



IAKS

International Association
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INTERNATIONAL POOL CASE STUDIES



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Introduction

DEAR READERS,

The global popularity of swimming and water-based leisure has evolved significantly over the last two centuries. As demand for these amenities grows, we have seen similarities in the way pools are designed and operated. Yet, there are considerable differences in the way people enjoy and interact with the water. With this diversity, we have seen innovation and variation in the approach to the design of public pools.

As the pool industry (as for all sports and leisure facilities) is a nationally oriented industry the IAKS pool expert circle seeks to foster the exchange of international best practices. We believe we have much to learn from, and share with, each other. In this paper, we will present real-life aquatics facilities from various countries – one that is either typical of the country or a prime example of emerging best practice. And while it is impossible to

represent the diversity of a country's swimming pool design culture in a single project, we feel it is helpful to explore the underlying characteristics of each respective market.

Thoughtful planning is key to maximizing the positive impact of aquatics projects. Too frequently, projects fail to achieve their full potential due to inadequate processes during design and delivery. As a preface to the case studies, we will discuss some of the most common challenges, and share planning tools to effectively guide a project from idea to completion.

We have written this paper for facility owners and others who plan to design and build a new swimming pool in their local community. We hope you find this resource both useful and inspiring as you consider your future swimming pool needs.

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SUCCESSFUL PROJECTS THROUGH EFFECTIVE PROJECT PLANNING

Authors Dr Stefan Kannewischer and Darryl Condon

Sports facilities – sports halls, outdoor recreation, artificial ice rinks, swimming pools and the like – are highly complex and have costly ongoing operational requirements. Over a facility’s lifetime, operating costs exceed the construction costs by a wide margin; this makes careful planning crucial to ensure the facility meets the needs of both users and the operator. While architectural design and experiential quality are key components of success, they must ensure ‘design follows function’.

Across the world, ownership models and project delivery processes vary considerably. In many countries, conventional sports facilities are funded and owned by the public, or initiated and controlled by the public sector. The construction or retrofit of public buildings occurs infrequently, sometimes only once every few decades. Therefore, it is common that decision makers have minimal experience when delivering these complex public projects for the first time. Unfortunately, this can mean projects are incorrectly tackled or mismanaged. As such, it is essential to involve specialists to appropriately plan all stages of the project – from the pre-planning (or concept) stage through to operation.

This article presents an overview of an effective and goal-driven project process. It outlines the key project stages as shown in the below diagram, as well as the activities that must occur during each of these stages for a project to meet its full potential.

Before beginning the design process of a new facility, it is important to precisely define the type of sports facility needed. This early decision-making and project scope definition during the concept stage are critical for long-term success.

For projects that involve modernisation or replacement of an existing facility, a common mistake is to assume that future requirements will be the same as current amenities and services. Renewal projects require analysis, akin to what is needed for a completely new project. This analysis must consider the evolution of usage, changing public demand, and technical requirements.

Next, a complete project team is assembled during the project initiation stage. Invite collaborative minds to the table. Every project requires a mix of unique expertise and experience, so choosing the right project team is a crucial part of the process. Once a team is in place, detailed planning and design can begin, followed by the construction phase.

The most important and longest phase in the life of a sports facility is its operation. In the regular course of its life, minor upgrades and facelifts will need to be undertaken and anticipating this needs to be part of the early pre-planning work as well.

Pre-design / concept stage has the highest potential for economic impacts

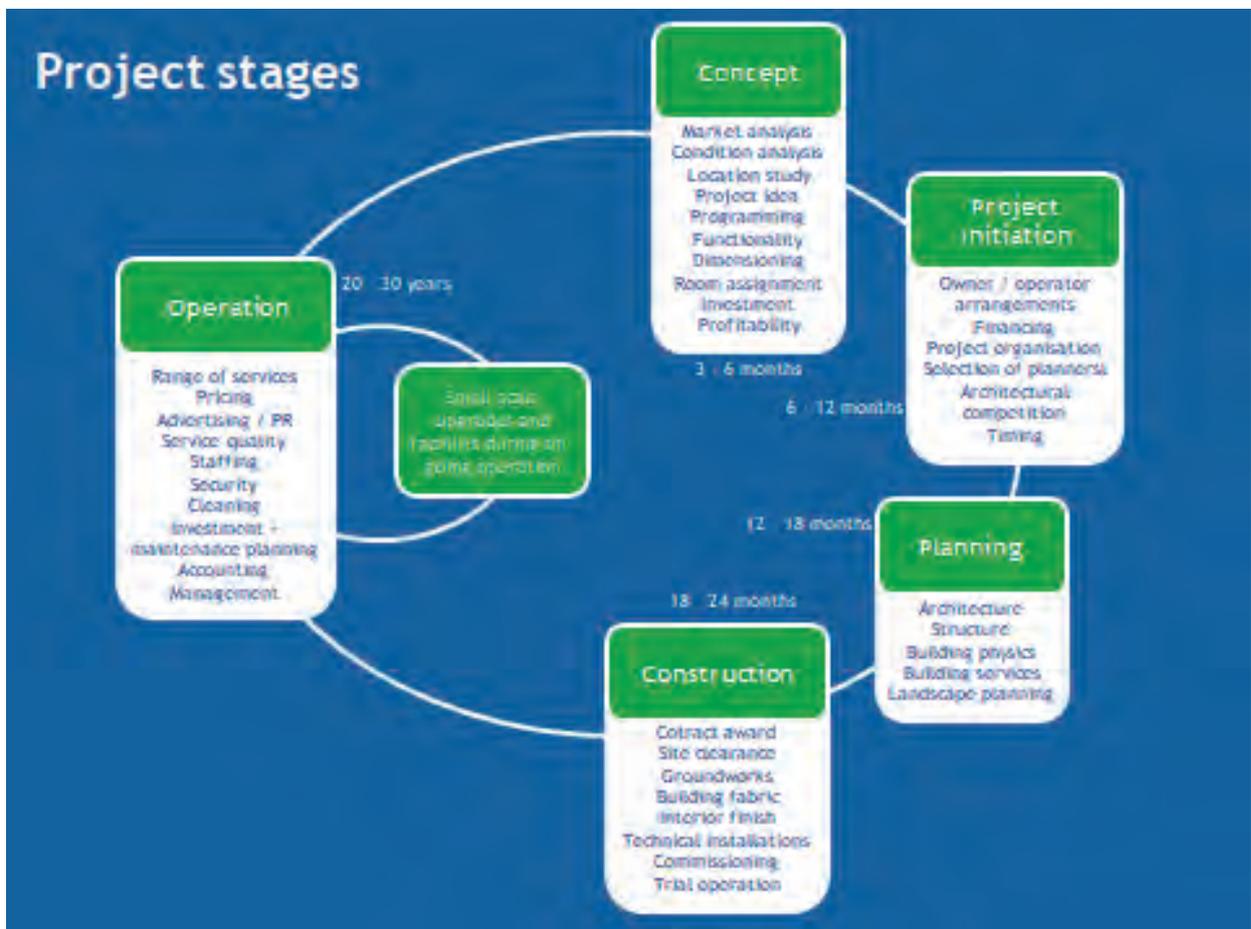
Failing to implement an effective strategy with clear project goals can be costly over the life of a project. Therefore, the ability to determine the future success of the project – including the level of required ongoing financial investment – is at its greatest during the pre-design or concept stage.

Define the social, economic, environmental, and other goals for the project. Why is a sports and leisure facility being built? What should it achieve? How will you measure success?

Having a clear vision will help guide future decisions and ensure the project team does not lose sight of its goals. This initial discovery phase provides the largest window of opportunity to maximize positive outcomes. Allocating adequate time and resources allows the project team to explore challenges and opportunities in depth; changes are less costly, since major costs and design decisions have yet to be committed.

Often, projects are triggered by the poor condition and high costs of operating an existing facility. It is critical in these cases as well, that the purpose of the renewed facility should be clearly understood. Usage trends, latest best practices, and evolving community expectations should also be considered.

A feasibility study is one of the key tools to establishing early and strong momentum for sports facility projects. These studies are intended to generate the necessary



information for all involved and provide a basic structure or “project manual” to reach project completion.

It is common for owners to skip the feasibility study to try to cut costs – despite these costs being minute in relation to the overall investment sum. However, these perceived savings are short-sighted and have long-term implications; without a feasibility study, projects run the risk of wasting much more on the investment – especially when programming needs are misaligned or the building is unnecessarily costly to operate.

A feasibility study should include the following elements:

- **Market analysis** highlights general demand trends, identifies specific market potential (local population, tourists, schools, clubs), and investigates the competitive situation in the market.

Social outcomes, such as accessibility and inclusion, have become important goals for public leisure facilities. As such, decision-making processes increasingly involve all stakeholders and the public from the earliest stages of a project.

This is achieved through ongoing public engagement and consultation, stakeholder involvement, and social media and communication campaigns. Listen to the

needs of those who will use the facility, those who will be affected during its construction, and those who are typically excluded from these conversations. This engagement will help define the facility’s functional programming, integrate specific social goals, build public support for the investment of public funds, and ensure the facility serves its community for generations to come.

- Sometimes, we are faced with the question of whether it makes more sense to upgrade or modernise a facility, or replace it entirely. Here, a **condition analysis** can help define the building’s current structural, technical, and business management situations.
- A **location study**, meanwhile, can help define the site and orientation for a new sports facility. Here a variety of questions are explored, including whether the project is to be realised on an existing developed, brown-field or green-field site, and which location will best respond to community needs.

Based on these analyses, a central **project idea** should emerge (for example: ‘health and wellness for older adults’, ‘fun for families in the region’, or ‘a destination pool for competitive swimmers’). The project idea outlines the facility’s basic purpose and agreed-upon priorities; it differentiates the envisaged project from other existing sports infrastructure.

This project idea also captures target groups and their needs. If a higher-order sports facility strategic plan already exists for the municipality or region, it should contribute to the project vision. At this stage, it is also important to determine the operational cost goals for the facility, including how financial goals align with its ability to meet basic community needs.

The range of services roughly defines the main activities and amenities offered. For a swimming pool, we would define the pools and bathing opportunities, and consider emerging facility usage trends (as well as how these trends might change to respond to evolving needs in the future).

The facility's functionality is expressed by outlining the processes for the user (through routing), and processes for facility operation (through organisational diagrams). At this stage, the team should include specialists who have operational expertise to ensure these considerations are appropriately integrated.

To arrive at accurate dimensioning of functional needs, facility use must generally be quantified. This helps answer questions like: 'How many users will use the sports facility in a typical year?', 'how many at any one time in which areas?', or 'how many parking spaces should we accommodate?'

One of the valuable findings of a feasibility study is the detailed allocation of rooms and spaces. This informs much of the future design of each room, outlining size and function, and identifying any specific or unique technical requirements.

Based on the allocation of rooms and spaces, it is then possible to prepare a preliminary assessment of anticipated project costs, including both hard construction and additional equipment and project management costs.

Given the preliminary nature of the information at this stage, this cost estimate is typically prepared using construction cost unit rates (e.g. cost per cubic metre of enclosed space or cost per square metre of floor space). If this analysis results in an excessively-high anticipated cost, the project would need either to be redefined, or seek more efficient solutions before planning and re-planning costs are generated.

Once the project concept has been developed, a realistic operating cost forecast must be conducted. Together with the estimated investment costs, this forms the basis for decisions on financing, mode of operation, and the potential need for ongoing operating subsidies.

Feasibility study and concept development are comprehensive and interdisciplinary undertakings, essential for the success of subsequent project stages. If this work is not carried out in advance, it will be performed concurrently with design processes at a later stage of the project. However, the advantage of doing this early on is that it provides a strong foundation for future stages, and helps ensure smooth and timely progress that optimises project costs.

Project initiation stage: assembling the right team

Due to both the complexity of sports facilities and their considerable financing needs, the initiation stage can be a major hurdle. Owners and teams often underestimate the time required to give their project lift.

Key considerations during initiation are as follows:

Traditionally, the local authority's construction department has almost always been responsible for realising a project, in their role as the client (governed by contracts with private designers and construction companies). Once complete, the facility is typically run by a local recreation or sports department, school board, or other user group.

Today, however, other responsibility / ownership project delivery models are often sought. As a basic rule, the larger and more specialised or commercial a sports facility, the more it is advisable to involve the commercial sector. There are a variety of models including combinations of operation by a commercial operator and integration of design responsibility within a design-build construction contract. In certain cases, these can even extend to funding by private financiers.

Funding by private financiers (often envisaged as public-private partnerships (PPPs) encompassing design, construction, and operation) is only possible and advisable in specific cases. Therefore, early in the process, it is important to investigate the availability of funding grants from higher levels of government and others. However, the main or entire burden of financing usually lies with the local authority. To protect the public from facilities that cannot be effectively operated, the local authority's financial requirements should be examined.

Project structure and organisation for building construction processes varies considerably from region to region and country to country. Having an effective structure – including clarity on roles – is easily overlooked. Delivering successful projects requires clear roles, where all parties feel invested in impactful project outcomes.

