



Design Parameters For Public Swimming Pools

In previous articles, I have stressed how valuable knowledge is for aquatic managers to effectively operate and maintain their facilities. The whole purpose of education in swimming pool operation is to ensure the health and safety of the public. Why would we want to take our study into the design area? The reason is change.

Over the past several years, the change in technology and building techniques in the public pool environment has been phenomenal. The public is looking for more than just a place to swim and exercise; it is looking for an “entertainment center” for families. The public pool competes with other entertainment venues, and it is the responsibility of the aquatic manager to encourage participation at the local facility. Wave pools, water slides, lazy rivers and interactive water features are





making a decision. The aquatic operator is a vital part of this decision-making process as he/she has the hands-on experience at the facility, and can offer realistic expectations.

The main consideration for any facility change is “Do we build a new facility, or renovate the existing one to meet the public’s expectations?”

There are four phases in any project development-- project feasibility, project design, contract documents and construction. This article will touch on the first two: project feasibility and design.

Feasibility Stage

Project feasibility sets the stage for all of the work to follow. Depending on the desire of the management team, this stage is the most time-consuming and complicated. In addition, it involves a broader range of professionals and disciplines than are associated with other phases of the project. The feasibility study should incorporate an initial program of requirements, development of budgets and preliminary cost estimates, marketing plans, time schedules, state and local health department changes and preliminary design schematics.



experience come into play. Thus, the operator is vital in helping the plan develop. Since the community of pool users may have changed due to a shift in age or demographics, the feasibility study should address the purpose of the renovation or new construction.

Design Consideration For New Construction Or Renovation

All new aquatic facilities should consult a licensed, professional engineer dedicated to swimming pool operation and construction techniques. These professionals must have the experience and knowledge of the newer technologies, as well as up-to-date information on state and local health code changes. It is imperative that health departments are consulted early in the feasibility phase, as they will be part of the approval process. There is a current wave of changes by health departments due to the incorporation of interactive water features, which bring a new set of hydraulic and chemical issues. The major issue in the design will be the reduction of any risk to injury by the public user.

Design Development



to withstand usage for 20 years.

The materials should be non-toxic; the pool surfaces must be watertight, slip-resistant and

withstand design stresses. (As a side note, health departments are now looking at tile with a higher slip-resistant coefficient). Although some colorful surfaces are now being introduced in the pool industry, it is mandatory that the new surfaces allow any observer to see objects within the water. New code requirements also address various protrusions or features that may entangle swimmers or cause entrapment, such as the distance of ladders from the pool walls.

Hydraulics

Hydraulic considerations must be addressed to protect the safety of users. The use of dual main drains or gravity-feed balancing tanks can significantly decrease the potential of suction entrapment. Additional safety features include the design and location of fill spouts or better, gravity-fill lines located in the filter equipment room. Furthermore, the design of hand holds and step



construction. The type of filter selected should be based on bather load, environment (indoor or outdoor), space requirements and maintenance staff training. Innovations in filtration equipment now require less “footprint” space to achieve water clarity.

Fencing And Barriers

Barriers are one of the major topics in new construction and renovation. Suitable barriers help prevent unauthorized access, thus protecting children from injury or drowning. New codes regarding the height of the fences, location and functionality of gates are being implemented across the country.

Upgrades

If the desire is to modernize the pool facility, the location and height of the diving board(s) is important. The feasibility and design phases should focus on the newest standards for diving boards along with reviewing the existing pool depths and slope. Any alteration to the pool structure needs to address this slope issue.



Department of Justice, and obtain a written, credible opinion regarding the location and the type of access for people with disabilities. Studies by the National Center on Accessibility have identified and evaluated methods and standards related to handicap access for public swimming pools. The study found that at least one accessible means of entry and exit must be provided on all public swimming pools. It was recommended that lifts, ramps, stairs with appropriate railings and zero-depth entry are the preferred means. During the feasibility study, this topic should be discussed and legal documentation should be obtained.

Water Chemistry

New water chemistry equipment has been developed and should be considered when modernizing or building a new pool facility. If the facility proposes interactive water play areas, there are specific requirements for sanitization and the introduction of chemicals into the pool water. Automatic feed systems, electrolytic chlorine generators, ultraviolet equipment, digital readouts and computer-assisted feed controls all add value to



Will there be night swimming, which will require additional lighting within the pool as well as on the deck area? Determine water depths that will work

for various activities, for example, competitive swimming versus children swim instruction.

Decking

There are many options for decking around the pool. Most codes require a minimum decking, but the decking should be adequate for sunbathing.

Aquatic operators know what percent of people are actually using the pool compared with the number of sunbathers, and this information should be considered when designing the decking. In addition, the decking should be designed as slip-resistant, with proper drainage to prevent slipping and falling.

Amenities

Although we have addressed the structural and design areas of the swimming pool, there are additional areas surrounding the pool that need to be considered in the feasibility and design. In many



Additional Space

The study may determine a need for visitor and spectator areas. Food and drink are usually prohibited around the pool deck, but the facility needs areas in which patrons can consume food and beverages.

Water Parks

One of the most exciting changes in swimming pool entertainment--both indoor and outdoor--is the growth in number, complexity and popularity of water parks. This is definitely creating a surge in enthusiasm for water entertainment, but with it comes some unique features that require knowledge in hydraulics and water chemistry. When considering this type of “swimming pool,” the team should talk about the ability to maintain safe and clean water with heavy bather loads; the hydraulics of wave pools and water slides; additional barriers to prevent children from being separated from their parents; circulation and ability to propel bathers through lazy rivers; and the amenities necessary to accommodate long waiting lines for use of a feature.





equipment must be updated as protection from recreational water illnesses.

The pool environment is changing. The various factors being considered in any new pool

construction, renovation and modernization must meet all the rules and regulations of the local and state health codes. In addition, the owners, along with the aquatic managers and operators, should look at the costs and budgets, and recognize the feasibility of the project prior to construction. Even if the project just needs resurfacing, there may be a need to update all the safety aspects to prevent entrapment and water contamination. The goal of any facility is to provide a healthy, fun and enjoyable place for the public, and protect the participants in a safe and healthy pool environment.

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National Swimming Pool Foundation, provides a professional manual for any facility that has an aquatic play feature, large or small. People who operate and manage these innovative recreational features will appreciate this full-color book that describes the different types of features available and the unique aspects to operate play features and to maintain water quality. The book focuses on risk reduction to the users, the employees and the facility. The book also can be used as a stand-alone training manual. It builds on the fundamental information in the Certified Pool-Spa Operator handbook and the Pool Operator Primer online training program. Cost: \$19.95 plus shipping. To order, visit www.nspf.org, or call (719) 540-9119.



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