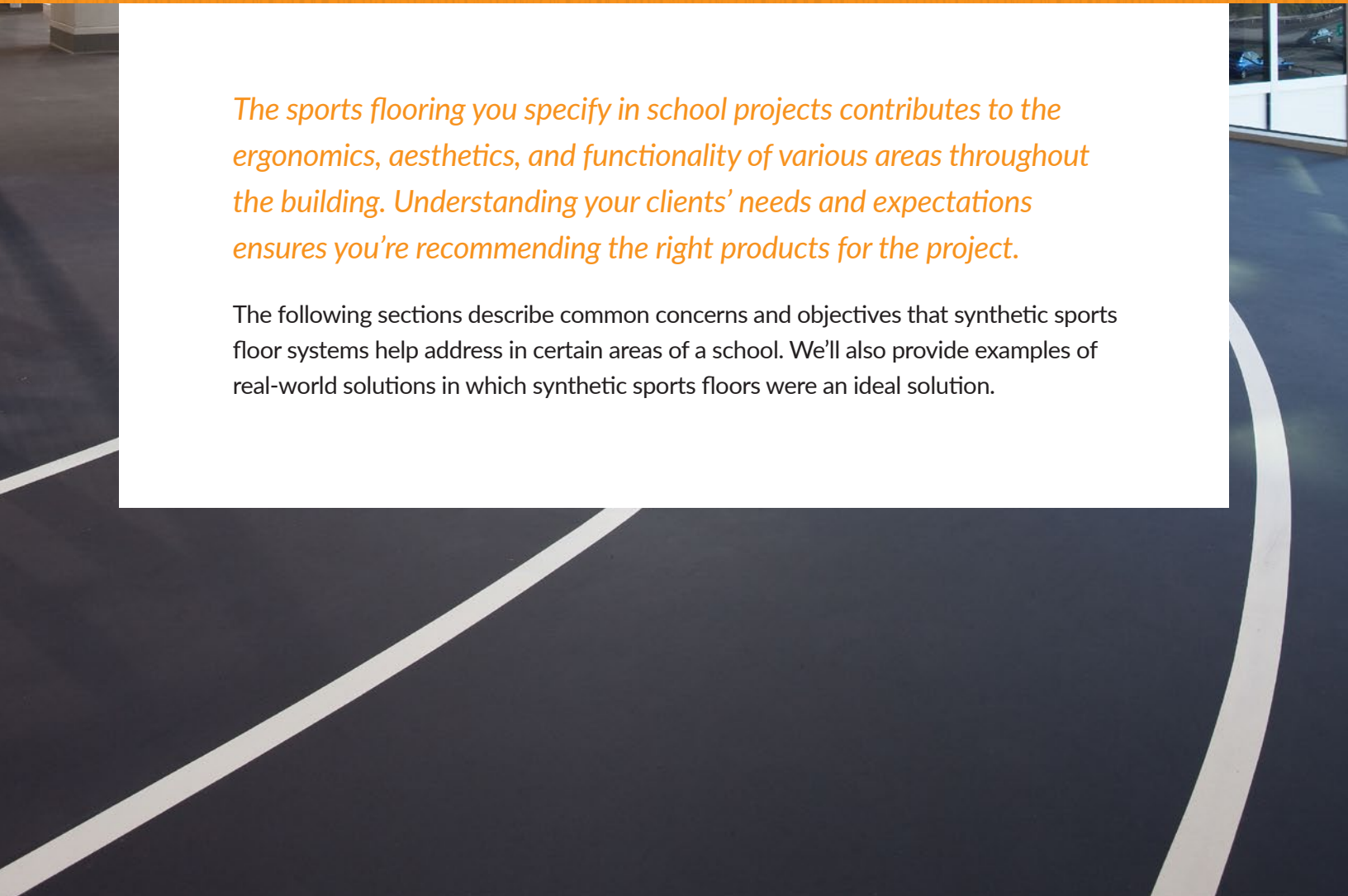
Call Action Floors at
800-746-3512
or visit
actionfloors.com



Sports Flooring Applications in K-12 Schools and Colleges

The sports flooring you specify in school projects contributes to the ergonomics, aesthetics, and functionality of various areas throughout the building. Understanding your clients' needs and expectations ensures you're recommending the right products for the project.

The following sections describe common concerns and objectives that synthetic sports floor systems help address in certain areas of a school. We'll also provide examples of real-world solutions in which synthetic sports floors were an ideal solution.