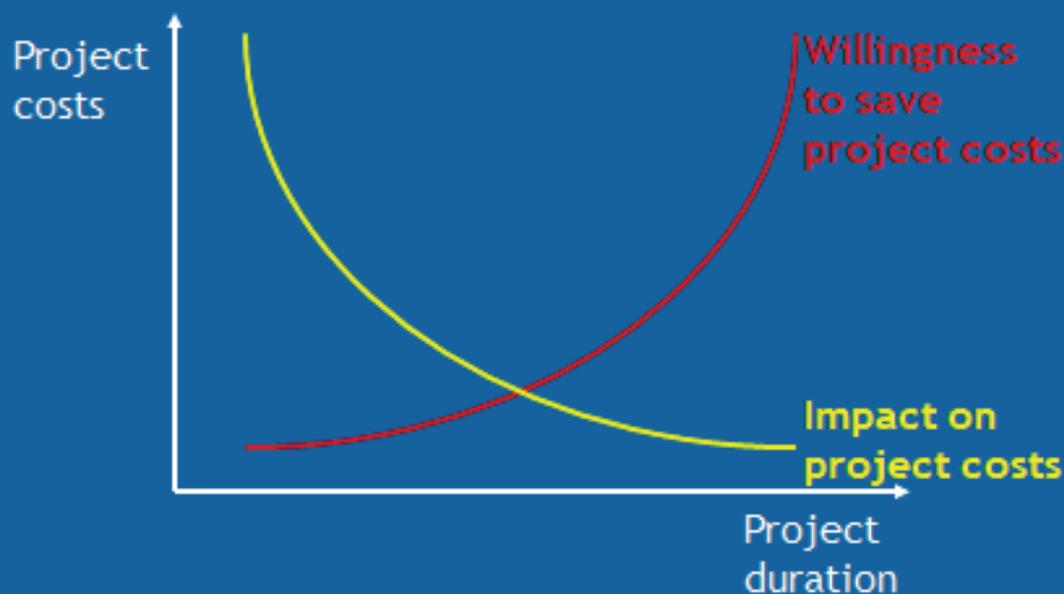
When project team roles are clearly defined:

- the client and the operator are responsible for communicating the content needs of the sports facility;
- the architect and associated specialist consultants are responsible for the design of the building (interior and exterior) as well as its specialised systems;
- if the services of an additional project manager are required, they are generally responsible for assisting the owner with the process and usually for monitoring budgets and deadlines.

Too often, roles are blurred, and unique expertise is not respected. This can lead to loss of process efficiency and poor decision making.

Today, a large proportion of the building design service contracts awarded by the public sector are subject to competitive request for proposal (RFP) and/or tendering procedures. The benefits of these processes are undisputed,

Ability to impact project costs over time



but they also can be the cause of a number of problems if poorly run.

It is best practice to select a design team based on their experience and quality. While fee structure is important, a lowest-fee approach discounts the critical importance of experience with complex building types, and can result in future challenges and costly overruns if the team is inexperienced. Municipalities and clients should take this into account when designing consultant selection procedures and developing RFPs.

If an architecture competition is held, the operational and functional issues should be given as much attention in the preliminary review and jury evaluation as aesthetic attributes. In reviewing the designs, it is absolutely essential to include experienced specialists who are experts in the design of the specific sports facility type.

Finally, a realistic project schedule should be developed that identifies all stages of the process, from concept through to the opening of the facility and beyond. If the schedule is unrealistic, there is a tendency to cut corners during design and construction. Early and effective schedule management avoids these pitfalls.

The specific construction delivery method should be determined during the initiation stage. This should include the nature of the contract you hold with the contractor(s), and detail a shared understanding of where the opportunities and risks lie.

Once the project is placed on a solid foundation at the project initiation stage, detailed planning can, at last, begin.

Detailed planning: effective and ongoing dialogue

At the outset of the detailed planning stage, sufficient time must be allocated for development of the preliminary design (or revisions of the competition design). This process involves ongoing dialogue between operational specialists and the architect over several weeks or months. The aim here is project optimisation; ensuring the initial goals and programming requirements specified during the concept stage find expression in the project's form and function.

As the project proceeds, potential conflicts between various goals (financial, structural, technical, aesthetic, operational) must be communicated as soon as they crop up. Bringing these items to the team's attention early will improve the chances of finding an optimal solution for all involved.

While careful attention to the project budget is needed throughout the process, savings-oriented changes are most beneficial at the start of the project. As project pieces fall into place, the ability to realise savings later in the process are limited to smaller and smaller elements of the work, such as interior design or equipment. This should be avoided.

Consideration should be given – even at this early stage – to flexibility and expansion. Anticipating future changes can result in significant long-term cost savings.

As a fundamental rule, designers with no or little sports facility experience will need more expert support for good results. Extra time must be allowed for this. Furthermore, construction approvals and permits are increasingly compli-



cated; additional time needs to be allocated for these processes to be completed before construction can commence.

Construction: site management keeps everything under control

As a rule, the greater the deadline pressure, the more challenging it is to achieve good prices – therefore, sufficient time should be allocated for invitations for tenders and negotiations prior to breaking ground, to allow an appropriate construction contract to be put into place.

There are several types of project construction delivery methodologies, which vary considerably by country and region. Local market conditions will typically inform the ideal approach for each project – however, with any methodology, it is crucial to ensure those constructing the project have appropriate expertise. Building owners are best served by maintaining a high level of control of the materials, systems, and products used in the facility’s construction.

When awarding an aquatic contract, top of mind should be the specialised nature of sports facilities. Construction must meet exacting requirements, including higher standards of quality and material specification. Omissions or substitutions can lead to costly problems down the road.

Good site management is also essential to maintain the required building quality, effective cost of construction, and compliance with deadlines. For the latter, site management must always keep an eye on the critical path.

Finally, sufficient time must be allowed for commissioning, trial operation, and fine-tuning. Without this, the facility

may not be fully functional after opening, and in some cases, users and the client will initially be disappointed. Identify and remedy as many defects and issues before opening as possible.

Operational stage: alignment of financial goals

The growing complexity and pace of change in society – and subsequently the world of sport facility operation – calls for increasingly sophisticated, professional, and market-driven management. Regardless of a building owner’s financial objectives, sports facilities should welcome as many users as possible to optimise utilisation and increase positive social impact.

It is through effective operations that health and social policy goals are truly achieved. This aligns with current best practice, which recommends that separate facilities should not be built for each sport, but rather, they should be integrated and used for many different sports and activities with long opening hours. Bringing a variety of uses and users together has significant impact on the efficiency of facility operations.

Depending on the project, pre-opening management activities should begin roughly six to 12 months before opening. The intensity of pre-opening management for an upgraded or modernised facility will greatly differ from that for a new facility. This includes tasks like the commissioning of systems, staff training, and operations trials.

Effective monitoring of facility operations, such as energy use, water use, and air and water quality are critical to long-term success. While monitoring methods must be identified and integrated during the detailed planning

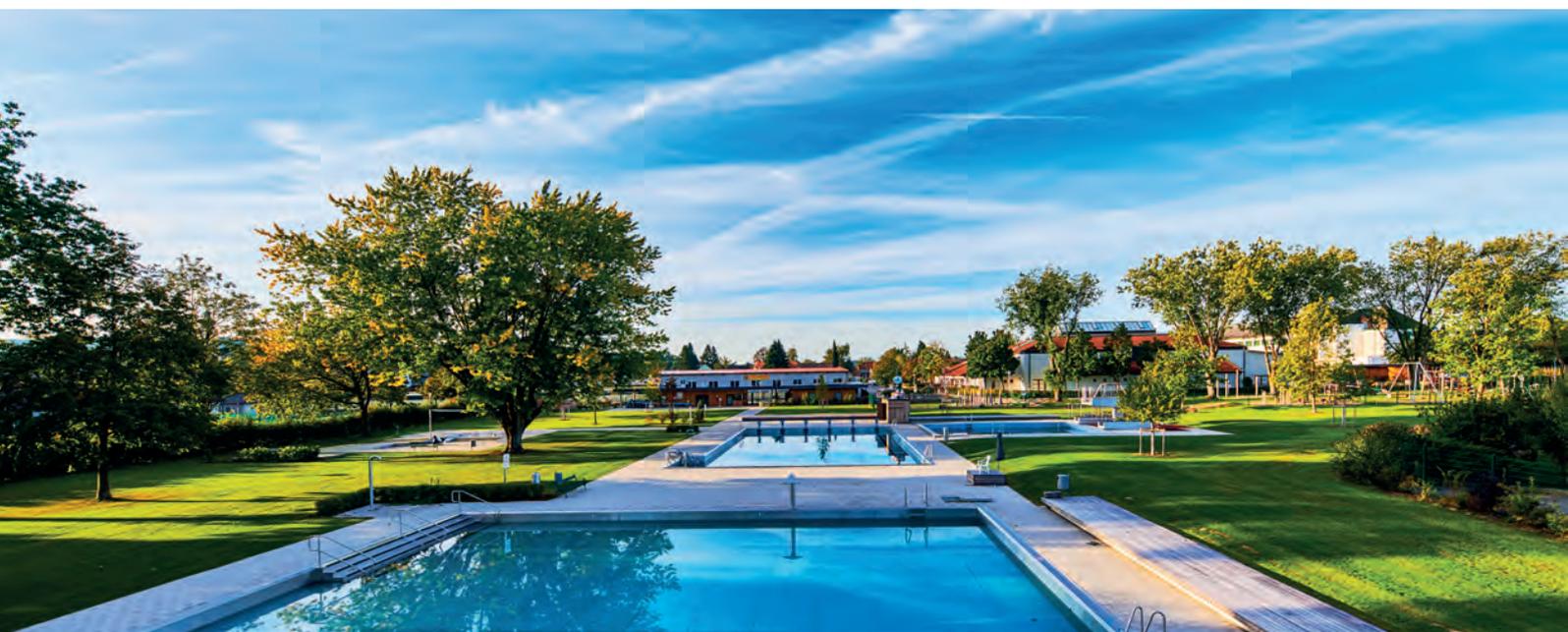
stage, these decisions have the greatest impact during operation. Through ongoing monitoring and fine-tuning, owners can optimise building performance.

When it comes to associated maintenance and operational costs, sports facility management should concentrate on the biggest ticket items: staffing costs, energy/water/sewage costs, regular ongoing maintenance, as well as life-cycle upgrades for long-term efficiency.

The most significant potential for deficit reduction is usually found on the revenue side. This is an area where expectations vary significantly from region to region and country to country. In some locations, positive cash flow is essential; and in others, these types of facilities are considered a social service requiring ongoing subsidy.

There is no one correct approach – although it is critical that admission and rental fees are aligned with the overall objectives. Lack of clarity on financial performance expectations leads to many challenges, and can result in facilities seen as being inappropriate for a community's needs (or too large a financial burden after only a few years). It is critical that all facility stakeholders are aware of the operational objectives and that users are charged appropriate fees.

Furthermore, an appropriate sports promotion budget is typically a critical component of success. Regardless of the operational philosophy and financial expectations, all public facilities benefit from professional operations, transparency, and efficiency.



CONCLUSION: KEYS TO SUCCESS AT EVERY STAGE OF THE PROJECT

It cannot be overstated that sports facilities are highly complex, with sophisticated operations and associated costs that far exceed construction costs over the project's lifecycle. It is therefore important to be aware of key aspects of success at each stage of the project:

1. Pre-planning / Concept stage

At this stage, it is important to match the service offering against actual demand, and define good functionality. This is done with the aid of a feasibility study.

2. Project initiation stage

Putting together the right team (with appropriate skills and experience) boosts the chances of a project's success considerably. Sound financing is also an important element at this stage.

3. Planning and construction stage

The primary objective here is to create an attractive building with high-quality construction methods and technology, that also anticipates and responds to current and future needs of the local community.

4. Operating stage

At this stage – which is by far the longest – the best-possible operating result can be achieved with professional and energetic management.

In summary, it can be said that getting the multitude of necessary steps correct (and in the right order) boosts the chances of a sport facility project's success, yields better results, saves a good deal of time and money, and ensures local communities' needs are met for generations to come.

There is unfortunately no quick or simple way to deliver sports and leisure facility projects – even if it is tempting to take a short cut. These projects are highly specialised and complex building types and, as a result, success requires a thoughtful process implemented by experienced experts. A strong start and thorough planning will help ensure long-term success and many years of happy users.

DEFINITIONS

Swimming pools come in all shapes and sizes – from open-water bathing sites to high-performance competition venues. For many years, both indoor and outdoor swimming pools have followed a similar pattern of lap pools with related support facilities. More recently, however, the variety of swimming pool facility types has dramatically increased. This section helps clarify the most common contemporary swimming pool types.

While river, lake, or beach baths are not technically swimming pools, they can be defined as natural bathing sites

with minimal infrastructure. Natural pools are sometimes built in combination with an outdoor and/or indoor swimming pools.

The following table summarizes the most common types of swimming pools built in recent years. It is impossible in a document of this nature to demonstrate all the various possible types. However, the ten case studies contained in this paper demonstrate a wide range of possibilities, as indicated in the table for reference.

| | INDOOR POOL | COMBINED INDOOR + OUTDOOR POOL | OUTDOOR POOL |
|----------------------|-------------------------|-----------------------------------|--------------|
| COMPETITION POOL | Spain | | |
| LEISURE POOL | Canada Denmark UK | Australia Germany #2 Norway | Austria |
| FUN POOL / WATERPARK | | | |
| THERMAL POOL / SPA | Switzerland | Germany #1 | |

In the past, it was much easier to clearly distinguish between differing pool types, as there were only three basic types: competition, waterpark, and thermal pools. Due to the increasing shift towards leisure-focused programming, and a resulting need for a broader offering of facility amenities, a convergence of the individual pool types has taken place.

