

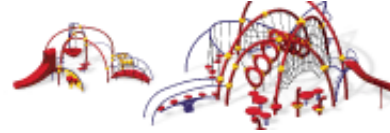
# RECREATION MANAGEMENT

THE MAGAZINE WITH IDEAS & SOLUTIONS FOR RECREATION, SPORTS & FITNESS FACILITIES MANAGERS

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## On the Safe Side

### Make Your Aquatic Center Safe (and Fun!) From the Ground Up

By Jessica Royer Ocken

Without a doubt, keeping patrons of a pool or aquatic center safe while they're enjoying the water is of utmost importance to everyone involved. And, it practically goes without saying that having a well-trained lifeguarding and management staff is key to accomplishing this goal. But these guys don't operate in a vacuum, and the physical aspects of your facility—everything from its layout and design to its play features and lighting to its pumps and chemical-handling systems—have an impact on how well your guards, managers and maintenance staff can do their jobs.

Sure, there are codes in place to make sure public and commercial pools meet certain standards, but basing your facility's physical features on code requirements is "like shopping in the generic aisle at the grocery store," said Matt Freeby, AIA, LEED AP, NCARB, an architect with Water Technology, an aquatic design firm with offices in Beaver Dam, Wis., and Dallas. "You'll get sustenance, but that's not where most people want to shop."

Codes usually represent the baseline, he continued. And the uses for aquatic facilities can multiply more quickly than codes can keep up. Add in strapped government budgets that limit the number of inspectors available, and it's clear that merely passing inspection each season may not be enough. Steve White, a Certified Service Professional and president of Underwater Pool Masters in Worcester, Mass., agrees. "We're not only up to code for the pools we maintain, we're also ahead of the curve."

That seems like a smart place to be when there are literally lives on the line. So, whether you're planning a new aquatic center or wanting to make sure you've done everything you can to make your current pool or waterpark a fun, safe place to get some much-needed exercise, read on for our best tips to keep public health and safety, as well as entertainment and enjoyment, at the forefront of what your facility has to offer.

### Design Features

Today, he's an architect designing aquatic centers, but growing up, Matt Freeby was a competitive swimmer and a lifeguard. He still remembers his first outdoor guarding job: a big 50-meter pool with locker rooms along one side. The guard chair on the locker room side of the deep end was dubbed the death chair. "It was like playing Russian roulette," Freeby said. "When you were sitting there, it was only a matter of time until you had to go in and get someone." The problem? Kids would come zipping out of the locker room, totally excited to swim, and splash into the water before they realized it was the deep end. Or they'd see the diving board right in front of them and decide to go for it, remembering only later that they weren't quite able to swim to the side.

"So, placement of shallow water is crucial," Freeby said. Look at how people enter the pool, and make sure it's not deep water that immediately presents itself. This is a good planning note for those in the design phase, but if you already have a pool with this very problem, create some barriers—fencing or roping, or even a row of potted plants—that will divert traffic out of the locker room toward water 24 inches deep or less. Also consider adjusting your access point if the first water patrons encounter out of the locker room is moving water, like a lazy river or wave pool.

Another consideration, if you're in the planning phase of a project, is that "most pools are just too deep," according to Dr. Tom Griffiths, president and founder of the Aquatic Safety Research Group LLC. Shallow water is defined as anything less than 5 feet, but most American children don't grow that tall until they're about 12 years old. Instead, Griffiths recommends a maximum depth of 3.5 feet. More and more family leisure pools are adopting this standard, he said, and "everyone's in the water having a good time."

Also, be sure you choose wisely as you select the materials you'll use for your pool deck and other surfaces, particularly if your facility is outdoors. Of course you need nonslip flooring or decking, even when it's wet, but think about more than just beauty and color as you're choosing materials. Dark or colored concrete or terrazzo can absorb sunlight and sizzle swimmers' bare feet. Look for nonslip materials that shed heat, rather than retain it, and whatever your pool deck is made of, make sure you have practices in place to keep it clean and as dry as possible throughout the day, White suggested.