The gymnasium is the center of a lot of activity in a school. Beyond basketball and volleyball games, there will be daily gym classes, pep rallies, dance team practice, and more. Depending on the school, the gymnasium may also be used for school dances, graduation ceremonies, concerts, or even as a cafeteria.

For many of your K-12 school clients, gyms are multipurpose areas, which call for flooring that simultaneously provides beneficial performance attributes, such as shock absorption/force reduction, as well as durability and ease of maintenance.

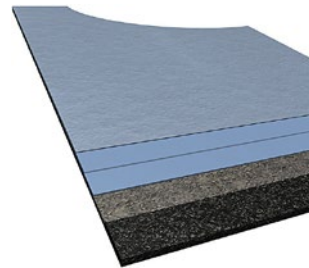


The right pad and pour synthetic sports floor system meets all those requirements. It's no hassle to clean and can be resurfaced and repainted at a reasonable cost. School colors, logos, and mascots are easily incorporated and updated when desired.

Specify the Right Synthetic Sports Floors:

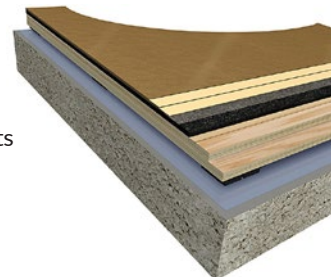
ACTION HERCULAN MF (MULTI FUNCTION)

- Ideal for high-traffic, multi-use gyms
- Seamless, cushioned system
- EN 14904 tested and approved for all indoor sports
- Force Reduction: 13% to 40%
- Ball Rebound: 99%
- Elongation at Break: 150% to 196%
- Tear Strength: 23 to 25 N/mm
- Unsurpassed adhesion and water resistance
- Non-porous, easy to clean
- No volatile organic compounds (VOCs), FloorScore® certified
- Quickly and economically resurfaced



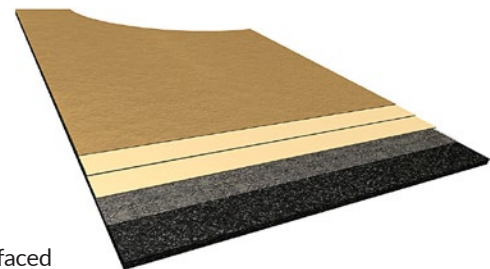
ACTION HERCULAN ME (MIXED ELASTIC)

- Includes shock absorbent underlayment
- Combined elastic properties
- EN 14904 tested and approved for all indoor sports
- Force Reduction: 58%
- Ball Rebound: 99%
- Elongation at Break: 44%
- Option to specify Hardwood Premium Sheathing (HPS)
- Non-porous, easy to clean
- No volatile organic compounds (VOCs), FloorScore® certified
- Quickly and economically resurfaced



ACTION SYNCHRO

- Ideal for multipurpose gyms
- Seamless, cushioned system
- Force Reduction: 13%
- Ball Rebound: 99%
- Non-porous, easy to clean
- Quickly and economically resurfaced



FACILITY: Danvers High School

LOCATION: Danvers, Massachusetts

FLOORING CONTRACTOR: All American Sports Group

SYSTEM USED: Action Herculan ME

School Gym Flooring A System for Success

► The Situation:

Danvers High School has a competitive athletic program. Student athletes needed a competition level sports floor system to match. But, the school's old linoleum sports floor wasn't filling the bill.

Mike DiNatale of All American Sports Group (AASG) in Canton, Massachusetts, describes the gym as having a main basketball court with two side courts, four volleyball courts, eight badminton courts, and an indoor running track. Even the baseball team uses the gym for indoor practice in early spring, and it's also where gym classes and intramural sports take place.

"Everything is done in that gym, and they needed a multifunctional surface to accommodate all the activity," DiNatale says.

Heavy bleachers are regularly moved around as the gym needs to be reconfigured for spectators of different sporting events. The linoleum flooring, however, couldn't stand the abuse and was getting damaged under the weight.

► The Solution:

DiNatale and AASG recommended Action Herculan ME for its durability and ease of maintenance as well as the fact that this synthetic sports floor system includes wood subflooring for added shock absorption. DiNatale describes it as getting the best of both worlds.

"With a mixed elastic system, you have the durability to move bleachers anywhere on the floor, but you also have resiliency of a hardwood court," he explains. "This school needed a floor that wasn't only durable, but also compatible for different types of athletes to compete on. Action Herculan ME is truly a multipurpose floor system that delivers a high-end solution. Everyone at the school loved the new floor."