Currently, the four main pool types can be described as follows:

Competition pool

Use is focused on the public, schools, and sports clubs. They have pool dimensions and water depths oriented to swimming federation rules. They have no additional recreational facilities.

Leisure pool

These facilities are also used by the public, schools, and sports clubs, but in addition to competitively-focused pool tanks, they have additional leisure-oriented pools. As a result, they are a hybrid facility, blending sports and recreational pools.

Waterpark / Fun pool

These facilities do not include fitness or sport swimming uses. As a result, they do not need to comply with swimming federation rules and have exclusively a wide range of bathing facilities for recreational enjoyment, including such attractions as waterslides and wave pools.

Thermal pool / spa

These facilities were historically used for regeneration, therapy, and rehabilitation, but due to recent health and wellness trends, they have increased recreational value. In addition to special types of pools and waters, they often have supplementary treatment facilities.



AUSTRALIA – COCKBURN ARC

LARGE-SCALE, DIVERSE MULTI-PURPOSE FACILITY FOR ALL-YEAR-ROUND USE

Contact: Warren Green, Email: warren_green@me.com, Mobile: +61 417 306 452

Photos Cockburn ARC Photos

Cockburn ARC is located 20km south of Perth. With a building footprint of 17,000m², it is the largest aquatic and recreation centre in Western Australia and one of the largest in Australia. The Centre opened in May 2017 and with more than 1.4m visits per annum it is delivering on the mission of “More People, More Active, More Often.”

Cockburn ARC was built to replace an old local aquatic and leisure facility. The vision was to service the needs of the growing community and also other major groups. The Centre consists of

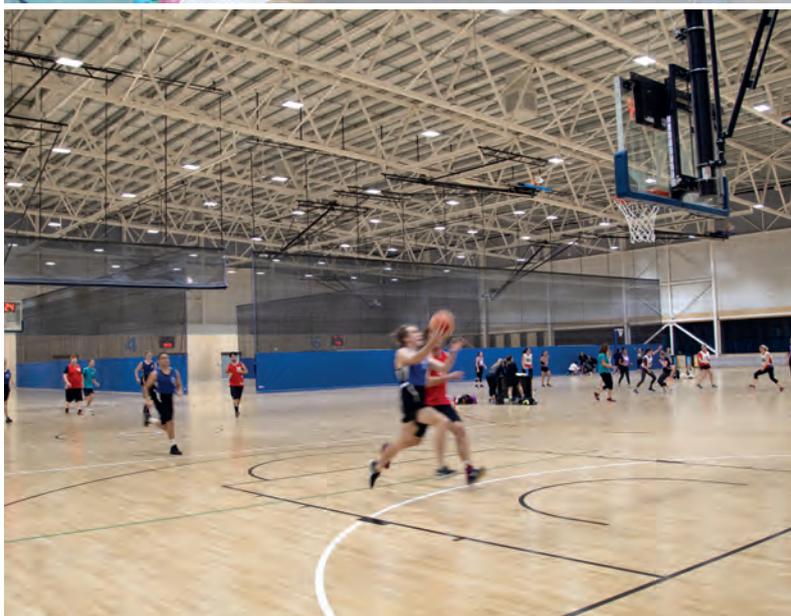
- 1) Community facilities including extensive aquatic and dry areas.
- 2) An elite-level training facility for the Fremantle Football Club (an Australian Rules Football team playing in the national competition).
- 3) Facilities for Curtin University.

The total project cost was \$109m. This was funded through the partnership arrangement involving local, state and federal government, the Fremantle Football Club and Curtin University. A summary of the funding mix is: City of Cockburn: \$72.85m, Fremantle Football Club: \$12.75m, state government: \$12.4m, federal government: \$10m and Curtin University: \$1m.

Description of facilities

Cockburn ARC major facilities include:

- An outdoor 8-lane 50m heated pool and an indoor 8-lane 25m heated pool
- Leisure water playground and three major water slides
- Wellness services with a hydrotherapy pool, steam room, spa / sauna and an allied health centre
- Gymnasium and group fitness studios
- Six-court sports stadium
- Other community areas: crèche, café, function and multi-purpose meeting rooms and an indoor play centre
- Specialist facilities: educational spaces, 140-seat lecture theatre, multimedia studio, altitude and heat training rooms and hot and cold recovery pools
- Australian Football League standard oval and a community oval
- Car parking bays for up to 600 cars



Specialities of the country and the pool

Swimming in Australia has evolved from beach and ocean pools in the early 1900s, outdoor pools in the 1950s, indoor facilities in the 1980s and large scale multi-purpose facilities in the 1990s. Cockburn ARC is one of the largest multi-purpose facilities in Australia offering a diverse range of facilities, programmes and services. These facilities provide a range of opportunities for people of all abilities and ages.

There are approximately 20 facilities in Australia that have in excess of 1M visits per annum. These centres are mainly local-government-owned and -funded. They are managed either by the local government or a management group. Australia has about five major management groups and they have strong expertise in programme and service provision, which is a major focus in the delivery model.

Australian facilities are mainly designed by a handful of specialist architects who have refined designs to meet local community needs. There has been a move to leisure and wellness facilities but a 50m pool still remains important within the political process.

Cockburn ARC design principles

The Cockburn ARC consists of community facilities, elite sport and educational facilities to establish a new national benchmark. By embracing an integrated facility model, the City of Cockburn, Fremantle Football Club and Curtin University have made a strong commitment to deliver a vision of innovation.

Carefully considered planning allows community access to parts of the football club's facilities, and the football club's players and staff have access to community facilities. As a consequence, the whole is far greater than the sum of its parts.

The design concept is founded in the history of the area. For thousands of years, the Beeliiar network of water-holes has been a gathering place for Aboriginal (indigenous) groups. This has played an important role in forming the local area culture. It was these factors that formed the basis for the design of the facility.

Drawing from the wetland, the design includes changes in level, views, and shelter from the outside weather. The form and materials of the building reflect changes between



land and water. The landscaping and use of materials create a soft change between the building and landscape.

A key design feature is the internal 'street' which connects the north and south ends of the site. This allows the public to interact with all functions of the building from a central space. The civic importance of the building is highlighted by the large and high entry space. This entry area is like a public square and is designed as a gathering space for all.

Conclusion – what makes this facility famous

Cockburn ARC is a unique, large-scale multi-purpose facility for the community, an elite-level sports club and a university.

It is designed to cater for all abilities and serves as a regional facility for the area south of Perth. The Centre provides a very diverse range of programmes and services and operates in profit (excluding a sinking fund).

User numbers

- Total annual visits – 1.4M
- Aquatic visits – 756K
- Health and fitness visits – 350K
- Stadium sports courts visits – 280K
- Elite club visits – 14K

Performance overview

Cockburn ARC is managed by the City of Cockburn and this has been an important success factor.

A breakdown of use by area in 2019 is as follows:

- 54% of visitors were aquatic users.
- 25% health and fitness users
- 20% accessing the stadium
- 1% Fremantle Football Club or general users

The Centre has 6,600 health and fitness members and 3,400 learn-to-swim members for a combined

total of 10,000 members, which is one of the largest in Australia.

The annual income is in excess of \$11.5m with expenses of less than \$10.5m (including maintenance). The Centre operates in profit excluding the sinking fund component.

Standard admission

- Adult swim – \$7.20
- Child swim – \$5.20
- Spa, sauna and warm water pool – \$14.00
- Health and wellness membership – \$20.50/week

Investment

\$109 million in 2017 (EUR 65 million)

Gross floor area

37,000m²

Water surface area

1,600m²

Pool water treatment

The Chlorinsitu III chlorine system has been installed, generating an ultra-pure and low-chloride sodium hypochlorite solution on site. As a result of this system, there is no storage, transport or handling of hazardous chemicals.

Energy consumption

- Water – 38,000KL
- Gas – 6,700GJ
- Electricity – 3,349,346kwh

Number of staff

350

Mg chlorine per litre (table A)



Table A Chemical criteria for facilities using chlorine-based disinfectants

| Parameter | Situation | Criteria ⁽¹⁾ |
|---------------------------------------|---|---|
| Free chlorine ⁽²⁾ | Any pool without cyanuric acid, other than a spa pool | Min. 1.0 mg/L |
| | Outdoor pool with cyanuric acid | Min. 2.0 mg/L |
| | Spa pool | Min. 3.0 mg/L |
| | Interactive water feature | Min. 1.0 mg/L |
| Combined chlorine (chloramines) | Any pool or interactive water feature | Max. 1.0 mg/L, ideally < 0.2 mg/L |
| Total chlorine | Any pool or interactive water feature | Max. 10 mg/L |
| Turbidity (pool water) ⁽³⁾ | Any pool or interactive water feature | Max. 1 NTU ⁽⁴⁾ , ideally < 0.5 NTU |
| pH | Any pool or interactive water feature | 7.2–7.8 |
| Total alkalinity | Any pool or interactive water feature | 80–200 mg/L |
| Cyanuric acid | Outdoor pool only | Max. 50 mg/L, ideally ≤ 30 mg/L |
| Ozone ⁽⁵⁾ | Any pool or interactive water feature | Not detectable |



AUSTRIA – OUTDOOR POOL IN ANDORF

ANYONE CAN SWIM

Contact Haymo Huber Photos hsb

Andorf swimming pool is one of Austria's typical pools – originally built in 1974 and revitalised in 2019. After 40 years in operation, the wishes of Andorf's population and other users came true and the facility was overhauled. The target of this refurbishment was to upgrade the existing facility and make it more attractive in a minimum of time.

Description of the facility

The facility consists of 4 parts: The medium-sized outdoor pool for swimmers (348 m²), diving pool (148 m²), baby pool (54 m²) and pool for non-swimmers (291 m²).

Specialities of the country and the pool

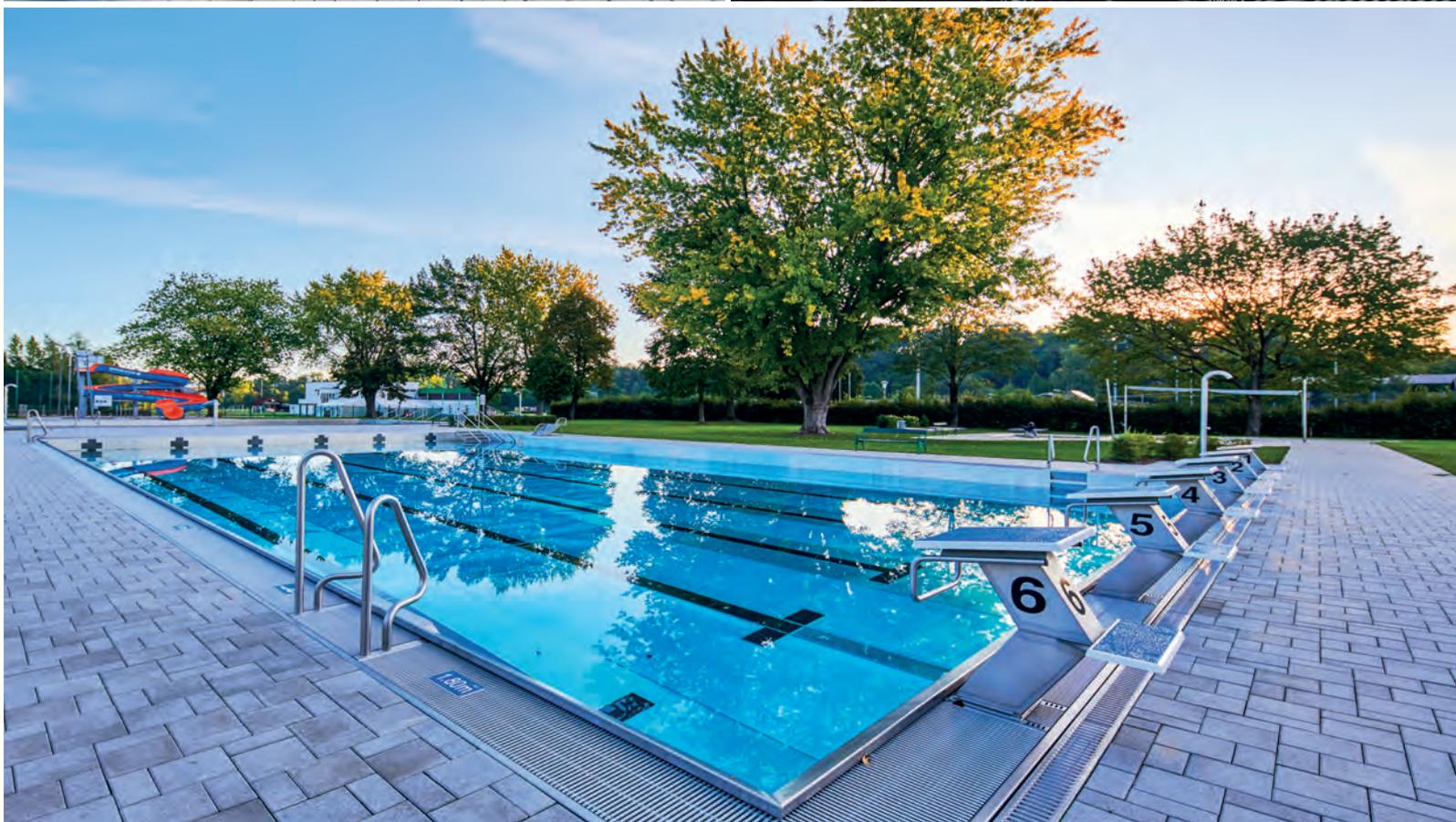
At the beginning of the 1970's in Austria, there was an issue of many deaths due to drowning. The government decided that every child should learn to swim. Since then, swimming has been an integral part of the school curriculum. This decision led to huge investment programmes in swimming infrastructure, so today nearly every larger community has its own swimming pool. There are of course Aquaparks and Olympic pools in Austria as well, but the standard pool in rural areas is outdoor and medium-sized without attractions.

