



WHITEWATER®

Entertain the Possibilities

Indoor Water Parks





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Introduction

FUN FACT:

THE WORLD'S FIRST INDOOR WATER PARK WAS BUILT IN EDMONTON, ALBERTA, CANADA IN 1985.

Everyone loves fun with water under the hot sun. Indoor water parks make it possible for people to continue this fun when the autumn leaves fall, or even on summer days when the weather disappoints. By the time it snows, people can immerse in this warm, vacation-like world where they can forget for a few hours about how they were shoveling earlier in the day.

An indoor water park has the ability to bring cash flow year-round. It can be stand-alone, or it can be used to draw guests to a larger venue, such as a hotel or a mixed-use development.

For a developer, an indoor water park is an attractive opportunity for destination entertainment. It also comes with a set of peculiarities, which is why you need a trusted expert. **With over 40 years of experience shaping the water park industry worldwide,** WhiteWater can guide you through the different aspects of design, attractions mix, operations, and maintenance—beginning with your business model.

This brochure will give you a taste of what to consider when building an indoor water park as well as show examples of successful venues. And perhaps, it will motivate you to conduct a detailed financial feasibility study on your indoor water park aspirations, if you haven't already.



Types of Indoor Water Parks

Generally speaking, these are the types of indoor water parks that can be found:



Akvimir, Russia

STAND-ALONE

This indoor water park building stands on its own and operates and markets entirely on its own.



Great Wolf Lodge resorts across North America

ATTACHED TO A RESORT AS A DESTINATION

This type of indoor water park is over 2,700m²/30,000 ft². It is a destination in itself and attracts both hotel guests and non-hotel guests. For families, the park might be the main reason to come to this area.



Epic Waters Indoor Waterpark, USA

AS PART OF A RECREATIONAL FACILITY

The water park is part of a larger community facility that offers other types of activities.



World Waterpark at West Edmonton Mall, Canada

ATTACHED TO A MIXED-USE DEVELOPMENT

This indoor water park is part of a larger venue, such as a shopping center, museum, or a large entertainment complex.



Center Parcs resorts across Europe

ATTACHED TO A HOTEL AS AN AQUATIC AMENITY

This type of indoor water park is an amenity offered to guests, often at no extra cost to them. For the families, the water park is an added bonus to book the hotel when compared to other properties in the area.



Valcartier Vacation Village, Canada

WITH AN OUTDOOR WATER PARK

This is a water park with both an indoor and an outdoor component.

"WhiteWater understood our ambition to create the biggest and most unique water park in Russia."

– Shurupov Vladislav, Deputy Director, Akvimir

Questions to answer before thinking about investing in an indoor water park

- Who is your target demographic?
- What size is the area under consideration?
- Is the development easily accessible? E.g. via a highway?
- What does the labour market look like in this area?
- Are there indoor or outdoor water parks in your market? In your region? If so, how many and how are they doing? What kind of attractions do they offer?
- Is your investment scope focusing only on initial development/purchasing cost? Or does your scope include total cost of ownership?



Read Google or Tripadvisor reviews of other indoor water parks to get a sense of what's involved in providing a good guest experience. See what these water parks do right and what the guest complaints are.



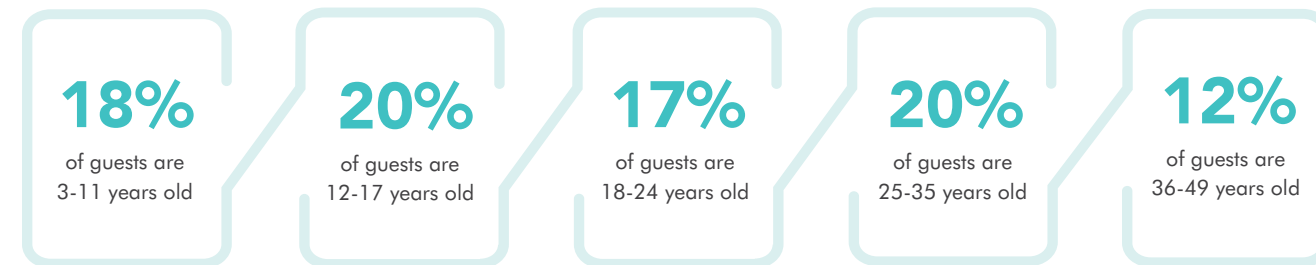
Boomerango (Guangzhou Sunac Water Park - Guangzhou, China)

Indoor Water Park Considerations as Compared to Outdoor Water Parks

Where do you start when considering the idea of building an indoor water park? Here are some points to evaluate.