For visual impact, AASG used a lighter color for the main court and a darker gray for surrounding areas. Not long after the installation was complete, the Danvers Falcons boys basketball team went on to win the 2015 state championship after a perfect 27-0 season!

A typical tennis court has an asphalt or concrete base with an acrylic surface paint containing sand for traction. While these hard courts work well for ball bounce, many athletes, including professionals, prefer a high-quality surface that provides some shock absorption/force reduction, which protects their bodies and could help extend their careers. That's also very important when considering the health and safety of student athletes.

A pad and pour system can provide the right amount of ball response while also offering cushion that protects athletes' joints and potentially prevents fatigue. "We had a tennis coach in Ironwood, Michigan, tell us he noticed his team was less fatigued and experienced less soreness after playing on our surface," says Zander.

Action Herculan TC (tennis court) is a pad and pour sports surface designed for both outdoor and indoor play. Depending on the desired level of shock absorption, facility owners can choose pads with thicknesses ranging from 4 mm to 9 mm, with 7 mm being the most common selection.

Action Herculan TC is easily applied over existing tennis surfaces, adding performance features and a durable, slip-resistant, polyurethane wear layer with a UV-resistant topcoat, which keeps courts looking like new.

Specify the Right Synthetic Sports Floors:

ACTION HERCULAN TC PRO (TENNIS COURT)

- Premium indoor/outdoor tennis surface
- Provides shock absorption for all competition levels
- Excellent slide and ball response properties
- Helps athletes avoid injury
- Dries quickly after rain or cleaning
- Durable: resists chipping from racket hits
- ITF certified
- Meets testing standards:
 - › EN-14808, EN-14809DIN, 1803-2
- Force Reduction: 18% to 30%
- Ball Speed: Medium-Fast
- Elongation at Break: 140%
- Tear Strength: 23 N/mm
- Ideal for reconstruction of hard court tennis areas
- No volatile organic compounds (VOCs), FloorScore® certified
- UV and weather resistant topcoat



FACILITY: East Tennessee State University
LOCATION: Johnson City, Tennessee
FLOORING CONTRACTOR: Finchum Sports Floors
SYSTEM USED: Action Herculan TC

College Tennis Courts A System for Success

► The Situation:

Indoor tennis courts at East Tennessee State University (ETSU) in Johnson City, needed a facelift because the existing surface wasn't meeting the tennis department's needs.

Students were receiving lessons on a hard rubber surface inside the university's rec center, but that wasn't providing the type of ball response and playability that coaches and instructors wanted. So, they called Finchum Sports Floors to ask for help identifying the right product.

► The Solution:

Larry Finchum, owner of Finchum Sports Floors in Sevierville, Tennessee, suggested an Action Herculan TC pad and pour system because it's an ideal product for resurfacing both indoor and outdoor tennis courts.

"It's one easy application," Finchum says of the system's simplicity and efficiency. "It's non-toxic, which is a big deal for both installers as well as students and staff. It's also very durable, and it makes a really nice finished product with a great look when it's done."

After installation, tennis instructors at ETSU appreciated the difference in ball speed as the indoor tennis courts are regularly used for teaching the game to beginners. Finchum also notes that improved performance features are a benefit for players of any experience level.

"The biggest advantage of installing Action Herculan TC for an indoor or outdoor application is that it's so much better on the athletes' feet, legs, and ankles," Finchum explains. "There's a lot more resiliency, which is a big benefit. Plus, the surface is extremely long lasting. It could probably outlast three tennis courts from the competition."



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*"It could probably outlast
three tennis courts from
the competition."*

Schools and universities with indoor running tracks need sports flooring that can take a beating. This is especially true if coaches want to train student athletes while the team is wearing the cleats they'll wear during competition. Coaches also want cushioning to protect players who are training or working out during the offseason.

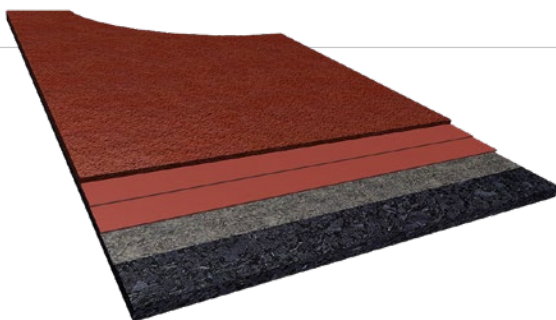
To achieve this, you'll need to specify a synthetic sports floor system that provides spike resistance along with shock absorption. The right pad and pour product does that with a strong, elastic, polyurethane top layer, which sits on top of a soft, shock-absorbent underlayment, providing the perfect balance of toughness and comfort.