As publicly owned and operated swimming facilities are difficult to run economically due to the high cost of per-

sonnel and amortisation, most communities in Austria (excluding the cities) decided to invest in outdoor pools only. The typical facility consists only of an absolute minimum of building infrastructure (generating a minimum of construction costs) and the pool's staff can be used for other tasks in the autumn and winter.

This meant that keeping the pool safe during the winter months became an important issue – and so the pool industry introduced stainless steel as the main construction material. To date, almost 90 % of all public-owned outdoor pools in Austria are made of stainless steel.

In Austria building quality is very high, with the main focus on sustainability. The life-cycle costs (including construction and recycling) are important from the very beginning of planning. Often the heating for the pool water is environment-friendly with solar collectors and panels on rooftops.



Number of users
between 20,000 and 25,000 per year

Number of staff
3 lifeguards, 2 cleaning staff,
1 person at the cashdesk

Standard adult admission
Adults € 4.00
Children: € 2.00
Families: € 5.00-€ 10.00

Investment in EUR
Cost of refurbishment: ~€ 3.9 million
(€ 1.8 million for pool & water treatment)

Water surface area
~ 841 m²

Energy consumption
Electricity: 85,000 kWh
Water for showers, toilets: ~400m³
For the pools there is a well that supplies the water.

Pool water treatment
Unlike many other countries, Austria has strict laws on water treatment. This law sets the following standards for the pool water. The system in Andorf consists of sand filters with chlorine.

pH between 6.5 and 7.8
Free chlorine: min 0.3 mg/l (pH <7.4); 0.5 mg/l (pH >7.4)
Bound chlorine: max 0.3 mg/l
Chloride: max. 200 (indoor pool) -350 (outdoor pool) mg/l
Trihalomethane: max 100 mg/l
Redox potential: min 700 mV

Conclusion: what makes this pool outstanding
Refurbishment work started after the swimming season in October 2017 – the facility re-opened 8 months later in July

Further pools demonstrating Austria's way of doing things:
Nenzing, Gröbming, Lech, Zell am See, Wattens



CANADA

GRANDVIEW HEIGHTS AQUATIC CENTRE

Contact Lisa White, Manager, Community and Recreation Services, City of Surrey

Photos Nic Lehoux, Ema Peter

Architects hcma architecture + design, www.hcma.ca **Mechanical Engineers** AME Group, www.amegroup.ca

Concept + Goal of the Pool

Grandview Heights Aquatic Centre (GHAC) is an iconic expression of the city of Surrey's commitment to improving the quality of life for people living and working in one of Canada's fastest growing cities. The Grandview Heights neighbourhood in particular, is expected to grow rapidly over the next decade, and the Aquatic Centre is considered the first step in a larger vision for a campus of wellness, learning, healthy living, and sports excellence in the area. The city's goal was an iconic destination swimming pool for families, athletes and high performance sporting events.

The design carefully balances the needs of recreational users with high performance athletics without compromising the unique needs of either group. The new facility includes a 50m lap pool with diving platforms designed to FINA standards for competitions, a leisure pool, two hot pools, a sauna, a steam room, a waterslide, a fitness centre, a poolside café, and seating for up to 900 spectators.

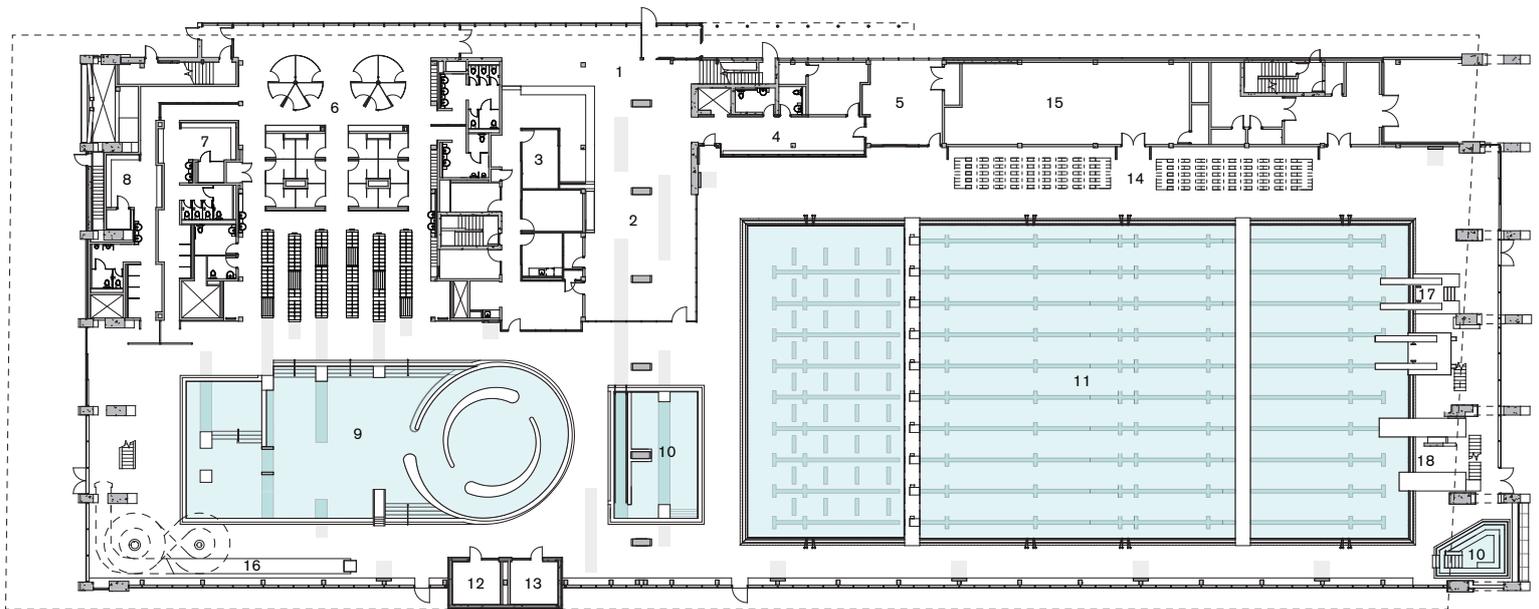
The result is an award-winning aquatic centre housing recreational and world-class pool facilities beneath the world's longest span timber catenary roof system.

Description of the Facility

The facility has two public levels with the entry, change facilities and pool decks at the main level. An upper level includes a fitness facility and spectator seating. Most of the building's technical systems – including air handling and pool treatment systems – are located in a lower level below the pool decks. The facility was designed to provide ease of vertical movement for staff between the technical and program levels.

The main lap pool is a 10 lane, 50m pool that also includes two 1.5m wide movable bulkheads and a 12.5m x 25m movable floor. A full complement of diving boards and platforms are accommodated with the main lap pool. The recreation pool contains a variety of therapeutic, learn to swim and family swim functions. It is supplemented by an indoor water slide, two hot pools, sauna and a steam room. The changing facilities adopt a primarily universal (mixed gender) model where the changing functions are within private cubicles and the locker areas communal. This is supplemental by small gender specific change rooms. The facility has been designed as the first phase of a much larger complex of sport and community facilities.





Specialties of the Country and Pool

In Canada, most public swimming pools are built and operated by local municipal governments. There are a smaller number of facilities built and operated by academic institutions and not-for-profit organizations. Given Canada's colder climate most pools are indoor facilities however there are a significant number of public outdoor swimming pools as well. Like most countries the traditional pool, regardless of the operator, was a rectangular tank of relatively cold water primarily for lap swimming and competitive sport uses. More recently, the municipally

operated facilities have tended towards the recreational user. This has led to a lack of competitive-oriented facilities. High performance-oriented facilities are less common and not evenly distributed across the country. This results in a challenging situation for the development of aquatic athletes. As the City of Surrey has a network of several facilities, they recognized the need to accommodate higher performance programs within their system of aquatic facilities. The Grandview Heights Aquatic Centre was designed to meet a mixture of needs for community-oriented uses and higher performance activities as well.



Conclusion

Grandview Heights Aquatic Centre is a comprehensive municipal facility that address the needs of sport and community users in a dynamic, light-filled environment.

Its usage level is exceedingly high for a facility of this type. It successfully meets the needs a diverse and rapidly growing community while provide a focal community facility that has become a source of pride in the community.

| | | |
|---|---|--|
| User Number Swim lessons and fitness classes: 119,340 Membership pass users: 378,769 General admissions: 218,792 Total (2018): 716,901 | Investment in Euros €27m (\$42m CAD) | disinfectant, muriatic acid for pH control, and ultraviolet lamps. |
| | Gross Area Area: 8,830m ² , Volume: 51,400m ³ | Mg of Chlorine/Litre 0.1 to 0.45 mg/L |
| Number of Staff 29 regularly + 10 swim instructors during lessons | Water Surface 1,700 m ² | Total Consumption of Heat, Electricity, and Water (kWh/m³) Heat: 94.5 kWh/m ³ , Electricity: 120 kWh/m ³ |
| Standard Entry Price Adult €4.68 (\$7.25 CAD) Child €2.42 (\$3.75 CAD) | Pool Water Treatment System Regenerative DE filters using perlite as the filter media, sodium hypochlorite as the primary | Water: 52,520.17m ³ |



DENMARK

LEISURE POOL RINGKØBING-SKJERN

Author Anna Rex Wittig

Photos Rune Johansen and C.F. Møller Architects

Architects C.F. Møller Architects

Concept + Goal of the Pool

Ringkøbing Leisure Pool, located on the beautiful scenic west coast of Denmark, was originally built in 1977. But the pool was a traditional swimming facility that lacked liveliness and activities. It was in desperate need of renovation and no longer met the community's needs. A significant modernisation of the facility was therefore put into action, with the aim of creating an aquatic centre for the whole community. All kinds of activities were added to the programme, including recreational swimming and exercise classes, swimming classes, life-saving and water sports safety, wellness and winter bathing.

Ringkøbing Leisure Pool is now a modern swimming pool with new, exciting activities in a recreational and social setting. Children, youth, adults and people with disabilities can all be part of the facility's aquatic culture, and self-organised swimming now runs alongside club-based activities. The facility is also a popular tourist destination.

Architecturally, the leisure pool is designed for direct access to Ringkøbing Fjord and West Jutland's coastal nature right outside. There are views of the sea from all parts of the facility. Swimmers can bathe in the saltwater and warm up in the sauna afterwards whilst enjoying the view out to the coast.

Elements of the original swimming pool facility have been re-used. The 25-metre pools previously used for swimming laps are now used for different types of activities. An additional first floor has been built on to as a fitness and relaxation centre.

Description of the facility

The facility is divided into two levels. The ground floor has a 25-metre pool with 5 lanes, a water obstacle course and a diving pool with a 4-metre board for diving and play. It also features a climbing wall, and the pools are set out for water polo and underwater rugby. The heated pool has massage jets and is ideal for rehabilitation, relaxation, and for swimming for people with disabilities and infants. A cave with coloured lights and bubbles sets the scene for social activities on the ground floor, which also has changing rooms and two saunas. The first floor is equipped with a large activity room and gym with views of Ringkøbing Fjord. The facility has been redesigned in close consultation with local community members.

Specialities of the country and the pool

Denmark has close to 400 public swimming facilities and swimming is the most popular activity among Danish children aged 7-15 years. For adults, swimming is a top-5



activity and many Danes go to their local pool to swim, play, unwind with wellness activities, exercise and play water sports.

Swimming appeals to a broad public across age groups, gender, educational and ethnic backgrounds, but many facilities built in the 1960s and 1990s are in need of renovation and modernisation in order to meet their needs. The sea and water safety play a significant role in Denmark, and there is a lot of interest in winter bathing, open water swimming and other outdoor activities. This demands a rethinking of indoor swimming pools, but there is great potential

to explore. Work is being done in Denmark to improve the indoor climate and energy use of indoor facilities to ensure they can be run in a sustainable way in the future, as they are currently expensive and technically difficult to maintain.

Conclusion: what makes this facility outstanding

This facility is an example of how a classic swimming facility can expand to encompass a range of activities by modernising its existing offering. It has become a recreational attraction in the local community as a wellness centre close to nature with a host of water activities, play, relaxation and training options.

Number of users

Between 40,000 and 45,000 visitors per year. More than 20 % increase in visitors after modernisation.