Target Demographic

According to a 2019 benchmark report by IAAPA for water parks,



As a developer, who are you trying to target in this market? What is your business model? Are you aiming to be a destination park that is a beacon for tourists from afar? Or do you want to zero in on the local market?

Parents are constantly looking for hours of fun to entertain their children. If you are focusing on the local market, what is the demographic of the area of your development? Is there a demand for family entertainment?

If you want to provide a year-round active family experience that is out of the ordinary, an indoor water park would be a good consideration.

Location

Are there other indoor water parks in the region where your development is located? If so, what attractions do they offer for what ages? How is the quality of their facilities? Are they doing good business? What about indoor municipal pools in the area?

It wouldn't just be indoor water parks that you would be competing with. Are there other indoor family entertainment venues within a 50-kilometer/30-mile radius? Do they provide a good value for the money for the length of stay? What do their customers say online?

Footprint

Compared to most outdoor water parks, indoor water parks need to be more creative about the restrictive footprint they have to work with to both maximize and expand the sense of space. The smaller the footprint, the more focused you need to be about your target demographic.



Andersonstown Leisure Centre - Belfast, Ireland



Water Sports Palace Luzhniki - Moscow, Russia

HVAC and Water Filtration Systems

The tricky part about running an indoor water park is the balance between air and water quality to keep both guests and employees safe, healthy, and comfortable as well as to prevent premature corrosion. The most important technical aspect of running an indoor water park is the HVAC system, which is why this must be an integral part of detailed design and planning before any construction begins. As well, the water filtration plant room should be located in the basement when possible because of the valuable footprint.

Often, local building codes do not provide enough guidance in this area; you need specialists that understand the variables involved relating to water and air chemistry specific to this environment.

With humidity up to 80%, you really don't want to get this part wrong, as the byproducts of chlorine can cause your building and supports to deteriorate.

Roof

Not needed in outdoor water parks, the roof does so much more than just sheltering guests from the elements in an indoor water park. The HVAC system is attached to the frame structure of the roof. You can consider a retractable roof with transparent panels to allow for natural ventilation and lighting to be used in conjunction with a mechanical ventilation system. If you want to economize on height, you can drop certain parts of the roof down, such as with a cupola.

Length of Stay

While guests may stay 5-6 hours in an outdoor water park, the duration of visits in indoor water parks is usually shorter, at 3-4 hours. An increase in dwell time would lead to an increase in spending, such as on food and beverage. An indoor water park should aim to make their guests as comfortable as possible, especially in terms of air and water quality as well as spaciousness and noise levels so that they would not want to leave.

Noise zones should be divided, as adrenaline-pumping slides and attractions popular with young people will exude

happy screams and laughter. Separate these areas from family zones, and especially from wellness areas, to make the park enjoyable for everyone.

There are also design elements and attractions that can encourage guests to dwell longer, such as a [FlowRider®](#) with spectator appeal or a racing slide that spurs repeat ridership.



Epic Waters Indoor Waterpark - Grand Prairie, USA



Overview (Sunac Indoor Waterpark - Chongqing, China)

What Are the Aspects of Good Indoor Water Park Design?

When designing an indoor water park, the crucial thing to remember is that the water and HVAC systems cannot be designed in isolation of the building and its structures. The same thing goes for ride planning and integration with building systems and support. This is why it is critical to have subject experts working closely together from the very beginning. They will also scrutinize the capacity of every single area, such as wave pool, play structures, slides, F&B, etc. and adjust to the total capacity.

Overall Guest Experience with Comfort and Safety

The driver of design is to provide the best possible entertainment space for all ages and abilities of your intended demographics so that guests would want to come back again and again.

Do you want to target families with small children or also teenagers who want more excitement? Do you aim to capture older adults as well, who probably just want to relax in 30°C? Designing for the best overall guest experience sounds simple, but there are many moving parts to consider in a good indoor water park, the foundation of which is safety and comfort.