In some facilities, including the Milwaukee Bucks' practice gym, Action Herculan SR (spike resistant) is installed around the perimeter of a hardwood basketball court. The system also works well for elevated running tracks. Action Herculan SR meets standards for other indoor sports, such as volleyball and basketball.

Specify the Right Synthetic Sports Floors:

ACTION HERCULAN SR (SPIKE RESISTANT)

- Ideal for use with spiked shoes/cleats
- Seamless, cushioned system
- EN-19404 tested and approved for all indoor sports
- Force Reduction: 36%
- Ball Rebound: 99%
- Elongation at Break: 340%
- Tear Strength: 50 N/mm
- Recommended for indoor tracks
- Non-porous, easy to clean
- No volatile organic compounds (VOCs), FloorScore® certified
- Quickly and economically resurfaced



The general student population and student athletes will regularly use the school's weight room. Floors in this area take a lot of abuse, so it's important to specify sports flooring that lasts.

Weight rooms and workout areas are filled with heavy equipment as well as free weights and groups of people who are perspiring as they exercise. Vinyl tiles easily crack under pressure or when weights are dropped. Carpeting will absorb moisture and is difficult to clean.

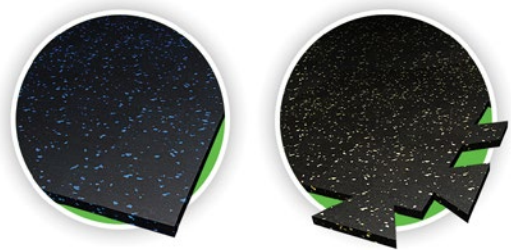
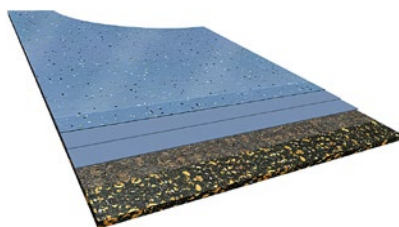
Action ReFlex Spin is an ideal pad and pour sports floor system for workout areas where students are using stationary bikes, treadmills, elliptical machines, and weights. Some schools choose to use standard rubber sports flooring, such as our Action ReFlex product, which can be applied as either rolled rubber or interlocking tiles. However, specifying a pad and pour system offers unique advantages. It provides the durability to stand up to equipment and is also a non-porous surface, which is easy to clean and helps avoid unpleasant odors.



Specify the Right Synthetic Sports Floors:

ACTION REFLEX SPIN

- Ideal for rooms with weight stations, treadmills, and cross-trainers
- Seamless, cushioned system
- Optimum slip resistance
- Tested for impact resistance
 - › EN 1517-1999, DIN 18032
- Force Reduction: 26%
- Ball Rebound: 99%
- Elongation at Break: 190%
- Tear Strength: 25 N/mm
- Prevents odors
- Non-porous, easy to clean
- Quickly and economically resurfaced



ACTION REFLEX (ROLLED OR RUBBER TILES)

- High impact rubber sports flooring
- For use in extreme wear conditions
- Shock absorbent, non-skid surface
- Scuff- and stain-resistant
- Low material cost
- Various color options
- Tiles available as squares or interlocking
- Made from recycled rubber

FACILITY: Unity Christian High School
LOCATION: Hudsonville, Michigan
FLOORING CONTRACTOR: Floor Care Concepts
SYSTEM USED: Action Herculan SR

Indoor Running Track and Weight Room **A System for Success**

► The Situation:

When Unity Christian High School outgrew its old building and started construction on a new facility, a former student turned flooring expert stepped in to recommend and install first-class sports floor systems.

Lance Lutke of Floor Care Concepts in Grand Rapids knew his former school needed a durable surface for an elevated indoor track that circled hardwood maple basketball courts in the gymnasium below. Due to an open concept design on the upper level, the track was also connected to the school's weight room and fitness area.

Unity Christian High School needed sports flooring that could take a pounding while providing shock absorption and ease of maintenance.

