

**R**ecreational swimmers, competitive swimmers, divers, water polo players, water exercisers, rehab patients and other water lovers are all clamoring for more pool time. What's the owner or operator of an overcrowded outdoor pool to do?

Many are enclosing their outdoor pools to provide residents, members and guests with year-round pool use.

"When you build an outdoor pool, it's just like building an apartment and telling people they can come visit for only three months of the year," says John Spannuth, president and CEO of U.S. Water Fitness Association in Boynton Beach, Fla. "Aquatics directors are slowly realizing that pool enclosures are the only way to really pack a pool, especially after the summer. I wouldn't be surprised if the number of enclosures triples in the next five years."

In addition to choosing among the two main enclosure types — glass panel and air- or frame-supported fabric — operators must recognize the importance of maintaining proper indoor air quality, weigh additional programming revenue against additional costs, and understand the maintenance involved in preserving their enclosures.

### The air in there

Manufacturers and operators both agree that the ventilation system is one of the most critical determinants for the success of any type of pool enclosure.

"The heating, cooling and humidity are all vitally important to the structure," says Tom Minnon, national sales and marketing manager for Structures Unlimited in Manchester, N.H.

"The farther north you build the structure, the more important heating becomes. Keeping the air temperature slightly warmer than the pool water will dramatically reduce the amount of evaporation and the concentration of pool water in the air. This keeps humidity levels down significantly."

Minnon urges all his clients to investigate various dehumidification and ventilation systems to accompany their new enclosures.

Glass-panel enclosures allow operators to easily adjust air ventilation by opening or closing the panels. Many include some type of mechanical air-handling system. These enclosures, usually constructed of glass or polycarbonate glazing with aluminum framing, can cost one-half million dollars or more, depending on the size of the enclosure.

Air-supported enclosures, also known as "bubbles," are made from flexible vinyl fabric and can be assembled and disassembled to match the seasons. Costing anywhere from \$7 to \$20 per square foot, the total cost can range from \$10,000 to \$200,000 depending on the size and material used.

These air-supported enclosures, however, don't generally employ separate air-handling systems. The blower systems that keep the enclosures inflated also circulate fresh air into the pool area, according to Rick Kraus, president of Aquaflex Vinyl Engineering in Sacramento, Calif.

Kraus says his firm's enclosure includes an air skirt that seals the dome. The skirt has wrinkles in it that allow air to move in and out, and the entry points, whether revolving doors or zippered doors, also provide fresh-air entry.

Operators at pools with bubble-type enclosures, however,



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**Freezing temperatures won't deter swimmers at a bubble-enclosed pool (opposite). Glass enclosures (above) often provide natural light and ventilation via sliding glass panels.**

claim that a lack of air circulation in the domes has caused safety and maintenance problems.

"The thing that I like least about the bubble enclosure is the air quality," says Marilyn Flynn, pool manager of the South Fort Pool in Fort Polk, La. "There's no recirculation of air, so we have to scrub the deck, handrails and diving boards a lot. Some lifeguards complain of headaches from the chlorine."

Flynn says the problem is rarely serious enough that she has to send a guard home, but guards often need five- to 10-minute breaks outside the bubble. She tries to avoid this scenario by rotating the guards in the bubble every hour.

"I did speak with our manufacturer about this problem, and he assured me that the air in the bubble recycles every few hours," Flynn says. "I don't think this is correct, and I definitely plan to consult some professionals and test the air quality."

#### The hole story

Kraus says he would be surprised if one of his clients complained of poor air quality. If so, he would suggest that the client keep one or more of the entry points partially open to increase the air exchange.

Stephen Bielski, president of Air Structures Inc. in Sacramento, Calif., asserts that he has never received a cus-

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tomers complaint regarding indoor air quality. His firm's air-supported domes are cross-ventilated by way of four crescent-shaped zipper doors, one in each of the dome's quadrants. The dome's blowers also bring fresh air into the enclosure, he says, and 6-inch roof holes vent the air to the outside.

Some facilities have been known to take matters into their own hands. For example, Steven Bailey, recreation director at the American Fork Fitness Center in American Fork, Utah, says he cut additional holes in the lining of his fabric structure to rid the pool area of humid air.

"When our structure was first installed, the manufacturer cut holes in the lining at the top of the bubble," Bailey says. "But the liner was still constantly dripping, and if you touched the side, it would shower like rain."

Bailey enlarged existing holes along the base of the liner, close to the floor. "The manufacturer had [also] cut holes in the lining that were 6 inches wide along the bottom of the bubble. We simply made these holes bigger, to approximately 1-foot wide. This solved the problem and now the facility has dried out, and we no longer get mold on the cement."

Despite having to make these adjustments, Bailey says he



Aquilflex, Sacramento, Calif.

**Hotels and motels can provide enhanced guest services by enclosing their pools and offering year-round swimming.**

would still highly recommend his enclosure to others, and he believes that his alterations will not affect the product's warranty.

"I think, due to client response, [the manufacturer] has started to increase those base-line holes on all their new bubbles," Bailey says.

#### Revenues vs. costs

While recreational pools rarely pay for themselves, installing an enclosure and developing a marketing plan can turn pools into profit centers, according to Spannuth. He warns, however, that directors must understand how to make their enclosure work financially, which means adding a variety of programs and aggressively marketing them.