Safety and comfort relate to several areas: air quality, water chemistry, rides, play structures, surfaces, lighting, and even potential misuse of the park. That's why water parks should be designed with ease of maintenance in mind.



The key lies in overarching design principles in terms of volumetric considerations, facility sizing, and capacity, taking into account guest circulation.



RainFortress (World Waterpark at West Edmonton Mall - Edmonton, Canada)



Whizzard (Sunac Indoor Waterpark - Chongqing, China)



AquaPlay 1050 (Epic Waters Indoor Waterpark - Grand Prairie, USA)

Layout in Limited Footprint

The best indoor water park designs achieve an equilibrium between all the different disciplines.

It happens when the architecture works harmoniously with the attractions and other interior design elements, integrating the equipment into the building even when space is limited. The building and attractions can become one when supports are tied into the ceilings and walls. When executed well, the outcome is a complete picture that is organic, complex, and holistic, making efficient use of the precious footprint yet at the same time, giving a spacious feel.

One way to make more space inside the building is by designing water slides to extend outside of the building. These will also serve as a billboard for the water park.



Epic Waters Indoor Waterpark - Grand Prairie, USA



While big attractions get all the attention, it is the balance of passive space with active entertainment that makes a difference. Good use of passive capacity makes the guests feel comfortable, which is essential to extending the length of stay.

Examples of passive capacity include:

- Water play structure and its surrounding space that can hold hundreds of guests instantaneously
- Loungers and cabanas for relaxation
- Seating for food and beverage
- Mezzanines that add more lounge space and quiet areas for parents to relax but still give them a good view of their older children at play
- Areas where parents can sit within an arm's reach of their small children at play
- Places where spectators can watch people on thrill rides or doing tricks on a flowboard
- Comfortable places to queue for rides or for food and beverage



Plan for phase 2 and phase 3 expansions already in the first phase.



Polynesian Theme (Lotte Water Park - Gimhae, Korea)

Landscaping and Aesthetics

An indoor water park not only offers a place where the summer never ends, it can provide an immersive escape from dull, chilly days. With exotic live plants, straw huts, and turquoise colours, the newer generation of parks showcases landscape and motifs that, for example, whisk guests away to a tropical island. With thoughtful, detailed theming, your park can convey a highly marketable story.



While natural plants create a unique atmosphere, they need exceptional treatment, such as one year in a shadow room, before being installed in the park. Once planted, they need natural light to encourage foliage growth.

Lighting

Just because it's indoor doesn't mean it has to be dark. Modern roofing solutions with retractable and transparent panels can let natural light in, which has been proven to put people in a happier mood than artificial lighting. At the same time, natural lighting will save energy cost. Also, attractions that use bright colours and shiny materials will help keep the venue bright.

Materials

In this high humidity environment, it is advised to choose materials that are corrosion-resistant, such as galvanized steel and stainless steel, when possible. Materials should be durable and resistant to chemicals as well. For the slides, those made with RTM (resin transfer moulding) fiberglass are shiny both on the inside and outside, which give a bright, clean look while reflecting off the indoor lighting.



Wave Pool (Beijing Water Cube Waterpark - Beijing, China)



Operational Considerations

Health and Safety

Of course, health and safety codes must be followed, but they are very specific to each jurisdiction. A big issue for indoor aquatics is the basic chemistry relating to air and water. Chlorine is used as the primary disinfectant to treat water, but it gives off chloramines that produce an unpleasant and corrosive environment. Again, good ventilation is of utmost importance for this environment.



Aeration affects the pH level of water, which should be between 7 and 8. The more splashes you have, the higher the pH becomes, and your acid pump will kick in. Attractions with smooth water and fewer big splashes will need less chemicals.

Maintenance

It's no secret that with proper checks and maintenance, a facility can be enjoyed for a long time. The checklists should be daily, weekly, bi-weekly, monthly, etc. for different areas and attractions. The equipment, infrastructure, and machine rooms need to be kept free of corrosion. Parts to be serviced should be easily accessible to staff. And materials matter. For example, slides built with RTM fiberglass have a smooth surface, which is easy to clean, usually with no need for chemicals or scrubbing.

Staff

Different to outdoor venues, an indoor water park requires more year-round staff. What does the labour market look like in your region? Are there enough lifeguards and certified aquatic facility operators, or can you provide training?