User activities

69%: Training, exercise and sport
 38%: Bathing and play
 27%: Wellness and relaxation
 19%: Accompanying others
 23%: Are together with others

Standard admission

Adults: € 6.00
 Children aged 5-17 years: € 3.40 (und 4 years: free)

Investment

Total investment: € 4,235,000
 Grant by The Danish Foundation of Culture and Sports Facilities: € 1,345,000

Floor area

First floor area 280 m²
 Total area 2,216 m²

Water surface area

Total area: 400.5 m²
 25-metre pool: 200 m² (370 m³)
 Diving pool: 128 m² (474 m³)
 Heated pool: 72.5 m² (87 m³)

Pool water treatment

pH between 6.8 and 7.6
 Free chlorine between 0.3 mg/l and 1.5 mg/l
 Bound chlorine: 0.3 mg/l

Number of staff

Pool staff: 2 persons
 Lifeguards: 10 persons
 Cleaning staff: 1 person

Energy consumption

Heat: 507,750 kWh/ m³
 Electricity: 316,577 kWh/ m³
 Water: 7,209 m³

The facility has solar panels on the rooftop and a recycling system for the heat used in the shower area and ventilation system.



GERMANY #1

EMSER THERME

Contact Dr Stefan Kannewischer, Managing Director, management@kannewischer.com, www.emser-therme.de

Photos David Matthiesen und Emser Therme GmbH

Architects 4a Architekten GmbH, www.4a-architekten.de

Technical engineer Kannewischer Ingenieurgesellschaft mbH, www.kannewischer.com

Concept + Goal of the Pool

Bad Ems is a historic spa resort that relies mainly on tourism. The Emser Therme that opened in 2012 replaces a traditional rehabilitation-oriented thermal pool from the 1960s. As health-insurance financed rehabilitation was declining, Bad Ems sought a strategy to attract new wellness-oriented and self-paying target groups. The new thermal pool was intended to initiate a revival of tourism in Bad Ems.

Today's wellness guests are interested in a modern, state-of-the-art wellness offering in a high-quality and feel-good atmosphere. The public sector sought a commercial company to enter this new market and to invest in this new thermal pool as well as operate it.

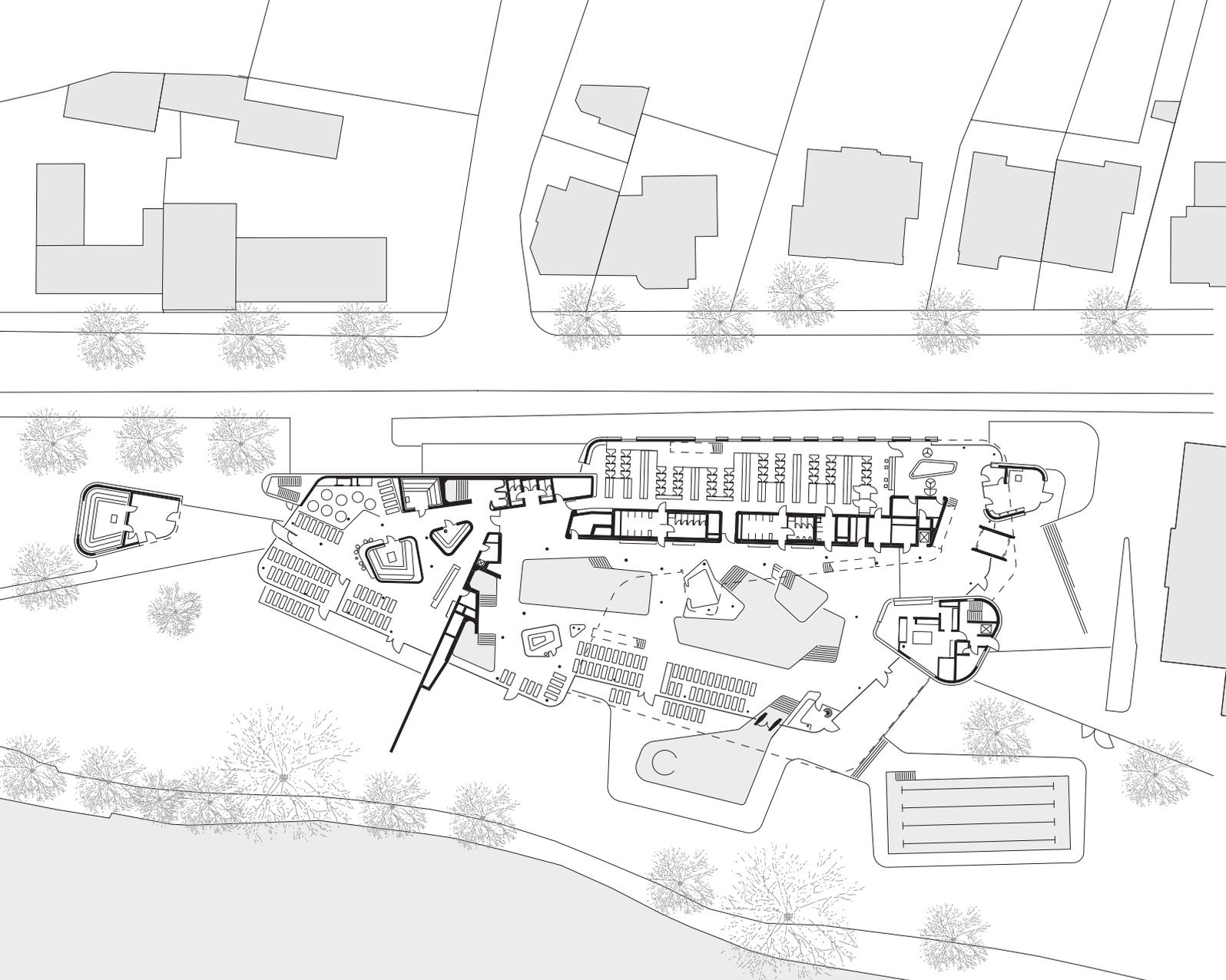
Description of the facility

The Emser Therme has a large thermal bathing area with many different pools and waters (types and temperatures) with a wide variety of water attractions such as bubble

loungers, neck showers etc. The sauna area is also a key element with 3 indoor and 3 outdoor sauna cabins. Due to the facility's location on the river Lahn, one of the outdoor saunas was built as floating structure on the river. The offering also extends to a wellness (treatment) and fitness area as well as a restaurant and a shop.

One recurrent theme in the design of the baths is the river pebbles that can also be found along the banks of the river Lahn. They find expression in the shaping of the various building structures, the swimming pools and in the façade openings. The pebble element is also of central importance in the mural designs of the interior.

The volumes of the various building structures are shaped like a number of stones that are layered and overlap like pebbles on a river bank. Located at the centre is the bathing hall – spacious and generously dimensioned, this is the largest element. The sauna wing leads from the bathing hall



to the west. With their distinctive pebble-like shape, the two building structures accommodating the dining area and the shop slide into the overall volume of the bathing hall. Particularly eye-catching are the pebble-shaped sections in the north façade. The asymmetrical apertures give the side of the structure facing the town centre a lively and cheerful appearance.

Specialities of the country and the pool

Germany has approximately 3,500 indoor and 3,500 outdoor pools for roughly 83 million inhabitants. Smaller pools in Germany are normally owned and operated by the municipalities. Larger leisure pools and thermal pools are also organised in public-private partnerships and operated by private companies.

Many pools were built between the 1960s and 1980s. In the last two decades, refurbishment has been the key activity in the pool sector as the market is saturated. Most

new pools are replacements for pools unamenable to modernisation.

In their pool strategy, the Germans tend to focus on functionalism and feel-good factor, which sometimes results in a reduced architectural quality. As the construction quality is high in Germany and the pools contain a wide variety of offerings, the German pool sector can be regarded as one of the best in the world.

The architectural design of the Emser Therme was executed from the inside out. It started with the facility's programme and functionalism and ended with the building envelope. This can often result in an unattractive exterior design. But in the case of the Emser Therme, all the requirements have been met: functionalism and design (rather than design follows function or vice-versa). The interior design is not artificially attached to the building's ground structure but develops out of it. This is important



for the success of the facility, as attractive design is important for relaxation.

The pool's energy strategy is highly innovative and eco-friendly. There is more thermal water at 52° Celsius available than needed for the pools. So most of the thermal water is used only for heat extraction without actually being used in the pools. The remaining heat is produced by a combined heat and power unit. This strategy cuts fossil energy consumption and carbon emissions by 55 %.

Two special features – the rain cloud in the centre of the pool hall and the floating river sauna – called for extra expense and innovation in the design and construction process.

Conclusion: what makes this pool outstanding?

The Emser Therme is a thermal bath that focuses on wellness-oriented guests of all ages, whereas many pools try to cover as many needs and target groups as possible. Of course, many municipalities have only one pool and then

have to provide a facility for all. But this has to be planned carefully or else there are conflicts between the target groups. The Emser Therme is a fine example of a pool where wellness is at the centre of the offering.

The Emser Therme has tailor-made functionalism and an attractive design. Operator facilities like pools normally achieve better results with an inside-out design process rather than an outside-in one. Modern design tends often to be "cool" whereas the modern design of the Emser Therme is also cosy. This is important for the comfort and relaxation of the guests.

The Emser Therme energy strategy is highly innovative and cuts fossil energy consumption and carbon emissions by 55 % through efficient use of the geothermal energy of its thermal waters.

It is rare to find the 3 key success factors for pools (offering, functionalism and design) combined in a single pool.



| | | |
|--|--|---|
| <p>User numbers n.a.</p> | <p>Investment € 22.3 M</p> | <p>mg chlorine per litre 0.3-0.6 mg / l</p> |
| <p>Number of staff 85</p> | <p>Gross m² and m³ of building including technical area 7,500 m², 35,500 m³</p> | <p>Total consumption of heat, electricity in kWh/m³ and total water consumption (2019) Heat: 105 kWh/m³ (excluding geothermal heat) Electricity: 65 kWh/m³ Water: 82,000 m³ p.a.</p> |
| <p>Admission Adult thermal bath: € 13 for 2h, € 25 for all-day ticket</p> | <p>Water surface area in m² 770 m²</p> | |
| <p>Adult thermal bath + sauna: € 18 for 2h, € 30 for all-day ticket</p> | <p>Pool water treatment system 5 steps: coagulation, sand filtration, ozone, carbon filter, chlorine disinfection</p> | |



GERMANY #2

CABRIO SENDEN, DAS BAD

Contact DSBG mbh & Co KG, Dr Christian Kuhn, Managing director, info@dsbg-herne.de, www.cabriosenden.de

Photos DSBG

Architects KRIEGER Architekten | Ingenieure, www.architekt-krieger.de

Concept + Goal of the Pool

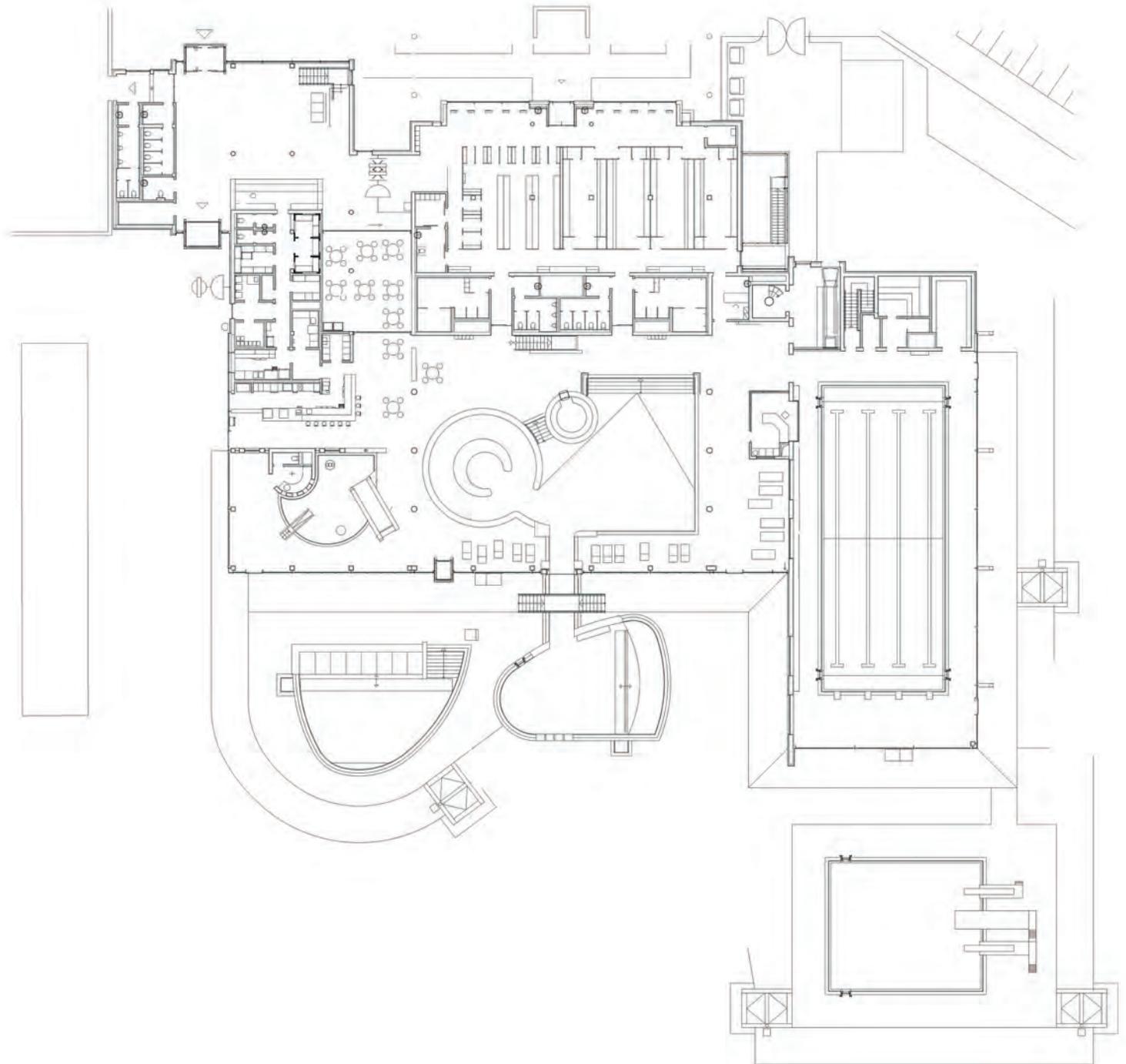
Cabrio Senden – das Bad was opened in 2007 as a replacement for a small competition-oriented indoor pool with only about 100 m² of water surface and an outdoor pool with 2,000 m² of water surface. Since the building was ageing and in need of refurbishment and visitors no longer used the huge outdoor area, a new approach had to be found.