In addition, adequate lighting in the water is important in helping guards see what's happening beneath the surface, particularly in water deeper than 5 feet and for pools that are open at night. LED lighting is one of the newer options available and offers long-lasting bulbs and brighter underwater light. However, Freeby said that in some cases this may be an area where the code has not caught up, and your state may require more in-pool lights than you'll really want if you're using LEDs.

Finally, as you're deciding on the layout of your aquatic center's features, determining the best places for seating and structures around the pool, or considering an addition to your facility, be sure you keep your lifeguards' sight lines and ability to communicate with one another in mind. If your pool is sometimes open without guards (or with limited guards), consider how your other staff can be made aware when assistance is needed in the water.

Ray Swoop, manager and certified pool operator at Worcester Fitness in Worcester, Mass., said that the facility's lap pool does not have a guard, but there are two closed-circuit cameras in the pool area that are monitored by staff at the front desk. Another option? Alert systems that sound a siren when a sensor or panic button is tripped in the water can bring help quickly to manage the situation while the lifeguard or swim instructor assists the swimmer in trouble.

## Fun Additions

These days, the very things that make your aquatic center most exciting and appealing to patrons can create the biggest safety challenges. So, as you add splash playgrounds or waterslides or zip lines into the pool, be sure you're also including the safety features needed to keep users healthy and happy.

Just like playgrounds have safety surfaces designed to absorb impact and prevent injury from falls, your shallow end or splashpad will need this, particularly when any sort of climbing structures are included. This means either water that's deep enough to cushion a falling (or, let's be honest, jumping) child or special waterproof padding installed around and beneath aquatic play features, diving boards and waterslides.

In older pools, lingering high boards can be a safety challenge, Griffiths noted. If your 3-meter board is still in use, be sure the ladder has adequate hand rails and fall-prevention measures and the ground around the structure has a fall-cushioning surface. And if the board is not getting a lot of use, consider removing it altogether.

LED lights were mentioned in the previous section as a great way to add brighter light from longer-lasting bulbs beneath the surface of your pool, and another fun feature of LED lights is their ability to change color. This can open up a lot of programming options, but whether it's disco night at the aquatic center or floating movie night in the pool (with mood lighting), "you have to evaluate that the light is still adequate for guards," Freeby said. "Can you see a person on the bottom of the pool?"

Rope swings, zip lines and waterslides all usually require deep water for a safe splash-down landing, and they can be disorienting for inexperienced swimmers who use them. Particularly after a ride on a twisty, turny "body bowl" style waterslide, kids may have a hard time finding the surface of the water, Freeby said. Not only do you need to be sure your facility includes activities suitable for a range of ages, the features need to be clearly labeled as appropriate for swimmers or non-swimmers. Younger children who are comfortable in the water may be ready for more challenging slides or features, but even if they're older, less experienced swimmers (or non-swimmers) may not be, no matter how tall they are. Be sure the height, age, and/or swimming requirements for each activity are posted and enforced. And, if you have the space, Freeby also suggested ending waterslides with run-outs rather than a plunge pool to eliminate the potential for struggling swimmers to find themselves in deep water.

You can also make monitoring a pool with water activities and play structures less challenging for your lifeguards by choosing clear, see-through elements whenever possible, whether that's a clear climbing structure or clear inner tubes for pool or lazy river use.

## Signs of the Times

It might seem like a little thing, but the way you let your patrons know about the rules and regulations that govern your pool or aquatic center is another physical feature that can have a pretty big impact on whether or not rules are actually followed. And believe it or not, less is more!

The Aquatic Safety Research Group has studied signage for years and found that the pool industry often relies on long lists of posted rules to communicate with users. Not only are the lists so long that no one is likely reading them all, they sometimes include a jumble of different things—from housekeeping information to directions around the space to safety warnings—all mixed in together. Certainly all of these details are relevant for users of the facility, but "research shows that the average American spends three to five seconds looking at a sign," Griffiths said. So, if this is information visitors need to have, we have to get it to them in a better way.