Automation can reduce the need for staff, such as for slide dispatch and for ticketing.

Software and Technology

Having technology such as the [Vantage](#) platform will not only provide a seamless guest experience, it will optimize operations by sending notifications when certain metrics fall below a threshold. It is real-time reporting that will allow you to resolve issues before they become problems. Additionally, Vantage gives you actionable insights so you can laser-focus your marketing efforts to attract the right audiences and maximize their spending potential.



Sustainability and Cost of Ownership

One thing that often gets overlooked when considering an investment like this is the total cost of ownership. This means that while some attractions might have a lower upfront cost, they actually use more water and energy and have more parts that require maintenance and replacement so that these end up costing much more in the long run.

Quality matters—not just for lower operating cost but for environmental sustainability. Equipment that uses less energy and water and lasts longer will have less impact on our planet.



Sunac Indoor Waterpark - Chongqing, China

Ride and Attraction Mix

Some rides and attractions are more appropriate for the indoor environment than others. Depending on the size of your project, huge iconic attractions might be more challenging, or need to be placed on the outside of your building. Here are some proven indoor water park attractions.



AquaPlay 1050 (Guangzhou Sunac Water Park - Guangzhou, China)

Aquatic Play

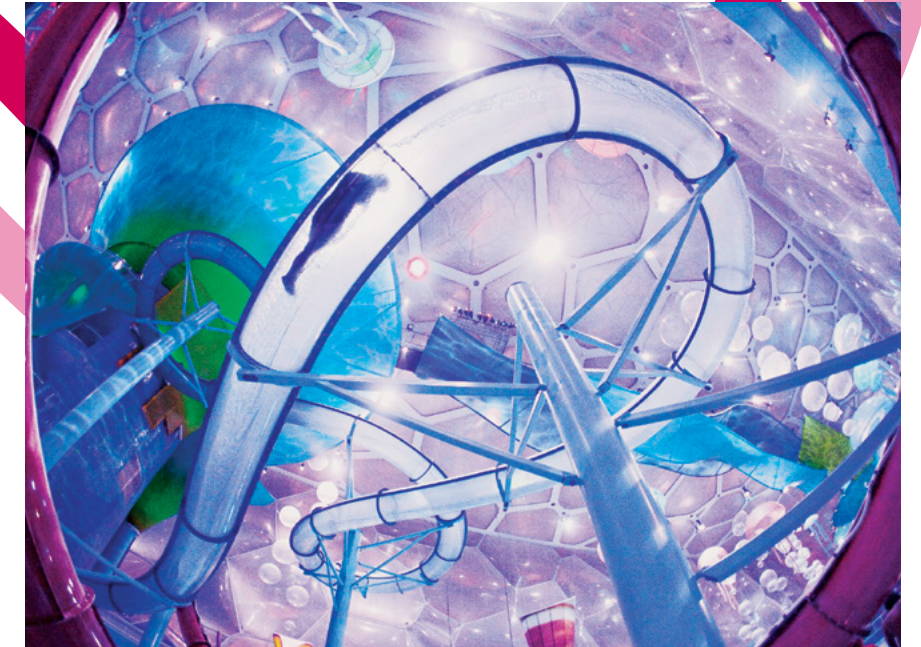
Interactive water play structures and elements such as AquaPlay, AquaSplash, AquaForms, and RainFortress offer high instantaneous capacity ranging from 60 to over 900 guests. The structures lend themselves to great theming opportunities, such as beach, pirate, or tropical vibes, to characterize your facilities.



AquaForms (Sunac Indoor Waterpark - Chongqing, China)

Body, Mat, and Inner Tube Slides

Body slides, mat/body racers, and inner tube rides can easily fit any footprint. An AquaLoop™ with AquaLaunch will add extreme thrills to the mix, while inner tubes allow for a shared experience with another person. Racing slides help extend the length of stay in a park as guests want to compete over and over again for different results.



AquaTube (Beijing Water Cube Waterpark - Beijing, China)



Slide Tower (Guangzhou Sunac Water Park - Guangzhou, China)

Lazy River and Wave Pool

In an indoor water paradise, high-capacity attractions such as a lazy river or a wave pool is almost expected. Depending on the footprint, you might not be able to have both, but definitely make room for one as they offer instantaneous capacity and help to increase dwell time.



