



## ATHLETIC FACILITY CONSTRUCTION AND SAFETY

by Nik Ditzler

### Planning for New or Renovated Athletic Facilities and Limiting Risk

Sports facilities and gymnasiums can be critical components of a student and athlete recruitment program, and—before making an investment—private colleges and universities must consider these additions or renovations carefully before making an investment. Of course, participant and spectator safety must play a primary role in the design and selection of gymnasium equipment, regardless of the intended level of play that the facility attracts.

#### Engaging Leaders, Managers, and Facility Users

As your university begins planning for a new athletic facility or planning to renovate older facilities, a team of executive leadership, athletic directors, facility managers, and potential facility users should be actively involved in the process of brainstorming, planning, and operationalizing a potential new space. Keeping stakeholders involved ensures the finished product fits the needs of the institution, while involving external experts keeps experienced professionals in the process to help control costs and improve the user experience.

Think through how your space will be used. Consider the demographics of your students and staff as well as the potential for community involvement and adapt your plans accordingly. Certain ages and experience levels have preferences for certain sports and geography will play a role in how popular certain sports might be in your facility. Parking, weather, nearby amenities, and more will affect attendance, especially when considering seasonality and daily fluctuations.

Think ahead to possible future phases that maybe aren't in the budget right now. Trends in sports and fitness are a challenge to keep up with. Ideally, you can plan your sports facility to allow for multiple uses in the same spaces now and in the future. Portable equipment might be a good investment even if more expensive initially. Additional equipment can be purchased at a later date, but changing flooring and room dimensions makes a future phase difficult and expensive. Also, an

investment in divider curtains can double or triple the usable space for practices and intramural leagues.

If in doubt, ask someone in the industry about the equipment questions you have (e.g. manufacturers, installers, dealers). Just as in any project, consulting experts in the field can make the difference between a successful ribbon cutting and "failure" (expensive delays or redesigns). You'll likely find that the sports industry is an open, friendly one where the product engineers, installers, and company owners will answer any questions so that you can have the best information on which to base your decisions.

Consider space available for set-up and storage of equipment. Often overlooked in the planning stage, the allocation of equipment storage and set-up space is just as important as the public play areas. Remember, those portable basketball systems, volleyball standards, racquets, nets, and balls need a safe place away from public areas, protected from theft and vandalism. An organized system for storage means less damage, fewer injuries, and reduces the likelihood of loss.

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### Limit Risk Exposure: Sports Facility Inspection and Maintenance

Given the long lifespan of a college gymnasium, spending a little more on advanced planning and a small additional investment will result in a significant ROI both in terms of safety and future equipment maintenance costs. It's never good practice to wait for an injury or a report from your Loss Control Department or insurance company to take action for improved safety. There are tips that will help you and

your design and selection team maximize safety in your facility whether it's new construction, a major renovation, or equipment replacement.

### Court Layout

The greater the unobstructed area outside the court, the greater the player safety. Ideally, the minimum unobstructed space would be at least 10' on all four (4) sides outside the court boundaries. If space does not permit these setbacks, then it is important to concentrate on having maximum unobstructed space beyond the

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boundary lines under the basketball goals and to provide appropriate padding on all obstructions including walls, columns, stages, and seating.

### Wall Padding

In all cases when the court design results in a wall or similar obstruction within 15' from the court boundary under the basketball goal,

it is highly advisable to install wall padding to protect players from contact injury. While there is a wide variety of wall padding designs and specifications, all wall padding is typically at least 2" thick and 6' high and, per NCAA rules, should be installed no more than 4" from the floor. Typical padding designs have a wood backing, medium density foam and a colored

vinyl covering. All major gym equipment manufacturers can provide guidance on wall padding specifications including flame retardancy, foam resiliency and other safety related features. In some cases, states have adapted specific codes that must be followed.

### Equipment Positioning

NCAA rules specify where on the court volleyball standards and basketball backstops will be positioned. In the case of volleyball, standards should be at least 1 meter (3' 3") from the outside of the sidelines. This would result in the center line of the posts being at least 36' apart. Most manufacturing instructions call for this to be 37'.

In the case of basketball, the rules state that the face of the backboard is positioned 48" from the end line to allow appropriate space for safe play under the backboard. Any support structure, whether portable, wall-mounted or ceiling suspended is not allowed to protrude below the bottom of the backboard for a distance of at least 8' behind the backboard.

### Restraining Devices on Retractable Ceiling or Wall Mount Structures

Due to the multipurpose nature of most facilities, it is common to have sports equipment such as backstops, batting cages, volleyball standards and divider curtains retract to the ceiling or wall when not in use. Typically, designs use electric hoists with cables and pulleys. While not likely due to durable design by reputable manufacturers, it is possible especially in the case of older equipment and improperly installed equipment, for components or attachments to fail allowing the structure to free fall. All manufacturers offer safety devices that act like "seat belts" to restrain the equipment in cases of cable detachment or other failures.

### Backboard Selection

While fan shaped backboards are acceptable for recreational play, most facilities specify rectangular glass backboards. While 48" high x 72" wide glass backboards are permitted, 42" x 72" backboards are recommended as there is 6" less backboard hanging down below the 10' official rim height lessening the likelihood of player contact.

Improvements have been made by manufacturers of glass backboards in recent years that has reduced the risk of backboard breakage. Many manufacturers now offer backboards that have effectively eliminated any stress on the glass caused by dunks or players hanging on the rim. Usually there is a very small extra cost associated with selecting these "unbreakable" backboards with lifetime warranties as compared to older, standard designs.

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## Multi-Court Facilities

Since floor space is at a premium, it is often appropriate to operate more than one court in a facility. Multiple games being played on adjacent courts create risks for players due to increased distractions and when the game ball crosses into the other court. Court divider nets can help reduce this risk, and a variety of styles and price points are available.

## Floor Surfaces

There are a wide variety of sports floors available, and some are better than others for specific sports. Consult your flooring specialist to see what flooring is best for your facility. Budget is often a consideration but make sure to consider factors such as skid resistance, resiliency, and other factors that affect player safety. Always keep the floor well maintained to eliminate slips and falls and investigate floor covers when non-sports activities are planned on sports flooring.

## Inspection and Maintenance

Even the best equipment needs regular inspection and maintenance when appropriate. Regularly inspect all padding, retractor cables, connecting hardware and other features for loose or worn parts. If desired, there are local and regional gym installation companies that will, for a fee, come and inspect your gym for any possible defects and do the maintenance and replacement work necessary to increase safety.

## Facility Supervision

Finally, one of the most common safety risks in sports facilities is the lack of supervision. Most injuries occur due to improper use of equipment that is otherwise safe. Posting signage that govern player behavior and warning of specific safety risks can have a positive impact on safety if combined with adequate facility oversight and facility maintenance.

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