Wherever you want visitors to put their belongings and whatever your rules for bringing in outside food, your methods and regulations for keeping those in your pool safe and uninjured probably take priority. (Ask your insurance company if you're not sure.) "We need to use a highway signage approach," Griffiths said. Highway signs use easily recognizable colors and symbols to alert drivers speeding by of upcoming hazards in a split second. "Why shouldn't we do that for our pools?" he continued. "Especially if visitors are being bombarded by all kinds of other information."

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Clarion Safety Systems has created signs that accomplish this goal ([www.clarionsafety.com/Water-Safety-Signs](http://www.clarionsafety.com/Water-Safety-Signs)) and have been endorsed by the National Drowning Prevention Alliance. The company tested to determine which symbols, warnings and colors would be most effective, and the result is a series of signs that yield over 90 percent recognition in just a few seconds. "Not only do they reduce accidents, they reduce [lawsuit] awards by significant sums," Griffiths said.

Simply decide on your three to six top-priority safety messages, select the appropriate signs and post them around your pool and water play area. Four-sided cones can sit on the pool deck to keep safety messages always visible, and Griffiths also recommends the privacy wall that must be in place as patrons exit the locker room or bathroom onto the pool deck: put those most important safety reminders right in everyone's line of sight just before they enter the pool. "The beauty of this program is that you don't have to take down all your other signs," Griffiths added. Although, you may want to evaluate them. "A lot of pools are guilty of sign pollution."

## Air and Water Hygiene

While the risk of drowning is often the "headline grabber," it's also critically important to be sure the water and air at your aquatic facility is sanitary and free of excess chemicals or waterborne illnesses, Freeby noted. This means choosing the right size and type of pumps and filters for your pool, waterpark or water playground, and basing your decision not just on the amount of water you have, but on how many people will be in it at a time, as well as how they'll be using it.

A lap pool and a toddler water play area may cover roughly the same surface area, but one has just a few people at a time in deeper water whereas the other has lots of toddlers in warmer, shallower water. "That's a totally different environment," Freeby said. Water that gets more "use" should be turned over more often (even more than codes require in some cases), and be sure you know your area's regulations on pumping. In Massachusetts, for example, 24-hour pumping is required for all pools and spas, White said. "If the pump shuts off, the pool is closed."

Automated chemical controllers can help to ensure your water stays properly balanced and properly clean, and in many states, they're required. Even if yours doesn't happen to be one of them, they're a worthwhile safety investment, said Tom Lachocki, CEO of the National Swimming Pool Foundation. Automated systems can help avoid improper dosages or mixtures of chemicals, give you better control over hard-to-manage areas like spas and kiddie pools, and alert you in case of a problem, as well as let you make adjustments over the internet.

There are also water-clarifying products available, many of which are eco-friendly and natural (and can be added without closing the pool), to help de-cloud water on days when bather load is high, as well as removing particles and organisms like E. coli, Cryptosporidium, and Giardia to enhance your filtration process and keep water safe. The latest versions of these come in easy-to-use pods that minimize measuring and mess.

If your aquatic facility is housed indoors, you also have air quality as an important consideration. That telltale "chlorine smell" comes from chloramines, which can cause asthma attacks and skin and eye irritation. They result when the chlorine in the pool water has begun to lose its battle with contaminants, explained Richard Deakin, a certified pool maintenance professional with Hollandia Pools & Spas in Ontario, Canada. "It's important for facilities to realize that bad water is the source of any bad air quality," he continued. This can be caused by poor maintenance or filters too small for the size of the pool.

Keeping water chlorine levels

appropriate with a chemical controller

also helps address this problem, as

does the addition of a UV unit, which

assists in the water-cleaning process

and reduces the amount of chlorine

needed. Among the pools Deakin

maintains is a YMCA in Woodstock,

Ontario, which has been happy with the

way their UV unit has enhanced air quality at their indoor pool, and reduced their chlorine usage by 40

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percent while making the water clearer.

