



## Going With the Flow: Current Trends in Natatorium Design

The competitive swimming community knows well the phrase, “Take your marks”, followed by, “Get set”, and concluding with the flash and sound of the starters’ beacon. Whether for competition or recreation, natatorium design must follow a similar three-phase approach.

The first step is deciding the parameters, or “marks”, for your future pool. Decisions are likely to include size, location, and end-user needs. Ideally, it is wise to engage an experienced designer not only familiar with pool design, but also aware of local building and health codes. Natatoriums are a unique building type that requires approvals from building officials, as well as health departments, to ensure safe operation. Expertise is sometimes difficult to find due to the limited number of natatoriums built. Early involvement of an experienced design professional will pay dividends in cost, schedule, and building performance, all of which contribute to life cycle costs.





## Taking Your Marks

The challenge of building an indoor swimming venue is wide and varied. Do you want a competition pool, recreational pool, or both? Are you trying to accommodate all skill levels and ages? Will there be slides and zero-depth entry alongside lap lanes, teaching areas, and room for therapy? One might be inclined to respond “yes” to all, but that may require more money and space than what is available. An experienced architect can help wade through these decisions and help achieve the best possible outcomes.



The elements of temperature and humidity control, coupled with the inherent chemistry involved in pool maintenance, must be considered in mechanical design. The **high-bays and clear spans** necessary are concerns for structural design. Large volumes filled with sound reflecting materials create **acoustical challenges**. These are just a few of the unique considerations involved in the design of indoor pools.





Another significant concern is ongoing operational life-cycle costs. The highest impact decision regarding operations is the method of water treatment. **Saltwater systems** contain a mere fraction of the chlorine that a traditional pool requires, providing a less harsh solution for swimmers. Salt is converted into chlorine. This filtration method uses a generator to dispense a softer variation of chemicals into the pool. This choice of treatment requires thoughtful consideration in material selection, both in the form of pool accessories, as well as construction. The design materials must be able to withstand saltwater corrosion.

**Chlorine systems** curate a balance of chemicals to sanitize the water and require store-bought chlorine as well as testing of the water levels being regulated. Fewer upfront costs leave consumers with less expensive equipment and more straight forward upkeep. Similar to saltwater systems, chlorine can also cause damage to materials that come in contact with pool water and the humid atmosphere of a natatorium space. Chlorine can also be an irritant to occupants both when swimming in the pool or spending time in the natatorium space. If employing a chlorine system, it is important for architects and designers to incorporate best practices in the design of appropriate mechanical systems, as well as the specification of building materials, pool equipment, and safe chemical storage.

**Bromine systems** use tablets, granular, stick, or liquid sanitation products. This chemical can pair well with vinyl, concrete, and fiber glass pools. Due to its properties, bromine does not work as well when exposed to sunlight and should be taken into consideration with how your natatorium is exposed to natural sunlight.

Another option beyond saltwater, chlorine, or bromine, is a **UV bulb system**. Killing bacteria, algae, and viruses, this system sanitizes using a bulb within the housed chamber and can decrease the amount of chemicals required. A UV light system has a higher upfront cost but can partner with your design in the long run for an efficient solution.



## Getting Set

Once you have considered the size and features of your pool and the various mechanical systems needed, it is time to design the building. Selecting a local design professional who is familiar with natatorium design will save time and money during the process. Finding an architect who is familiar with local pool codes is critical, but they should also have a relationship with a mechanical engineer familiar with natatorium design. The team needs to be capable of producing clear drawings for health department and building code review, as well as drawings that are easily understandable and clear for all trades involved. A natatorium is one of the most difficult buildings for professionals to design, due to the many factors that can create serious issues during the life of the building, as well as impact the comfort level of end-users.

A typical design flaw inexperienced architects make is not understanding how caustic an atmosphere a natatorium is and making inappropriate design decisions regarding construction materials and mechanical systems. Humidity control, dehumidification, outdoor air, exhaust air, location and sizing of return ducts must be addressed. The selection of building materials becomes a multifaceted issue, as the high humidity space carries with it a multitude of challenges. Coatings on structural systems and/or any exposed metal are critical to building longevity and often require a specialized paint coating. Value Engineering (VE) in natatoriums can be tempting, especially since many pool operators have limited budgets, but an initial upfront cost savings may quickly turn into long-range problems with significant financial impacts. Thus, having experienced designers and estimators capable of producing realistic budgets is crucial. Selecting an experienced team of design professionals is the best way to ensure financial success.

Becker Morgan Group is highly experienced with natatorium design. Our approach is driven by listening to and understanding the needs of all stakeholders. We use our expertise, built over decades of working on multiple types of natatorium design, to develop solutions that produce the best swimming experience possible. We are well accustomed to dealing with multiple entities, often with competing desires, to help clarify the process and the limitations of project scope and costs. The design team, made up of our in-house members and other consultants, meet on a regular basis, often weekly, to maintain a schedule and ensure an integrated approach with excellent communication. Our team has years of experience working together, providing an invaluable comfort level with each other that translates to efficient and effective service.

## Swim!

Once you have developed a program, enlisted the services of an experienced design team, and constructed a beautiful natatorium, it is time to enjoy your success.