Wave Pool (Sunac Indoor Waterpark - Chongqing, China)



Lazy River (Epic Waters Indoor Waterpark - Grand Prairie, USA)



Family Raft Ride (Kalahari Resorts - Sandusky, USA)

Family Raft Rides

Because indoor water parks target families, a family raft ride that takes 3 to 6 guests at a time is a must if space allows. It's important to note that 3-person rafts can be carried to the top of towers by riders, while 4 and 6-person rafts will require a vehicle conveyor. These slides can offer medium to high thrills, perfect for guests of all ages.



FlowRider® Double (Photo credit: Aquatopia Indoor Waterpark at Camelback Lodge, Tannersville, USA)



FlowRider® Double (Valcartier Vacation Village - Quebec City, Canada)

FlowRider® Surf Simulator

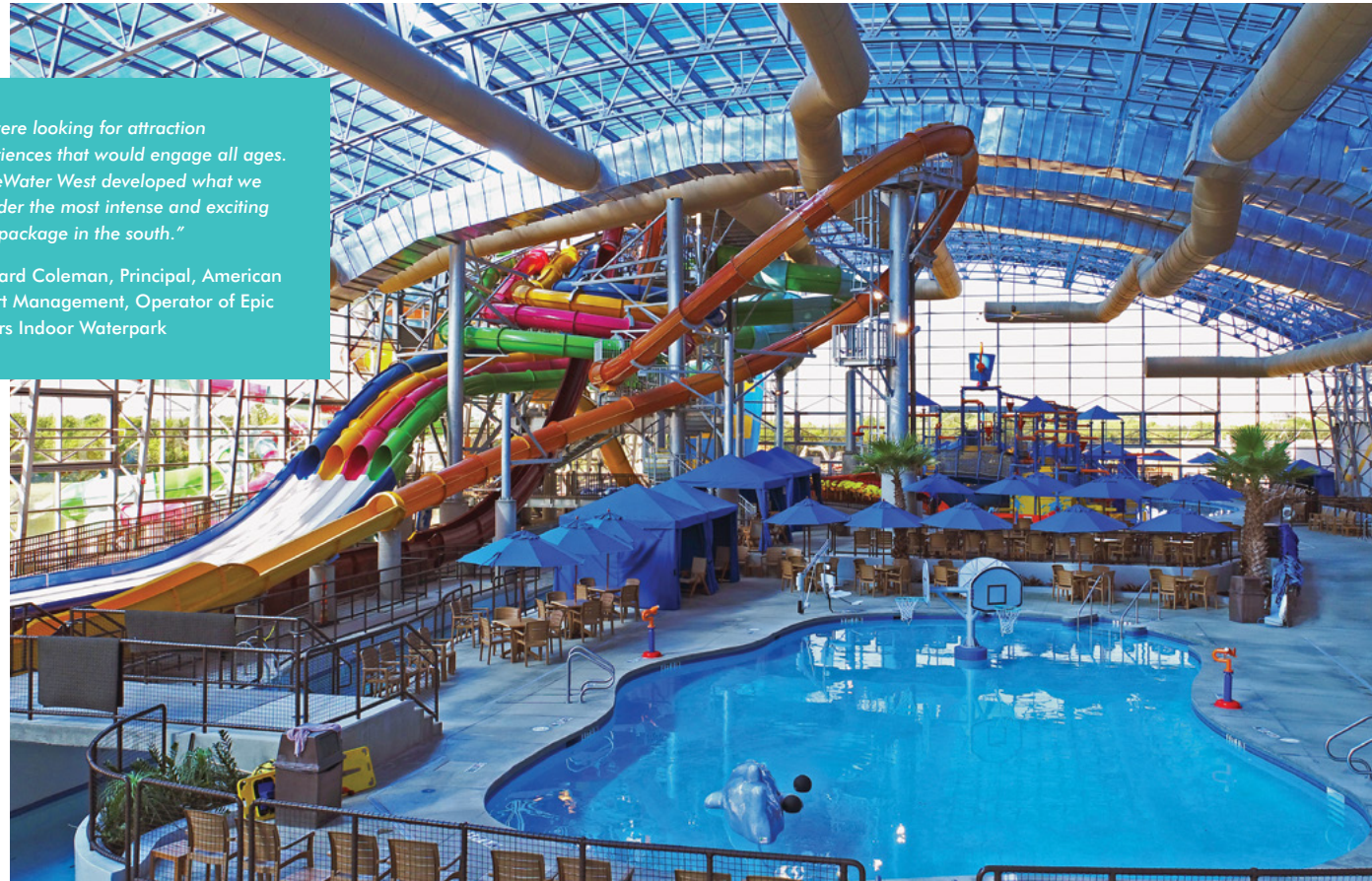
FlowRider® surf machines are very popular with older children and young adults. Because flowboarding is a skill-based sport, it will encourage participants to come back to improve their abilities. (Or it will encourage parents to bring their children back to improve their abilities.) Additionally, this activity attracts spectators, which encourages them to dwell at the park longer to watch while they eat and drink on the sidelines.