► The Solution:

Action Herculan SR was specified for the indoor track, and Action ReFlex Spin was installed in the weight room. Yet, even though two distinct pad and pour systems were used, it was still a seamless installation without the need for flooring transitions. Floor Care Concepts wisely delineated the two areas using different colors of paint so students knew where to run and where to exercise. "You don't want guys with free weights going out on the track area and dropping their weights, damaging a floor system that's not designed for that," says Lutke.

However, the durability of Action Herculan SR was perfect for the track. "They can run in outdoor cleats and even rollerblade on it," says Lutke. "They can perform any activities for gym class, track, or training without worrying about damaging it. Yet, it's very forgiving to the athlete."

A pad and pour system also has advantages in the weight room where odors can become an unpleasant problem if rolled rubber is used. "After a couple years of use, it starts smelling like sweat, or a locker room," Lutke explains. "When people from Unity were touring other facilities, they noticed how it smelled and how deteriorated the flooring was. With Action ReFlex Spin, you still have the rubber good but it's underneath a smooth, monolithic coating that is easy to clean."

Most schools have a separate room where the wrestling team practices and holds meets. The cheerleading and dance teams may use this area for practice and rehearsal as well.

Student wrestlers will spar and compete on a rubber mat, which will also likely be used for cheer teams practicing stunts. A pad and pour sports floor system underneath that mat, however, is still an important component to consider.

“A point elastic sports floor with shock absorption provides additional cushioning for off-the-mat falls,” says Corullo. “Wrestlers and coaches appreciate the added protection and safety factor. Plus, these systems offer an easy way to add school colors and logos to show school pride.”

Action Herculan PE (point elastic) is a system that regularly gets specified for wrestling rooms and aerobic areas. It’s resilient at the point at which athletes impact the floor. Action Herculan ME (mixed elastic) is another viable option, providing even higher shock absorption, if desired, through the addition of a pressure-distributing intermediate layer in the subfloor system.

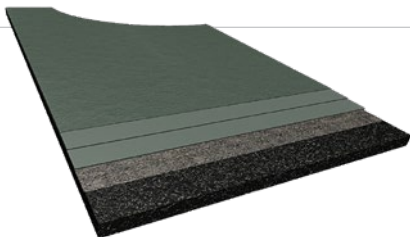
These sports flooring systems also work well for activities such as martial arts and aerobics.



Specify the Right Synthetic Sports Floors:

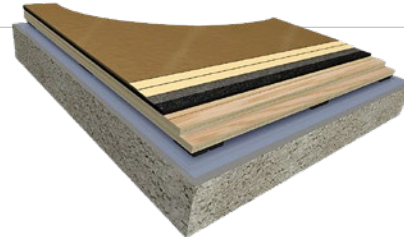
ACTION HERCULAN PE (POINT ELASTIC)

- Ideal for wrestling, cheerleading, dance, etc.
- Beneficial for off-the-mat falls
- Point elastic properties
- EN14904 & DIN 18032-2 tested and approved for all indoor sports
- Force Reduction: 53%
- Ball Rebound: 92%
- Elongation at Break: 190%
- Tear Strength: 25 N/mm
- Non-porous, easy to clean
- No volatile organic compounds (VOCs), FloorScore® certified
- Quickly and economically resurfaced



ACTION HERCULAN ME (MIXED ELASTIC)

- Includes shock absorbent underlayment
- Combined elastic properties
- EN 14904 tested and approved for all indoor sports
- Force Reduction: 58%
- Ball Rebound: 99%
- Elongation at Break: 44%
- Tear Strength: 24 N/mm
- Option to specify Hardwood Premium Sheathing (HPS)
- Non-porous, easy to clean
- No volatile organic compounds (VOCs), FloorScore® certified
- Quickly and economically resurfaced



There are many areas inside educational facilities that may not require performance attributes of a sports floor system, but commercial synthetic flooring can still be beneficial.

Epoxy flooring, such as Action Herculan IG (industrial grade), is a versatile option used in commercial applications ranging from retail to healthcare. It's very suitable in school settings for several reasons.

1. Provides improved durability and maintenance over tile and carpet
2. Offers a wide range of colors for design versatility
3. Easy cleanup makes it ideal for areas where messes occur
4. Anti-slip properties deliver safe flooring for restrooms and locker rooms

Commercial epoxy flooring is attractive, hygienic, and stain- and wear-resistant. It's an excellent choice for areas with lots of foot traffic and regular clean up, such as cafeterias where there are heavy tables and plenty of spills. Action Herculan IG is also suitable for classrooms, and it is especially useful in science labs, art rooms, and workshops.