The idea behind the new swimming pool was to install a programme with multifunctional water areas that can be used all year round. The main target group is families, sports swimmers and children up to young teenagers. The aim of the new concept was to increase both public value and numbers of users. A commercial company was sought to accompany the planning and initiation of operation and later take over the operation of the pool.

Description of the pool area

The entire area covers 20,000 m². It is composed of the 2,000 m² indoor pool and a roof that can be opened within 7 minutes to create a sense of being outdoors. A further 835 m² is available in the outdoor area. Three pools make up the outdoor area, two of which can be used all year round. There is also an outdoor area with a huge sunbathing lawn with a fenced-off beach and a beach volleyball court with an additional beach bar.

One pool can only be used in the summer months. This pool has a 1m, 3m and 5m diving tower. Outside there is a brine pool and another pool connected to the indoor pool enabling users to swim out from the indoor pool (usable all year round).



There are four more pools inside. One of the four is a classic 25-metre pool with four lanes. The second is a leisure pool with a lazy river channel. To round off the indoor programme, users can enjoy a children's pool, a whirlpool and an adjoining restaurant.

In addition, there is a sauna cabin that is included in the normal admission price and can be used by up to 15 people in swimwear.

Worth emphasising above all is the fact that the entire area is clearly laid out and yet offers a variety of uses for parents as well as for sports swimmers and children.

Special features of the country and the pool

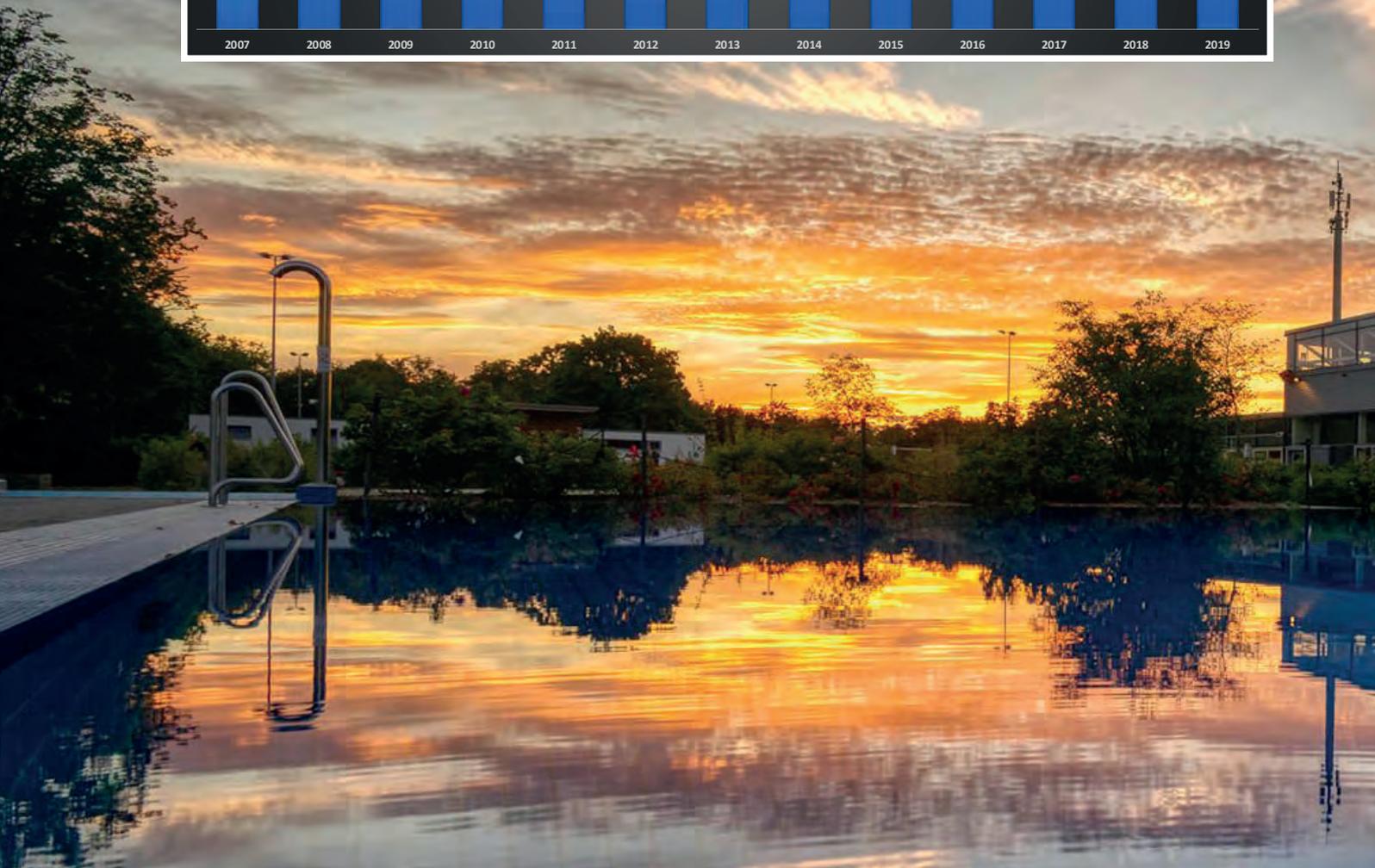
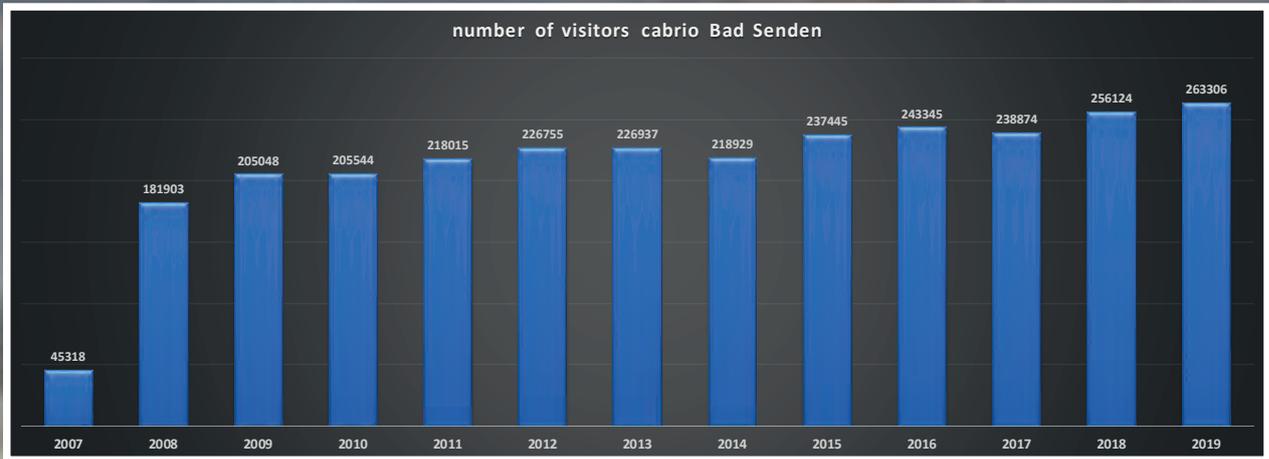
As the latest studies by "Bäderleben" show, there are more than 9,000 pools in use in Germany (including hotel pools, pools in hospitals and fitness gyms).

Most German pools were built on the basis of the so-called "Golden Plan" during the 1960s and 1970s. This means that today Germany has a large number of outdat-

ed pools, nearly all of which have the same programme of water areas and therefore no longer meet user needs. In addition, they are also costly to run because of ageing and run-down plant. Many new pools have therefore been built in Germany since the early 2000s.

The main focus of indoor pools in Germany is to satisfy the population's demand for swimming opportunities. User requirements have also changed a great deal over the last 50 years. Studies, by INSPO (Institut für kommunale Sportentwicklungsplanung e.V.) for example, show that about 50-60% of users of family-oriented indoor pools spend their time there for leisure activities and to relax, whereas only 25% use indoor pools for competitive swimming and only the remaining 25% use them for organised swimming in clubs.

Thus, the Germans focus above all on a well-designed concept and fulfil the population's desire for recreation in multifunctional bathing landscapes. Germany offers a great variety of swimming pools and can be considered a world leader with its varied indoor swimming pools.



The architectural design of cabrio Senden – das Bad has always had a specific focus on meeting the needs of its users as well as creating a high cost-value ratio.

Therefore, policy-makers and user groups, such as schools, clubs and the actual everyday users, were consulted at an early stage for their opinions on and ideas for a new pool. These ideas were shaped into manageable concepts and paired with functional importance, and only then did the architect begin to design the indoor pool while receiving feedback from the consulting operators throughout the planning and construction process.

The product that was developed focuses strongly on the user groups and the installation of a roof that can be opened at the touch of a button. This type of roof not only permits a more flexible response to weather conditions, but also harmoniously unites the two worlds of in-

door and outdoor pools. These two features were key to the success of the indoor pool. With a net budget of EUR 12.5 million, the municipality has built a leisure facility that creates high public value.

The pool's energy concept is highly innovative and environmentally friendly. This is achieved by using well water, a combined heat and power plant and water electrolysis for water treatment, as well as a combined heat and power system with the nearby town hall and Stever Sports Park.

Conclusion: what makes this pool outstanding?

Cabrio Senden – das Bad is a family pool that perfectly adapts to the needs of its users. It impresses with its high public value and multifunctional use as a flexible year-round and outdoor pool with such outstanding features as its outdoor brine pool, clothed sauna included in the admission price, large outdoor beach area and indoor pools, which



offer a variety of uses without taking up too much space and becoming confusing.

to facilities that minimise operating costs while conserving natural resources.

The Cabrio Senden has received two awards. These are the Public Value Award presented by the Deutsche Gesellschaft für das Badewesen (German Association for the Bathing Industry) and the Ökoprofit certificate, which is awarded

Its three success factors are its satisfaction of user requirements, its combination of indoor and outdoor pools under a single movable roof and its extra resource-conserving energy strategy.

| | | |
|--|--|---|
| <p>Admission Adult ticket: 2h: €4; 4h: €6; all day: €7.50 Child ticket: 2h: €3.50; 4h: €5; all day: €6.50 Family ticket (all day): €16</p> | <p>Gross m² and m³ of building including technical area 2,900 m², 21,600 m³</p> <p>Water surface area in m² 835 m²</p> | <p>Total consumption of heat, electricity in kWh/m³ and total water consumption (2019) Heat: 46.72 kWh/m³ Water: 17,380 m³ p.a.</p> |
| <p>Investment €12.5 million net (the building was completed in 2007)</p> | <p>Pool water treatment system Water electrolysis system</p> | <p>Number of staff 22</p> |



IRELAND

AURA TRIM LEISURE CENTRE

Contact Padraig Byrne, Group Property Director, padraigbyrne@auragroup.ie

Photos Aura Holohan Group

Trim Urban District Council built their first public pool in 1972, prior to the first 'oil crises' of the '70s. Just over 30 years later (2003), with high energy costs and an ageing building, the County Council commissioned Holohan Leisure in 2003 to examine the feasibility of developing a publicly accessible sports and leisure centre, including a 25m swimming pool, for the town.

The Irish Government's public swimming pool grant programme was very restrictive at the time, and the only pool configuration that qualified for grant assistance was a five-lane 25m x 10.5m pool. The new pool was opened in 2009, at a cost of c.€12m, and has been managed and operated ever since by Aura Sport & Leisure.

The town of Trim has a population of c.9,000 people, and the leisure complex has a catchment population of c.30,000 people living within a 20-minute drive of the town.

Concept and goal

The facility was seen as a critical part of local social infrastructure, providing inexpensive public access to a swimming pool, gym, small health suite and related facilities for the people of Trim (population 9,194 – census 2016) and surrounding villages and rural areas.

Description of facility

Ground floor comprises main pool hall (25m x 10.5m main pool, kids pool 10m x 7m), steam room and sauna, chang-

ing village, reception area with customer seating / café area, dry male and female changing area and sports hall, two outdoor Astroturf pitches. First floor comprises a fitness gym, exercise studio and offices.

Building composition & orientation

Built in 2007 - 2008, the building mainframe has steel columns supporting glulam timber beams and an acoustic insulated cladded roof. The pool hall and front elevation is east-facing, taking advantage of morning sun.