David Heath, aquatics director at the Sportscenter Athletic Club in Concorde, N.C., covers his 25-meter pool in

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September and deflates it in May, giving him an open-air pool during the summer. He believes he'll recover all installation costs within the next year.

"The bubble enclosure is an excellent way to generate revenue," Heath says. "We rent the pool year 'round to high schools, swim teams, private lessons, private parties and community events."

Conversely, Bailey does not anticipate generating enough revenue to cover the cost of his enclosure, and claims he would save money if his pool were open only during the summer.

"I'm not sure we'll ever recoup the \$190,000 we paid for the bubble," Bailey says. "Our local government covers the cost to keep the facility open in the winter, and I doubt many private enterprises would be able to afford the cost."

Bailey, however, believes that enclosing the pool provides a better quality of life for residents, especially for seniors who use the pool for rehabilitation. This makes the enclosure worth the price, he says.

While air-supported domes are initially less expensive than glass enclosures, the requirement for around-the-clock blowers can significantly increase energy bills.

Frank Napolitano, owner of Highpoint Athletic Club in Chalfont, Pa., replaced the bubble enclosure over his 25-yard pool with a sliding-glass structure five years ago. "Our energy costs were much higher with the bubble," he says. "Because we don't have to drain the pool to assemble and deflate a bubble, we've gained two more swim sessions in the spring and the fall every year."

According to Napolitano, the lower energy bills and the added classes help to more than recoup the money originally spent for the glass enclosure.

In colder climates, the enclosure's glass can be glazed with a polyurethane panel and aluminum scan on both sides, rather than with the more standard polycarbonate. This makes the structure completely insulated, which results in more efficient heating systems.

"In areas where the heat loss can be very significant, we use this procedure," says Bob Thompson, owner and CEO of Carolina Solar Structures in Asheville, N.C. "We put a skylight down the center, but keep all the remaining panels insulated to ensure heat efficiency."



## Money matters

Pool owners and operators can't just add an enclosure without taking a close look at their existing amenities, says John Spannuth, president and CEO of the U.S. Water Fitness Association based in Boynton Beach, Fla.

Consider, for example, a seasonal facility in a region with cold winters. By adding an enclosure, the facility now can operate year 'round. But this facility was built with minimal locker-room space. In the summer, after all, guests just show up in their swimsuits and jump right in.

In the winter, however, these same guests need ample locker-room space in which to change out of their heavy winter clothes and store their coats. More showers are probably needed because more guests will want to rinse off before getting dressed, rather than just heading home in their swimsuits. Additional parking spaces may be needed — few guests will ride their bicycles to the pool in January. This facility might need to purchase a snow blower to ensure clear access to the front doors.

— Mark Edelstein

During the spring and fall, when the sun shines brightly but the outside temperature is 50 degrees, the glass enclosure maintains the inside temperature at 80 degrees. So, says Thompson, the energy costs balance out.

### The maintenance game

While glass structures often reduce energy-related costs, maintenance costs can be daunting.

"When you have a structure with metal, it rusts and you are constantly repainting and replacing parts," Bailey says. "We built a pool enclosure in 1974 and the roof was totally rusted through by 1989 because the high chlorine levels in the air are extremely corrosive. We don't see those types of problems with our bubble."

To overcome the corrosive nature of chlorine, most manufacturers use non-corrosive materials such as aluminum, glass, stainless steel and fiberglass in their pool enclosures.

Jim Cyrus, aquatic programmer for Parks and Recreation in Gwinnett

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County, Ga., oversees pools with both glass and air-supported enclosures. Cyrus says his staff must regularly clean the sliding-glass roof panels or they begin to stick. While this process is labor intensive, it uses far less labor than erecting and disassembling the air-supported enclosure.

## In a fog

David Heath says he constantly regulates temperatures within the bubble over his athletic club to keep fog from forming. When the temperature drops below 47 degrees in the dome, which happens frequently in the winter, Heath claims that sometimes he can't see from one end of the pool to the other.

"This was a big problem at one point because it created a definite safety concern," says Heath, aquatics director at the Sportscenter Athletic Club in Concorde, N.C. "Now we've installed a thermostat, and the heat automatically kicks in within minutes of the temperature falling below 47 degrees. And we're vigilant for the slightest traces of fog."

— R.M.S.

"Our bubble enclosure covers a 50-meter pool," Cyrus says. "We actually have to use [prison] inmate labor to gather enough people for the week-long procedure of putting the bubble up."

When erecting the bubble, Cyrus runs cables across the pool so the fabric doesn't sink into the water. The process requires more than 40 people to stretch the bubble out across the pool. More than 1,000 bolts in the pool deck keep the bubble securely fastened.

Disassembling the structure is easier, Cyrus says, but they still must drain the pool before commencing the deflation process. Disassembly takes approximately three days.

"These bubbles are extremely heavy," Cyrus says. "We roll ours up into three sections, each one weighing about 3,000 pounds. The manufacturers will tell you that the material lasts 10 years, but with all the handling we do, ours never last more than seven. This is the third bubble we've purchased in 19 years." ●

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