However, not only do you want to keep patrons from breathing chemical fumes, you want to limit humidity and chemical buildup to protect your walls, ceilings and support structures, which can be corroded and weakened over time in an environment that's too moist or too chlorinated, said Worcester Fitness's Swoop. He recently installed a new air circulator at his indoor pool and has been pleased with its ability to heat, cool, dehumidify and recirculate fresh air. "People are here [at the pool] for their health," added White, who consults with Swoop on maintenance at Worcester Fitness. "They're not going to feel comfortable if they smell a lot of chlorine or it's raining inside."

## Protecting Non-Swimmers

Note & Float is a new safety program that can be implemented with minimal equipment, and it can reduce water rescues by 90 percent. Developed by the Aquatic Safety Research Group and first rolled out at Penn State's 50-meter pool in 2009, the program requires that everyone using the pool pass a simple swim test to ensure their competence in the water. Children not yet able to swim are given a wristband noting their status and are required to wear a Coast Guard-approved lifejacket (which the facility provides) while using the pool. "More and more pools are starting to use this program," noted Griffiths. "We hope that eventually wearing lifejackets will be the standard of care for non-swimmers, just like children using a car seat in the car or wearing a helmet on a bike."

While it's difficult to calculate how many children drown each year where lifeguards are on duty, Griffiths thinks it might be between 100 and 200. However, he can find no record of a child drowning while wearing a lifejacket.

The program is free, with resources available from the Aquatic Safety Research Group ([www.aquaticsafetygroup.com](http://www.aquaticsafetygroup.com)), so your costs are limited to the wristbands and lifejackets you purchase, and in some cases there are grants available to cover this expense. Griffiths suggests getting more lifejackets than you think you'll use and color-coding or organizing them by size—perhaps on a rolling rack—so it's easy for parents to find what they need. Keep them near the entrance with a tape measure to determine who's less than 48 inches tall, as it's particularly important that smaller children, who may not be able to stand in parts of the shallow end, have a lifejacket if they don't swim.

In some cases, facilities have started by using Note & Float just with groups that rent out the pool for private parties. At Penn State, the program is required at the outdoor pool, but voluntary at the indoor pool because there aren't nearly as many children using it. You could introduce the program on a volunteer basis and move toward making it mandatory over time.

In addition to improving overall safety, many pools using Note & Float have seen a rise in swimming lesson enrollment as children are motivated to earn the right to shed their jackets. Putting a lifejacket on a non-swimmer helps them be more comfortable in the water, explained Rachel Griffiths, communications director for the Aquatic Safety Research Group. And comfort in the water is a key component of learning to swim.

### Note & Float in Action

Located in Manitou Springs, Colo., the Manitou Pool & Fitness Center includes a 5-lane, 25-yard pool, a small wading pool, and a hot tub. It's used by children and adults alike and is home to the Colorado Torpedoes swim team and Wild Blue Racing swim team for adults.



Director Roy Chaney reports that they began using Note & Float with big groups that visited the facility in 2010, and they phased it in as mandatory for all pool users in 2012. "We felt we had too many basic rescues with kids just getting over their heads," he explained. "We have a small pool, so it is easy for kids to find themselves in water too deep."

When the program began, Manitou Pool announced it was using posters they downloaded from the Aquatic Safety Research Group's website, as well as posting program information on their own website and sending information about it to local schools. They also advertised it side-by-side with their swim lesson offerings. Chaney said the public was immediately onboard with Note & Float, although his staff did answer questions for a while, and some children were initially embarrassed to be wearing a lifejacket. "However, after the kids were able to join their friends and have fun in the water, they forgot they were even wearing it," he said. He also noticed some kids learning to swim on their own, and eventually they were able to pass the test and stop wearing the lifejacket.

Note & Float also requires parents to be in the water with their non-swimming child, and some parents don't want to do that, Chaney reported. Large groups with limited supervision can also be a problem. But "we find solutions," he said. In some cases one adult is allowed to supervise several children, and the pool adds extra guards if needed (and charges the group accordingly).

His staff was skeptical at first, "but now they love the program," Chaney said. Water rescues at Manitou Pool have dropped by 90 percent from past summers, "and when guards do go in, it's just to help a kid who is floating, but maybe has just panicked a little. That's a big difference from having someone sinking under the water."