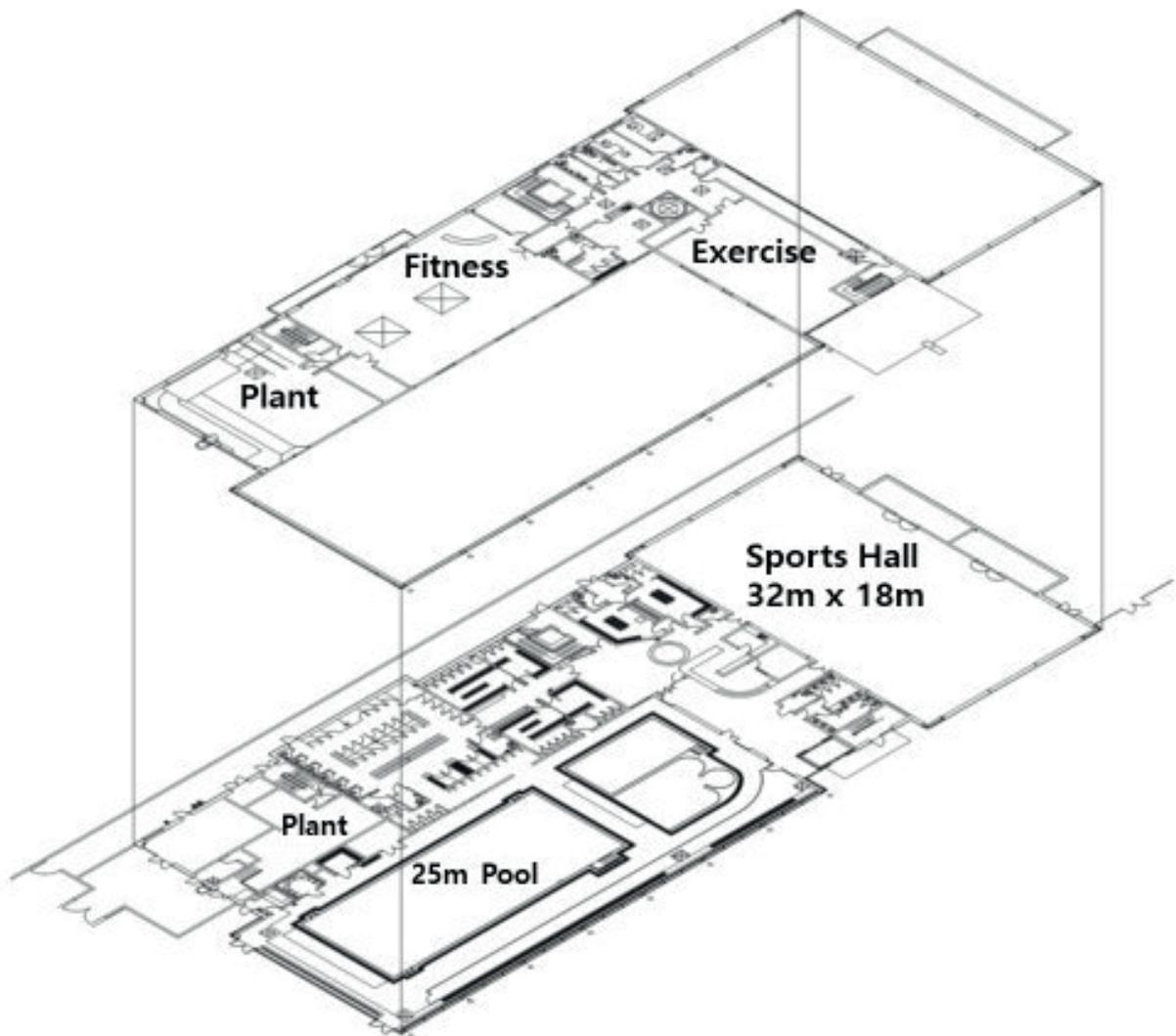
Specialities of the country

Majority of local authority areas have public facilities of varying ages and operating models. Most are operated by the local authorities and normally require operational subsidies; a minority (including Trim Leisure Centre) are operated under license by professional private operators – some receive subsidies and others pay license fees back to the local authority.

What makes this facility outstanding?

Aura Trim Leisure Centre stands out as one of the most energy-efficient leisure centres in Ireland per m³. The reason why it is so efficient can be broken down into three categories:

1. Architectural layout and materials
2. Mechanical and electrical services
3. Building management and operations



Below are the five key takeaways from each category that are the main contributors to making Aura Trim Leisure Centre one of the most energy-efficient leisure centres in Ireland:

1. Architectural layout and materials key takeaways

- a) Architectural zonal layout: The building is divided into clearly identifiable zones that are separated and can be easily controlled to their design temperatures without excessive heat loss or mixing of air systems.
- b) Reception layout: Although the reception is spacious, the ceiling height is relatively low at 4 m. There is also a draught lobby, with the reception desk set back sufficient distance from the automatic doors to prevent draughts. The desired temperature is easily maintained in the reception area, which traditionally can be the source of huge heat loss and wasted energy in leisure centres.
- c) Building fabric. The roof consists of exposed timber glulam beams and purlins with an exposed underside to composite insulated Kingspan roof panels. The internal walls separating the changing village and the pool hall consist of blockwork walls which have excellent thermal mass properties.

- d) Plant rooms: There are 3 spacious plant rooms (pool plant room, boiler house and air handling unit plant room) located close to the areas they are serving, which reduces thermal losses in pipework and ductwork runs. All plant rooms are well laid out and very easily maintained.

- e) Pool hall: Pool halls by nature are usually the biggest consumer of energy and source of heat losses in leisure centres. However Trim pool hall is almost a sealed envelope with a relatively small opening to the changing village situated quite a distance from the supply air grilles. As well as having quality glazing and roof structure, the entire east elevation glazing is broken up with a solid insulated wall structure. This has improved the thermal conductivity of the pool hall without compromising on natural light.

2. Mechanical and electrical services key takeaways

- a) Building management system (BMS): The centre has a very well maintained BMS. As well as controlling all time schedules, heating and cooling strategies, the system has a simple summer/winter mode which can be controlled by the click of a button or on the outside temperature.



- b) Combined heat and power unit (CHP). The site has a well-designed (not oversized) CHP unit that runs all year around from 8am to 10pm. The CHP is the primary source of heat and the BMS ensures that the boilers are held off while the CHP provides the heat to the building. During the run hours, the CHP provides over 90% of the electrical load to the building.
- c) LED lighting: There is LED lighting internally and externally fitted throughout the facility. These lights were not part of the original design and were retrofitted in recent years following an upgrade.
- d) Air handling units (AHUs) and ductwork: Swimming pool AHUs are usually the largest consumers of energy in leisure centres. They would frequently have large air distribution ductwork supplying into large air plenums which run around the perimeter of the pool hall. In Aura Trim the AHU supply ductwork has a relatively short run and is fully ducted to linear grilles around the perimeter (no plenum). All ductwork is very well insulated and the AHU itself has an energy-efficient heat recovery chamber controlled via the BMS.
- e) Insulation: Aura Trim has a very high level of quality insulation in their plantrooms and to all distribution pipework and ductwork, which massively reduces any thermal losses.

3. Building management and operations key takeaways

- a) Energy monitoring: Aura Sport & Leisure installed bespoke energy-monitoring software into Trim Leisure Centre which identifies half hourly usage of water, electricity and gas in real time. The site has daily thresholds for different times of the year that gives an automatic alert if they exceed a given threshold. This prevents wasted energy and quickly identifies potential issues on the site that could affect energy which would not otherwise be easily noticeable.
- b) Preventive maintenance: Aura Trim has an excellent preventive maintenance schedule that is closely managed. This ensures all plant is working to its optimum level throughout the year.
- c) Staff training: All staff are trained in the basics of energy management, and key staff, including a specific site Energy Champion, are trained on energy-monitoring systems and building management systems.
- d) Constant improvement: Through minor investment and target setting, the site is constantly improving year after year. It sets realistic targets, which keeps it on top of the ladder compared to other facilities.



e) Awareness campaign: Aura Trim run an energy awareness campaign which involves not only staff but customers too. This is a fun way of keeping energy efficiency high on the agenda of everyone that uses the facility.

Summary

From our analysis of the Aura Trim Leisure centre, we have concluded that to have an energy-efficient building does not purely depend upon design. A significant portion of the energy efficiency is derived from how the building itself is operated and maintained. Although technology and energy design have greatly improved since the time

of construction, this building still stands out as one of the top energy-performing leisure centres in the country. Electricity consumption at 5kWh/m³ is phenomenal for this type of facility. The operators have made minor energy investments over the years and continue to strive to lower their energy consumption each year.

By their nature leisure facilities can have lots of wasted energy. However energy usage in this facility is monitored and micro-managed on a daily basis. While this approach is resource-intensive, the benefits in terms of reduced energy costs and carbon footprint massively outweigh the cost of this constant focus.

| | | |
|---|---|---|
| <p>Investment in euros €12million</p> <p>User numbers (2019)</p> <ul style="list-style-type: none"> Schools: over 10 local schools attend for swim lessons & gym access Private swim lessons: over 57,500 Membership - 930 members (prepaid or DD) – use of both pool and gym PAYG Pool & Gym – 50,000 PAYG visits in addition to membership visits <p>Annual revenue (2019) €1.3m</p> | <p>Admission</p> <p>Standard adult entry price €9.00 gym, €8.00 swim, €9.50 gym and swim</p> <p>Discounted entry prices are available to Children, Youths, Students, and Senior Citizens.</p> <p>Number of staff 30</p> <p>Areas and volumes</p> <p>Gross m² including technical areas: 3617m² Gross m³ of building including technical area: 22,740m³ Water surface area in 346 m²</p> | <p>Energy usage for 2019</p> <p>Total annual consumption of heat, electricity and water consumption in kWh/m³</p> <ul style="list-style-type: none"> Gas 1,975,356 kWh Electricity 108,250 kWh Water 4 million litres per year <p>Electricity 30 kWh/m² (good practice as per CIBSE 152 m²/kWh) Gas 546 kWh/m² (good practice as per CIBSE 573 m²/kWh)</p> <p>Electricity 5 kWh/m³ Gas 87 kWh/m³</p> |
|---|---|---|



NORWAY

SØRLANDSBADET

Contact Bjørn Aas
Architects Asplan Viak

Photos Sørlandsbadet

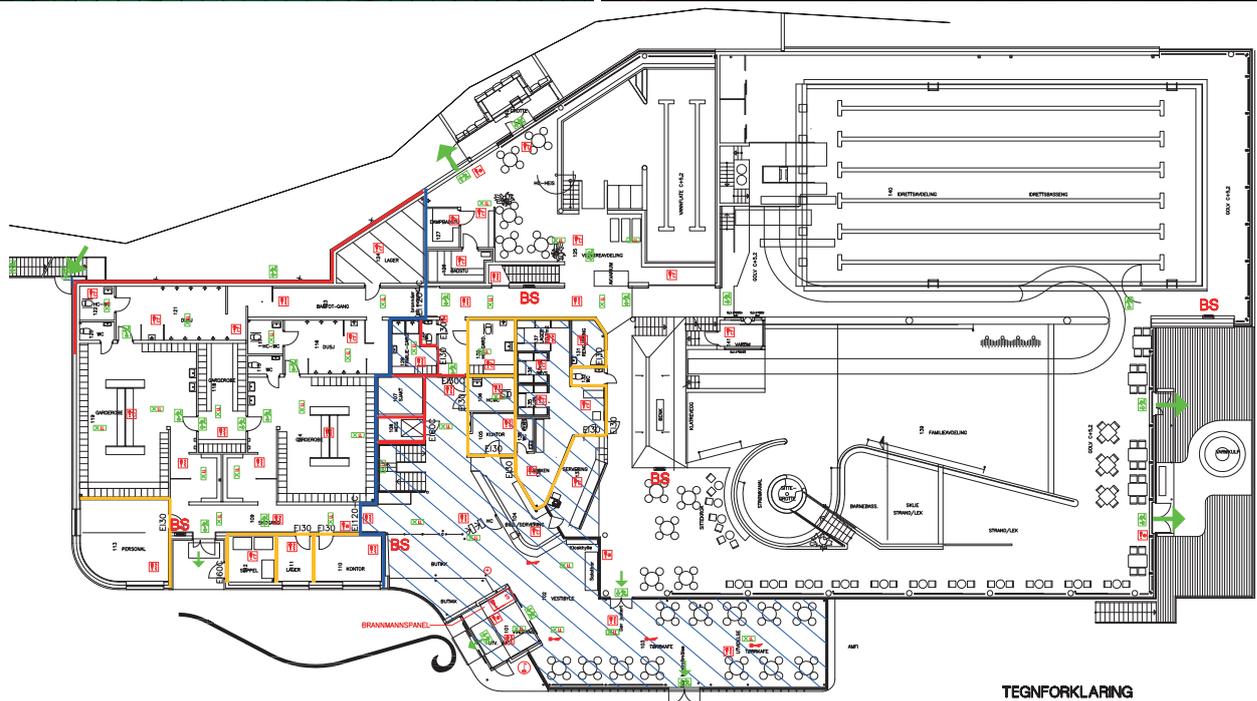
Lyngdal is a small town with a long tradition in tourism and as the commercial centre of the region. The city is located in the southernmost part of Norway, where the climatic conditions are good, from a Norwegian perspective. In step with the development of the community and increased demands from both residents and tourists, Lyngdal built a cultural centre and a water park in the 2000s. At the time, there were no water parks in all of Southern Norway, so it was a considerable attraction in its initial years.