The addition of a FlowRider can also add another revenue stream to your park as you can sell time slots and lessons, book it out for corporate events, and host FLOW Tour events.

CASE STUDIES

"We were looking for attraction experiences that would engage all ages. WhiteWater West developed what we consider the most intense and exciting slide package in the south."

– Richard Coleman, Principal, American Resort Management, Operator of Epic Waters Indoor Waterpark



Overview

Epic Waters Indoor Water Park

📍 Grand Prairie, Texas, USA



Epic Waters Indoor Water Park is part of a city recreational site that includes several other community venues and amenities. It broke the record for being the largest indoor water park under a retractable roof. There is a walkway along the entire length of the park that functions like a "main street," where guests can find food and beverage along with tables and seating, the arcade, lockers, changing rooms, and access to the party rooms on the second level.

Type	Indoor water park as part of a recreational facility, with outdoor pool
Year opened	2018
Footprint	7,430 m ²

Attractions

AquaTube, Freefall, AquaLoop™, Constrictor + Boomerango Fusion, AquaPlay 1050, AquaPlay 150, FlowRider® Double, Whizzard, AquaSphere, Wave Pool, Wave River, Open & Enclosed, Pool Sider



AquaPlay 1050

"Andersonstown Indoor Aqua Park is the jewel in the crown for Belfast's Leisure Transformation Programme. WhiteWater's world-class products have helped create a must-see visitor attraction, not only for Belfast but across the UK and the island of Ireland. Families of all ages have given us 5-star reviews all the way and we continue to sell out sessions every month."

– Adrian Walker, Partnership Manager, GLL, Operator of Andersonstown Leisure Centre

Andersonstown Leisure Centre

📍 Belfast, Northern Ireland, UK



Managed by a social enterprise as part of a larger recreational facility in Belfast, this indoor aqua park is the largest of its kind in Northern Ireland. By bringing affordable world-class water attractions to the community, the leisure center aims to enhance active living for everyone.

Type	Indoor water park as part of a recreational facility
Year opened	2020
Footprint	1,605 m ²

Attractions

Open & Enclosed, Pool Sider, AquaTubes, AquaDrop, Flatline Loop, Master Blaster, AquaPlay 1050, AquaSpray Toys, Kids' Ramp Slide



Wave Pool

Lotte Water Park

📍 Gimhae, South Korea



Lotte is one of the biggest consumer brands in Korea, and Lotte World is the most famous name in amusement, offering the largest water park in the country, as well as the largest indoor and outdoor wave pools. The water park brings guests to the South Pacific with its Polynesian theme.

Type	Indoor and outdoor water park with spa, part of a large entertainment complex
Year opened	2014
Footprint	indoor + outdoor = 122,000 m ²

Theme	Polynesian
Attractions	Wave Pool, AquaPlay 1050, Rattler, River Pool, Inner Tube Slide, Body Slide, Toddler Pool



Overview

Water Sports Palace Luzhniki

📍 Moscow, Russia



Built on the site of a former Olympic competition pool, the design of this new water sports complex “was based on a modern interpretation of the architectural traditions of the 50s in the 21st century” and uses a retractable roof. The reconstruction now offers aquatic entertainment, relaxation, and activities for guests of all ages.