He said he would recommend the program to all public pools, and he suggested a gradual phase-in as a good way to familiarize both staff and the public with how Note & Float works. "Kids who were afraid of the water are now playing with their friends and having a good time," he said. "Note & Float is preventing close calls and saving lives!"

## Conclusion: Safety First

Beyond creating and maintaining a safe physical atmosphere at your facility, the best safety measures combine top-notch features or equipment with appropriate staff supervision. It's impossible to run a truly safe and fun aquatic environment without both. "Only half of the states require people who operate or service public pools to have verifiable training and certifications...", Lachocki said. "Although there may be better fences, better gate latches, better drain covers, better ways to monitor and control water chemistry, better ways to handle chemicals, if staff are not aware, there's a safety gap."

If you're not a Certified Pool Operator, consider becoming so, and also consider developing a relationship with a certified pool service professional who can help keep you apprised of the latest developments in the industry, as well as changes in the law. Swoop and White have a decades-old relationship, and the patrons at Worcester Fitness are better off because of it.

Plan a safety audit of your facility (visit the National Swimming Pool Foundation online for details) and get a handle on where you need to take immediate action for improvement. Then make "safety captain"—a position that rotates weekly or daily among your staff so someone always is looking for potential problems, such as a loose railing, an unlocked door or some missing padding, as their top priority, Freeby said. But above all, don't let all these safety details overwhelm you—your aquatic facility provides an important public service.

"Let us never forget that safety is all about preserving lives," Lachocki said. "And inactivity is becoming one of the leading killers in America ... Thus, getting in the water does preserve life and is a terrific safety activity. The challenge we have is to make that activity even safer so families get all the good with as little risk as possible. Yesterday's recreation is today's prescription for better health. Water is the perfect medicine."

## A List of Little Things

Small updates that can have big impact:

- Add more buoy lines indicating a change in water depth in your pool. Put one at 2.5 or 3 feet, rather than waiting until 5 feet, suggested Dr. Tom Griffiths of the Aquatic Safety Research Group. There are drownings even in zero-depth entry pools because a non-swimming child follows someone into water they think is safe. Older siblings can stand in shallow water that may be over a toddler's head. "Corral your non-swimmers," Griffiths said. "Supervision is imperative but imperfect."
- Behind the scenes, consider ordering chemicals in containers with locking lids. Even if the door to the pump room is left open, a locking lid (paired with a keyed or coded padlock) helps ensure only authorized people have access.
- Think about shade. Providing shade for your lifeguards and patrons alike not only makes a longer, more comfortable day at the waterpark possible, it helps limit sunburn and heat exhaustion. "We're adding lots more shade to outdoor facilities than we were even 10 or 15 years ago," said Matt Freeby of Water Technology. Consider umbrellas for your guards and canopies over play structures and picnic or observation areas.
- Make sure your lifeguards have every advantage. The latest and greatest guard chairs are more like portable stations that allow positioning close to the pool's edge, easy side access for limited disruption during shift changes, and a variety of heights—all in a minimized footprint.
- Secure your water. The need to make your pool a safe place doesn't end with the swimming season, so take precautions to prevent accidents even when your pool is closed. (A fall into an empty pool can be dangerous, too.) Consider a safety cover for your pool, which requires a professional to remove it and limits your liability in the off season.
- Include the locker room in your cleaning regimen. Yes, it's important to have sanitary pool water, but the locker room can be a germey place, too. Make sure it's easy to clean and has adequate drainage, Freeby suggested. "It should be a place people want to use, or else they won't."
- "Almost all facilities can shift to variable-speed pumps," noted Tom Lachocki of the National Swimming Pool Foundation. And how is that a safety tip? It's actually a money-saving tip, which—along with other efficiency upgrades like pool covers and heat exchangers—will leave you more dollars to put toward safety and training at your aquatic center. "The more profitable a facility, the better they can afford to implement safety improvements," he explained. For a real bonus, try adding programming like swim classes, a swim team, or masters swimming, as these revenue-generating programs also help reduce drowning by making your patrons more safety conscious. "The great news is safety improvements are not always an 'expense,'" Lachocki said.