Because this commercial flooring is a low VOC epoxy, it can be installed without requiring evacuation of the facility, which means your client experiences minimal interruptions.

In addition to industrial flooring, there may be instances in which the advantages of a sports flooring system will be beneficial in educational facilities. For example, in pre-school classrooms, young students often spend a lot of time sitting and playing on the floor. That's why an option such as Action Herculan PE, which provides cushion and shock absorption, can be specified for certain classrooms as well as daycare facilities.

Specify the Right Synthetic Commercial Floors:

ACTION HERCULAN IG (INDUSTRIAL GRADE)

- Epoxy floor system
- Ideal for locker rooms, restrooms, classrooms, and more
- Seamless and non-porous
- Highly durable for handling heavy traffic, chairs, and tables
- Low VOC product requires no evacuations
- Suitable for new construction or renovations
- Can be applied over most existing flat surfaces
- Easy to clean and maintain
- Color chip system offers wide variety of design options



FACILITY: Hurley K-12 School
LOCATION: Hurley, Wisconsin
FLOORING CONTRACTOR: Action Floors
SYSTEM USED: Action Herculan IG

Commercial Flooring for Schools **A System for Success**

► The Situation:

While Action Floors is primarily a manufacturer and distributor of sports floor systems, we'll occasionally jump in to help our community with flooring needs. That was the case with our friends at Hurley's K-12 school in Northern Wisconsin.

We spoke with Hurley School District Administrator Chris Patritto about replacement suggestions for tile flooring that was in disrepair as well as old carpeting that had the potential to negatively impact indoor air quality and student health.

"Nowadays, with all of these kids dealing with allergies, the older that carpeting gets the more irritating it is for those kids. It can be a kind of breeding ground for allergens," Patritto says. Making matters worse, the school's maintenance staff was spending extra time working to keep the carpeting as clean as possible.

► The Solution:

Our recommendation was to replace flooring throughout the school with Action Herculan IG, our high-quality commercial flooring solution. Not only did this synthetic floor system help the Hurley School District eliminate dingy carpeting, it was also attractive and refreshing. As a finishing touch, we added the school logo and motto in the flooring at key gathering places throughout the building.

Because of low VOCs, Action Herculan IG could be applied without forcing the cancellation of school activities. There are no harmful fumes that would force occupants to evacuate. This durable, easy-to-clean flooring was eventually installed in most classrooms, the cafeteria, hallways, and the library. It was a significant change for the janitorial crew. "Now, rather than spending two or three days cleaning the library carpeting, we go over it with a scrubber and it's done," Patritto says.

In select classrooms where preschool students learn, the Hurley School District chose to install Action Herculan PE for comfort and shock absorption. "The students get on that floor, and it's spongy and soft. It's really a nice product," Patritto says. "I can't say enough about what Action Floors has done for us over the years."



Nailing Down the Details

Project Management Advice for Architects and Contractors

No project is without a few setbacks, hiccups, and unexpected challenges. If you're aware of what causes project management problems ahead of time, you can prevent them from ever occurring.

Our team has overseen thousands of sports flooring installations and offers these suggestions to help projects run as smoothly as possible.

Before the Install

6 Project Management Considerations

1 A Flat and Dry Foundation for the Floor

“Contractors and architects should be aware that synthetic flooring products are moisture sensitive,” says Action Floors Technical Director Don Brown. “The concrete needs to be dried, cured, flat, and clean ahead of installation.”

Moisture is much less of a concern after the product is installed unless there is moisture coming up from underneath the concrete. That could affect the adhesive or cause bubbling. Your sports flooring contractor should install a good moisture barrier to prevent those problems.

Flatness of the concrete slab is measured by Face Floor profile numbers, or F numbers (F_F and F_L), between 10 to 150. The higher the number, the flatter the slab.

F_F measures the roughness or waviness of the slab's surface. This could impact how well the adhesive in a synthetic floor system attaches to the slab.

F_L measures levelness or how close the slab is to a perfect horizontal plane. That's important for an athletic floor because a sloping slab may affect play or cause a tripping hazard. Best practices for gymnasium floors is a measurement of F_F 40 / F_L 30, although this is more important with hardwood floor systems.

If you do have an issue with flatness, you may have to bring in a company that can apply a self-leveling product to the slab.

Elevation of your sports floor is yet another consideration as you'll have to meet regulations created to ensure floors are ideal for people with disabilities.

