

FACILITY DESIGN

Open-minded gym design

Open-plan gymnasiums can play a key role in the multisport environment of a club or recreation center, says a leading designer of member-supported facilities.

by Hervey R. Lavoie, AIA

Picture a gymnasium and you're likely to conjure up a large, box-like echo chamber with high ceilings, basketball hoops and a wood floor. While many older gyms evoke this image, today's gyms at recreation centers and fitness clubs have the potential to be expansive,

exciting environments where openness is the key word.

In the past, facilities--particularly schools--often lacked a gym. What passed for physical education took place on a paved and open playground. The grassy banks and school entry steps that surrounded this playground afforded ample viewing opportunities for classmates, teachers and other passersby who cared to take an interest in the activity being conducted. In retrospect, that playground was a fine example of a multi-purpose recreational space--an outdoor gymnasium of sorts.

Many aspects of superior gymnasium design are well demonstrated by the playground and other makeshift gaming fields, such as residential streets in dense urban settings. These include multipurpose capabilities, openness to surrounding uses, openness to casual observation by passersby and potential participants, and functional adaptability--it is possible to enjoy impromptu games of touch football and baseball even though the dimensions and conditions of the "field" are not regulation.

It's important to visualize this urban mix of players, player-observers, observers and passersby, and to appreciate the richness of the resulting social experience, because this is the conceptual model for a new generation of gymnasiums in the multi-sport recreation centers and clubs of the coming decade. This model applies to any member-supported facility that's sustained by a sense of community among users or members. In some respects, this gymnasium can be viewed as the town square of these communities where people come to participate and large dedicated spectator seating areas are not needed.

The single most important characteristic of gymnasium design is the concept of openness. The gym is most likely the largest space in a typical center and there's no design rule that requires it



A cutaway of the Concourse Athletic Club in Atlanta illustrates the open-plan gymnasium--an interior atrium with choices of athletic areas arranged around it. Photo courtesy of Ohlson Lavoie Corporation.

be treated as just another room at the end of a corridor.

Because of its size and ceiling height, the gymnasium has the potential to lend a feeling of spaciousness and openness to any of the spaces surrounding it, but not if it's completely walled off from its surroundings.

For example, by locating an aerobics room off a narrow corridor you create a closed-in room and a restricted corridor. Locate an aerobics room open to and adjacent to a gymnasium, however, and you'll see that the corridor disappears and the feeling of spaciousness in both areas is enhanced.

An athletic facility is subject to peak use periods that can result in crowded and congested conditions. It's not always possible to maintain high ceiling heights in exercise rooms that will be filled with active people. By locating these rooms adjacent to and open to the gymnasium, it's possible to "borrow" the perception of space from the larger volume and enhance the apparent spaciousness of the smaller room.

While there is no need for dedicated spectator seating in most recreation center and club gymnasiums, the importance of creating casual viewing opportunities should not be underestimated. One of the reasons people join membership-supported centers is to participate in the social mixing, the friendly see-an-be-seen atmosphere of people exercising and recreating together.



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Open viewing of gymnasium activities from lounges, food and beverage areas, exercise stations, stairways or walkways should be encouraged. The use of grade separations, glass or safety nets can take care of concerns that may arise because of stray balls.

Opening up a gymnasium does create some additional risk, but this can be managed in view of the considerable benefits of openness.

An open-design gymnasium also is a programming showcase for prospective participants who are passing by or involved in other club activities.

During the design process for a club or recreation center, it's a good idea to conduct an imaginary tour of the facility for a prospective member. If the tour route is like wandering through a maze, red flags should go up signaling that this is perhaps a flawed layout. On the other hand, if there are dramatic overviews from where it's possible to point out many of the facility's primary attractions, you can gain some confidence that you're on the right track in the search for the best building plan.

Other benefits of open gymnasium planning include economy, acoustics, ease of orientation and opportunities for daylighting.

The case for economy can be made by the reduction in wall construction that can be realized in an open plan approach, although some of these savings may be offset by increased use of tempered glass partitions. Acoustically, the benefits also seem to point toward open planning. The problem of the gymnasium as an echo chamber is alleviated by creating an irregular and largely open perimeter that allows gym noise to be dissipated rather than reflected. The matter of unwanted gym noise intruding on certain perimeter uses must be addressed, however, and this is where glass partitions come in.

Food and beverage areas will generally not benefit from being atmospherically open to a gym space, but a glazed overlook for the restaurant into the gym will be quite popular.

Recreation centers and clubs come in all sizes, and facilities of 50,000 to 80,000 square feet are not uncommon. Users may have difficulty finding their way around a building of this size. By organizing the layout around a central and open gymnasium, the designer can create a facility in which users can orient themselves quite easily.

Circulation around an open-plan gymnasium is important, as you can't allow bypassing circulation to interfere with the sporting activity. A particularly effective way to define circulation around a gym is create a change in floor level around all or part of the perimeter of the gym. By having three or four steps up to the circulation way, a buffer zone between activity and circulation is created. The steps also become useful for casual observation seating by both spectators and gymnasium users, and provide a natural transition line to change the floor finish.

It's best not to continue the gymnasium surface out over the circulation way. Approximately five feet outside the last game line is a good point of transition from wood to another surface, using the other surface to define the circulation way in cases where steps, partial walls or glass partitions are not feasible. If carpet is used, it can help with acoustic absorption within the gym.

Another issue to be dealt with in open-plan gymnasiums is building codes. Open plans of any kind are generally discouraged, because they are thought to be less resistant to the spread of fire. Building code officials like to see solid walls, fire doors, occupancy separations, area separations, fire-rated exit stairs and enclosed corridor—all of which will drive gym design toward the shoe box comparison.