Type	Indoor water park as part of an aquatic facility, which is part of a bigger city recreation center
Year opened	2019
Footprint	50,500 m ²

Attractions	Constrictor + Super Bowl Fusion, Slideboarding, Giant AquaTube, AquaSphere, Pool Sider, AquaTubes, AquaLoop™, AquaPlay 200, Wave Pool
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Overview

Sunac Chongqing Water World

📍 Chongqing, China

This indoor water park is part of Sunac Resort, which includes a snow park, an aquarium, retail center, and hotel. The park also has a hot springs spa area. Sunac operates 13 large entertainment complexes across China.

Type	Indoor water park as part of a large resort
Year opened	2021
Footprint	43,000 m ²

Attractions

Rattler, Super Bowl, Kids' Slides, AquaSphere + Manta Fusion, Open & Enclosed, Boomerango, Multi-Lane, Champagne Bowl, Freefall, Python, AquaSphere + Boomerango Fusion, Constrictor + Abyss Fusion, 36 m Double Wave Pool, AquaCourse 180, Master Blaster + Boomerango Fusion, Constrictor + Rattler Fusion, Slideboarding, AquaTube, Pool Sider, AquaDrop, Flatline Loop, AquaLoop™, Master Blaster, FusionFortress 17, Giant AquaTube, Open Flume, Rattler, Constrictor, Super Bowl, Master Blaster



Outside View

Great Wolf Lodge Scottsdale

📍 Scottsdale, Arizona, USA



This is the 18th Great Wolf Lodge water park resort. Guests have unlimited access to the indoor water park, which caters to families with children, from toddlers to teens. Many other attractions and events are on offer, both with or without additional cost.

Type	Indoor water park as part of hotel amenities
Year opened	2019
Footprint	7,400 m ²

Attractions

AquaPlay 1050, Flatline Loop, Giant AquaTube, Constrictor + Python Fusion, AquaTube, Open Flume



AquaPlay 750

Center Parcs Les Landes de Gascogne

📍 Beauziac, France



The Center Parcs brand in Europe is synonymous with family vacation in a natural setting. Its Aqua Mundo water park reflects this concept and includes themes of flowers, butterflies, and greenery. The AquaPlay structure is the focal point of the indoor water park for small children, while older children and parents find thrills in the water slides that extend outside the building.

Type	Indoor water park as part of a family resort
Year opened	2022
Footprint	3,770 m ²

Attractions AquaTube, Constrictor + Rattler Fusion, Parallel Pursuit, AquaSplash, AquaPlay 750



FlowRider® Double

Jay Peak Pump House

📍 Jay, Vermont, USA



Jay Peak Resort wanted to go beyond the traditional business model of having to depend on consistent ski conditions for profits, so they added facilities to attract guests apart from winter sports. By adding an indoor water park with a retractable roof, the resort can ensure revenue stream in any weather.

Type	Indoor water park at a ski resort
Year opened	2010
Footprint	4,650 m ²

Attractions AquaLoop™, AquaTube Body Slide, Inner Tube Slides, AquaPlay AP300 and AquaSpray, FlowRider® Double



Ready to Talk More about Indoor Water Parks?

Indoor water parks offer year-round, active family entertainment like no other. The complexities and moving parts involved mean that the design and planning stage needs to consider building structure, HVAC, water filtration, and attraction selection—all integrated in parallel.

This not only requires experts. It requires experts who are well connected with other experts in the field and region. With hundreds of projects completed for indoor water parks all over the globe, WhiteWater's designers and engineers can take a client from planning to fabrication to installation. We not only understand the nuances of indoor water parks, we know what it takes for the success of your business.

Contact whitewater@whitewaterwest.com to start exploring.

Photo credit: Aquatopia Indoor Waterpark at Camelback Lodge - Tannersville, USA



WHITEWATER®

Entertain the Possibilities

WhiteWater was born in 1980 with one clear purpose, to create places where families unite and make joyful lasting memories.

We achieve this by standing alongside our customers from concept to completion of award-winning attractions, from slides to water rides and everything in between. We aim to inspire our clients by unleashing our creativity to realize their ambitions; we craft solutions which make each park unique. We are dedicated to making products that operators can count on, because we understand the importance of reliability and efficiency on the bottom line.

As market leaders, we put our success down to our attitude, in all our years we've never once forgotten why we're here – to help parks solve problems, create immersive experiences, and delight guests all over the world.

We're here to create places where fun thrives.

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