“Sometimes with renovations you'll have elevation changes from one room to another,” says Brown. “You need to pay attention to that because of ADA requirements. If the floor slab in the gym is similar to surrounding floors, that's a good thing, because synthetic sports floors are typically very low profile.”

Find out more about elevation requirements on the [ADA website](#).



2 Get Overhead Work Done First

In new building projects, sports floors should be among the last things installed. Whenever possible, ceiling work, lighting installation, and the majority of other trades should be complete.

“Occasionally, other contractors come in with lifts and heavy equipment, which can be problematic, causing delays or damage during installation,” Gary Zander explains. “The best time to get that work done is when it’s still bare concrete. That way, various contractors can go back and forth without any issues.”

If having multiple contractors working during installation is unavoidable, take steps to protect the floor during and after installation as the surface dries and cures. Controlling general foot traffic during and immediately after installation is also important.

3 Use the Right Light

Another reason to have overhead work such as lighting finished before sports floor installation is that you want it to match how the facility is lit upon completion. This is most important for gymnasiums where there will be game lines for basketball and other sports.

“I always tell customers we want ‘game day lighting’ if possible,” Zander says. “Then you’re able to see how the paint and lines look in the actual setting, which is important for players, officials, and coaches during competitive play.”

4 Color Choices

Continuing the topic of paint and game lines, you’ll want to have conversations with the client about these design factors ahead of installation. It’s best to limit input on colors and design to key decision makers.

“You might get phy-ed teachers and coaches from all different sports requesting certain game lines, and before you know it, your gym floor looks like a work of abstract art,” jokes Zander.

Your clients should specify the Pantone® colors they want to use, especially for paintwork involving school logos and mascots. Hunter green from one paint product may look different than another, but universal Pantone colors ensure accuracy.



5 Leave Enough Time for Installers

Time management is imperative in any project, but since flooring is one of the last materials to be installed, sports floor contractors often find themselves pressed for time.

According to Cory Corullo, it typically takes seven to ten days to install a synthetic pad and pour floor system in a gymnasium ranging between 6,000 to 10,000 square feet.

While Action Floors' network of dealers has experience working within tight timeframes, you'll want to be aware of client deadlines. Is there a grand opening or games planned for certain dates? Make sure you communicate with contractors so the floor will be ready.

6 Control the Indoor Environment

Temperature and humidity levels impact the time it takes before a synthetic sports floor is ready for action.

New buildings should be completely enclosed and weather-tight before a synthetic sports floor installation. When it's time to begin, having the permanent HVAC system in place is strongly suggested.

"You want the temperature and humidity levels to be the same when the floor is initially installed as it will be when the building is occupied," says Brown. "That way, the system acclimates to the correct indoor environment, and owners get a better final product."

Sometimes convincing the general contractor to run the AC during installation is difficult. There may be concerns about dust and debris blowing around or the warranty period starting before the building is handed over to the owner.

"Changes in temperature or humidity during installation impact the curing time and could slow down the process," Corullo explains. "It may also affect the appearance of the topcoat."

Your clients would much rather have a floor installed on time without appearance issues than fewer weeks on the HVAC warranty.

"The recycled rubber product is sensitive to temperature and humidity," adds Corullo. "It can shrink and grow or curl, especially if it's loose-laid rubber tile in a weight room."

Ultimately, following the initial installation, a pad and pour system is not affected by moisture. The seamless flooring can be easily cleaned and won't have the humidity concerns or maintenance schedule that a hardwood maple court requires.



Hazardous Materials

Dealing with Asbestos and Mercury

Renovation projects involving synthetic sports floors as a replacement product in older buildings could force you to address potentially dangerous materials such as asbestos and mercury.

Asbestos may be found in old vinyl flooring, while mercury may be present in older poured urethane floors. In some cases, mercury also seeps down into the concrete slab.

Sometimes, these floors require abatement, and the material must be completely removed. Other times, building owners choose to encapsulate the old floor. Because they are seamless, pad and pour systems work well for encapsulation.

However, it's important to note that encapsulating potentially hazardous material does not necessarily guarantee the health and safety of occupants or that the building is meeting codes and regulations.

Zander says he always recommends abatement as the first course of action. "If you can't afford that or are unable to do so for some reason, we can encapsulate the old flooring," he adds.

"A lot of times what you find is you're kicking the can down the road. The asbestos is still there and it's likely you'll have to deal with it eventually. If a facility waits to address the issue, the cost of disposal could be significantly more than what they'd pay today."