The code restrictions can be particularly vexing in a multistory design, where there are two or more stories of activity areas overlooking the gym. Since building codes vary across the country, the best advice is to see the building officials as early as possible in the design process.

The most convincing benefit of open plan design, in my opinion, is the synergy that results when all these diverse activities share exposure to each other, across the expanse of a central arena that is in itself a center for high speed/high skill competition. The total impact can indeed be greater than the sum of the parts.

Several additional design considerations should be addressed, regardless of whether or not a gym has an open plan. The first of these is functional accommodation.

As designers, we are frequently asked to consider the possibility of providing a gymnasium-type space within an existing fitness center or racquetball club shell that simply does not have the dimensions necessary for an official regulation game court for basketball or volleyball.

As a result, designers have been compelled to consider the minimum dimensional requirements for having an enjoyable basketball or volleyball experience. For the purposes of recreation or light competition, our conclusions are that a 40-foot-by-50-foot court will prove functionally adequate for a single full-court recreational basketball game with three or four players per team, or two half-court games.

Another possibility is a half-court gymnasium that is suitable for half-court basketball (45 by 35 feet of clear 20-foot-high ceiling is adequate for this use).

With respect to ceiling heights, 18 feet is a practical minimum clear height in which to enjoy recreational basketball or volleyball.

Creating a gymnasium with suitable dimensions for volleyball can be a bid asset for a small club facility with limited opportunities for recreational programming. Adhering to regulation dimensions is more important for volleyball than it is for basketball, although a compromise of 2 or 3 feet in curt length is possible without jeopardizing the enjoyment of the game. However, it may be better to preserve the regulation volleyball court dimensions (29 feet, 6 inches by 59 feet) and eliminate the buffer/safety zone normally provided outside the court boundaries and provide instead a completely cushioned wall just outside the end lines.

With respect to ceiling heights, 18 feet is a practical minimum clear height in which to enjoy recreational basketball or volleyball. At this dimension, all lights must be fully recessed.

It must be emphasized that while these off-size mini-gyms are less than ideal, the owners and operators of such facilities report a high level of member satisfaction with the unexpected opportunity for basketball play in what would otherwise be a small, fitness-only facility.

Gymnasium wall finishes must be selected with both safety and durability in mind. Any vertical surface within 5 feet of a side court line or 6 feet of an end court line should receive safety cushion treatment to a height of 5 feet. Other wall surfaces should receive smooth, non-abrasive, cleanable finishes over impact-resistant construction. Avoid drywall, rough-textured concrete block and wood panel construction.

The use of glass within perimeter limits of the gym enclosure must be carefully detailed. Glass within 6 feet of the game line should be detailed similarly to the glass used on racquetball courts—fully tempered and thick enough to withstand body impact. Avoid any kind of projecting mullion with sharp corners, and use butt-glazed detailing, or if vertical window frames are required, flush detailing on the impact side of the glazing.

Choices for floor finishes are wood, synthetics and carpet. There are many proprietary systems for installing these generic finish types and it's beyond the scope of this article to attempt to evaluate the merits of each of these systems. In general, however, most membership-supported clubs and recreation centers will opt for a wood finish floor system for the main gym.

It's a matter of perceived quality by a membership that expect a gym floor similar in appearance to what they see in NBA and NCAA competition. Wood floors have also been going into gymnasiums for most of this century, so the technical problems have been solved and the floors are quite reliable when manufacturer's specifications are followed regarding subfloor tolerances, venting and humidity conditions during both installation and occupancy.

The gymnasium is the one common component of athletic clubs and recreation centers that is rarely expanded or converted to another use. This minimal need for expandability or convertibility is another factor that tilts the scales in favor of centrally located, open-plan gymnasiums, surrounded by other facilities that have a higher likelihood of needing expansion or conversion, like weight rooms, aerobic studios, locker rooms and offices.

The planning process for every gymnasium should include an examination of optional and support provisions that can increase the versatility of space. At the top of this list should be storage space. A partial list of such accessory provisions would include a temporary floor covering (for wood floors), a portable hoist for changing light bulbs, movable gymnastic mats, table tennis equipment and temporary bleachers. All these options would require storage space when not in use.

Other optional provisions, which could be built in, include divider curtains and safety nets, adjustable height basketball backboards, sport climbing walls, indoor baseball netting, player seating, safety cushions, and scoreboards. Still others include clocks, a music system, a public address systems, telephones, acoustic panels, water coolers, cuspidors, conveniently located rest rooms and a janitor's closet. These programming options should be decided upon before design work begins.

Another option that deserves strong consideration is daylighting. This is particularly important for the centrally located, open-plan gymnasium. During periods of inactivity it may be desirable to

turn off or reduce the lighting level of the gymnasium.

Decorative elements are important. Consider the floors and walls of a gym to be large blank canvases waiting for a colorful and striking graphic display.

This is no problem for an isolated, closed-plan gym where the darkened room would have little or no impact on the remainder of the facility. For an open-plan gym, however, the effect of turning off the lights would be quite noticeable and undesirable. Having supplemental daylighting in such a gym allows the economy of reducing lighting power without the negative impact of a central dark room at the hear of the facility. In some facilities, a skylight can provide enough light so artificial lighting is not needed during low-use periods of the day.

The issues of heating, cooling and ventilating a gym deserve greater attention than this article can provide. Suffice it to say that maintaining year-round comfort is essential. This means air conditioning. Centers without air conditioning in the gym are severely hampered in their efforts to provide year-round programming for their members.

Decorative elements like banners and colorful floor and wall graphics also are important. Consider the floors and walls of a gym to be large, blank canvases waiting for a colorful and striking graphic display. Such cosmetics are an important part of the image-making that helps to develop the pride of membership that supports the club and recreation center industry.

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