EPA regulations require schools to test for asbestos following the National Emissions Standards for Hazardous Air Pollutants (**NESHAP**). The EPA recognizes both abatement and encapsulation as acceptable ways of dealing with asbestos.



“

“A lot of times what you find is you're kicking the can down the road. The asbestos is still there and it's likely you'll have to deal with it eventually.”

Quality Assurance Testing Standards, Affiliations, and Certifications

How do you know you're specifying sports floor systems you can trust to deliver quality, appropriate performance features, safety, and sustainability to your clients?

Reliable sports floor systems are tested and certified by third-party organizations. Action Floors places great importance on maintaining standards and achieving these certifications. You'll find them listed with all sports floor systems on our website.

"When it comes to quality and identifying the right specifications for a sports floor, you shouldn't have to take a manufacturer's word for it," Zander says. "You should always ask for independent, third-party tests that back it up. The numbers are the proof you need."



Here are some of the most important certifications for synthetic sports floor systems in schools as well as key organizations with which Action Floors is affiliated:

Sustainability and Green Building



FloorScore®

Developed by the Resilient Floor Covering Institute (RFCI) and SCS Global Services, the FloorScore® program certifies flooring products and accessories to meet indoor air quality (IAQ) emission requirements and specification criteria. All Action Herculan pad and pour systems are FloorScore® certified.



U.S. Green Building Council

Action Floors is proud to work alongside the USGBC in its mission to work towards market transformation through the LEED green building certification program. Action Floors' eco-friendly synthetic sports floor products can contribute to a project's LEED score.



EcoSpecifier

Action Herculan pad and pour sports floor systems are evaluated by EcoSpecifier using the third party's green building product rating and certification system. The products are verified as low VOC, multi purpose sports flooring systems suitable for interior and commercial applications.

Sports and Building Materials



ASTM International

Action Floors earns ASTM certification for products we manufacture and sell. You'll notice Action Herculan synthetic sports floor systems are EN 14904 tested, making them appropriate for all indoor sports. Look for additional ASTM testing standards in our system specifications and data sheets.



DIN Standards

Because there are no North American testing standards for sports floor systems, the industry regularly uses those established by the German Institute for Standardization (DIN). Architects and contractors can find these details in data sheets and specification documentation for our sports floor systems.



ISO Certification

Action Herculan sports floor systems are ISO 9001 certified for QMS (quality management system) and ISO 14001 certified for EMS (environmental management system).



Efectis – Fire Safety

The fire safety experts at Efectis evaluate building materials for fire resistance. Action Herculan flooring is tested against the organization's standards so you can provide some assurance to clients that sports flooring material meets safety needs.



American Sports Builders Association (ASBA)

Action Floors is a certified member of the ASBA, which is a national organization for builders, designers, and suppliers of materials for indoor and outdoor synthetic surfaces, including tennis courts, running tracks, and more.



International Association of Athletics Federation (IAAF)

Action Herculan systems used for running track surfaces meet the strict requirements of the IAAF. This governing body deems Action Herculan SR suitable for both national and international competition.



International Tennis Federation (ITF)

Action Herculan TC tennis court surfaces are certified by the International Tennis Federation. After undergoing laboratory test, the product received the federation's Two-Star ITF Recognition.



Tennis Industry Association (TIA)

Action Floors is affiliated with the non-profit TIA, a trade association promoting the growth of tennis and the economic viability of the industry.

Action Herculan sports floor systems are also certified by other sport governing bodies, including the **International Handball Federation** and the **Badminton World Federation**.

Specifying Synthetic Floors Resources for Your Next Project

*Need to find pad and pour sports floor specifications for your next project?
Make Action Herculon sports and commercial flooring solutions the basis
for design so you can have confidence you're specifying quality materials.*



Visit the Action Floors
Architect Resource Center to
find systems specs, data sheets,
color charts, and more.



You can also find
Action Floors on Sweets™ to
download specifications. There,
you'll also find select CAD, BIM,
and specification files for our
MFMA-certified hardwood maple
sports floor systems.



Want to learn more about
specifying sports floors? Action
Floors provides **continuing
education courses** for architects
through the AIA.

Keep in Mind ... Everything is Customizable

While we provide sports and commercial flooring solutions for
a wide variety of applications, Action Floors can also work with
architects to customize our systems to meet specifications.

Contact us today and get put in touch with one of our experts.

Call Action Floors at
800-746-3512
or visit
actionfloors.com