The developers had set a requirement that its operation had to be commercial but that the public sector would contribute to the realisation and ownership of the facility. Ensuring a good and regular supply of users was important. The municipality had to organise school swimming at Sørlandsbadet. At the same time, a fitness centre and a health centre, including physiotherapists who could utilise hydrotherapy, were established.

The facilities

Sørlandsbadet was designed to meet various needs. In a small place like Lyngdal, it was not possible to create a niche water park concept and target only specific users. It depended on having a good local and regional foundation and use. At the same time, it had to be attractive for the tourism sector, specifically in relation to families with young children.

The current facilities consist of three main pools. A competition pool that meets the needs of school swimming and activities, along with diving towers with platforms at heights of one, three and five metres. There is a wave pool with a counter current channel, which is mostly designed with children and youth in mind. This pool has a temperature of 31°C. We have established a wellness area which is a quiet zone where the water has a temperature of 34°C. Here, there is both a standard sauna and a steam sauna.



We also have a cold pool with water directly from the Rosfjord, which is seawater. The pool has spa jets. Outside of business hours, this is the therapeutic pool that is used by physiotherapists. We also have a small baby pool close to the wave pool that has a temperature of 31°C.

There are two hot tubs, one indoor and one outdoor. These are always open and have a temperature of 38°C.

The facility is designed so that it is situated right on the beachfront on the beautiful Rosfjord. Outdoors, we have built an artificial pool island and water attractions, as well as five outdoor slides. The entire exterior of the facility is a large glass wall, where all users can enjoy the view of the fjord.

The fitness centre is located on the second floor and has a glass wall with an excellent view of both the pool and the fjord.

One component of the funding model was that only local enterprises would be contracted in the construction process. Therefore, parts of the facility also serve as a show-

case. Øydna sawmill has delivered all timber materials with five different types of wood panels indoors and beautiful oak louvres in the pool area. This gives the pool a cosy feel and good acoustics. Outdoors, most materials are untreated wood which blend in with the surrounding nature. The showers and changing rooms were contributed by a local enterprise, Fibo, which supplies both the domestic and international markets. They supply and replace bathroom fittings at regular intervals.

Aquatics facilities in Norway

Norway has approximately 800 aquatics facilities, with just over 1,100 pools in total. Norway has a population of 5.5 million people, with scattered settlements.

Norwegian aquatics facilities are most often constructed and designed as combined facilities. This is in part because of the Norwegian funding model. Norway does not have as strong and long a bathing culture as other parts of Europe. In 2020, the first Norwegian public swimming pool will be 100 years old, and the first seawater pool will be 200 years old. Historically, public health and hydrotherapy were the origins of public swimming pools in Norway.



This was the case up until the mid-1900s. The Norwegian bathing culture is not as strong as in the rest of Europe, while the flow of international tourism prioritises nature experiences when visiting Norway. Norway has not been particularly good at commercial, design and adaptation considerations for the needs of users. These are aspects where Norwegian owners and operators have room for improvement. Insufficient focus on commercial operation, or that too many pools are public, means that many pools remain empty, especially in the Oslo area.

When Sørlandsbadet was realised, the private sector led the way and set mandatory requirements for the public sector. The public sector had to contribute financially to the realisation of the facility, but the private sector would operate it. In its first ten years, Sørlandsbadet operated with a profit. Increased competitiveness in the leisure market and changes in macro conditions rendered this challenging to maintain. This period was followed by two years of deficits, including restructuring and an even stronger focus on operations and development. In the challenging year 2020, with COVID-19 and multiple periods of closure, we are in a good position in terms of operations and finances.

Sørlandsbadet is located close to the fjord and sea. The Rosfjord is the fjord with the highest salt content in Nor-

way, and never freezes during the winter. We are the southernmost aquatics facility in Norway, and at the southernmost tip of Norway. Lindesnes Lighthouse is nearby.

We use saltwater in our pools. We pump up seawater from a depth of 30 metres in the Rosfjord and blend this 1:5 with freshwater. We also have our own analysis equipment that filters out natural chlorine, which we then put back into the pool water. The mix of saltwater and organic chlorine means that the pool water is gentler and more comfortable for the skin.

Summary

Sørlandsbadet is a small facility. Its advantage is that it is user-friendly for families with young children. This is something the architect and developers have succeeded in ensuring. Families with young children travel great distances to visit, even from places with large aquatic facilities. Indoors, parents have a good overview, and the feedback has been positive.

We have various activities at the facility. Fitness and health-related services. This ensures regular and high volumes of traffic daily. On average, there are 500 users daily, but most visits are during weekends and holidays. This allows us to focus on daily operations throughout



the year, with a strong focus on competence and skilled personnel.

In the last five to seven years, we have placed a considerable emphasis on energy consumption, and we have reduced our consumption by approximately 1.35 M kWh, down from approximately 2 M kWh. We believe there is potential for an even greater reduction. We are currently working on implementing the UN's Sustainable Develop-

ment Goals, especially in relation to energy and water consumption, as well as health and quality of life. We use saltwater in all of our pools, which makes for more comfortable pool water.

In addition to our facilities, we have a strong focus on activities. We have zip lines, water slide competitions, ice bathing and obstacle courses and also create events to increase the attractiveness of Sørlandsbadet.

| | | |
|--|--|---|
| <p>Users approximately 170,000 per year for the last three years, highest in 2014 with 210,000 users.</p> | <p>Investments €11 million. Subsequently, €0.4 million and €0.2 million have been invested in the development of the pool island and café and fitness centre, respectively.</p> | <p>Water system filter sand and UV. Chlorine production of salt. Water solution 20% seawater and 80 % fresh-water.</p> |
| <p>Number of employees/full-time equivalents 18</p> | <p>Water areas 4 inside, plus a hot tub. Outside is 1 water area plus one hot tub.</p> | <p>Energy consumption 1.35 M kWh</p> |
| <p>Admission Weekend prices children 3-10 years old: €14 Youth/seniors: €16 Adults €20</p> | <p>Size of the facility 2,000 m² floor area. 4,600 m² in total. The pool island covers 1,000 m².</p> | <p>Water consumption 13,000 m³</p> |



SPAIN

LLORET DE MAR MUNICIPAL SWIMMING POOL

Contact Lloret de Mar City Council, www.piscinalloret.cat

Architects Studio Pujol Sadovski, www.studiopujolsadovski.com

Photos Fragments. Marc Torra

Engineers AiA Instalacions Arquitectoniques, www.aia.cat

Pool concept + goal

Lloret de Mar is a municipality with 37,000 inhabitants on the Mediterranean coast, 75 km northeast of Barcelona. Its privileged setting amid beautiful scenery and its beaches have made it an attractive place for crowds of tourists during the summer months.

In 2004 the municipality of Lloret decided to introduce a sports programme with the aim of promoting sport; the idea was that this should be one of the fundamental drivers of the qualitative leap that the city needed and wanted. The plan to build an Olympic-standard swimming pool would in turn be the strategy for attracting international swimming teams in winter, in this way boosting sports tourism and thus strengthening the economy and aiding its hotels during the winter months.

Although it had plenty of hotel swimming pools for leisure purposes, Lloret did not as yet have any public swimming pools, so the construction of an indoor public swimming pool was a need that had to be addressed.

The initial project consisted of an arena for 2,500 spectators and a 50-metre indoor pool, with a large wellness centre.

The project viewed its functioning and management globally, despite the fact that execution was planned in different stages. The first stage began with the indoor pool and was subsequently completed with the wellness centre.

Description of the facility

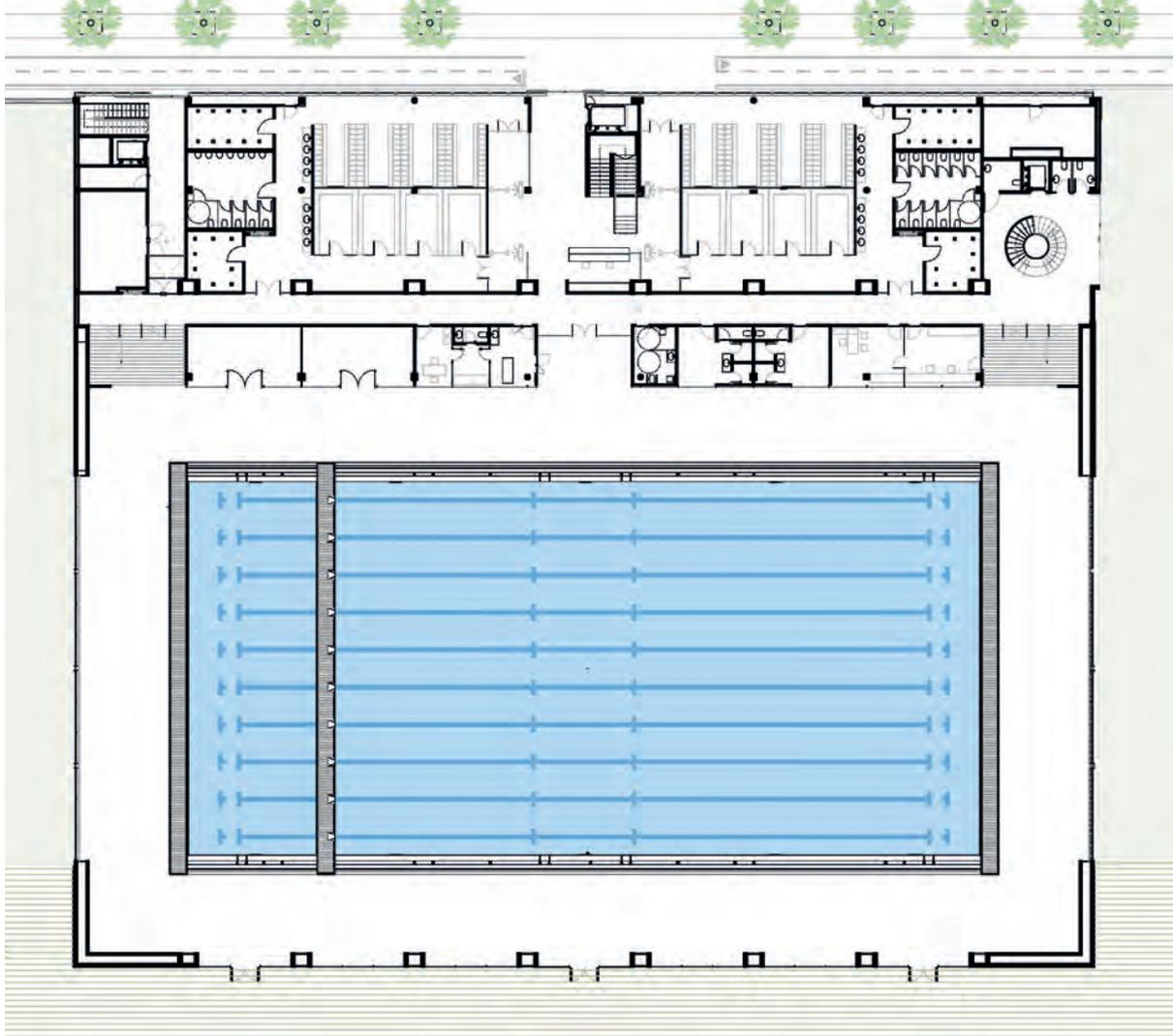
The indoor pool is in the town's Sports District, between athletics tracks and the sports hall. The building is adapted formally and geometrically to the distribution and the requirements of the indoor spaces, expressing its wish to be seen and recognised and stimulating the curiosity of passers-by.

The building is organised on three levels:

The basement, with a surface area of 3,350 m², is a large open space interrupted by the structure of the pool basin, built with stainless steel panels, which is registered on all four sides. This room principally houses the water filtration system equipment, filters, balance tanks, dehumidifying heat pumps and the boiler room facing a large ventilation courtyard that provides a high level of ventilation for the basement.

The ground floor, where we find the entrance and the pool deck, covers an area of 3,700 m². Users gain access to the pool from a lobby equipped with turnstiles that segregates users and directs them to their corresponding changing rooms, an essential step prior to gaining access to any of the building's sports and leisure areas. The lobby also distributes the spectators via a staircase to the upper floor.

The changing room area is organised to accommodate individuals or groups and has maximum flexibility in order to adjust to the changing flows and numbers of specta-



tors. The backbone of the building is the area generated around the pool basin. The pool is 51.22 metres long by 25.00 metres wide and is 2.00 metres deep. The pool has a movable walkway 1.22 m wide and a movable floor measuring 25.00 x 7.50 metres. Its dimensions and its surface area of 1,250 m² correspond to the goal of simultaneously enabling the different uses and activities that may take place according to the different types and levels of training, along with instruction and leisure activities and the configuration of swimming and water polo competitions.

From the pool, there are views of the landscaped areas outside and the athletics track. The light entering through the facades is reinforced by that entering through the skylights in the roof.

The area for spectators is on the upper floor, with capacity for approximately 560 people, and the indoor sports programme is completed with spaces set aside for fitness and cardiovascular activities, aerobic activities, bodybuilding, yoga, etc. In total it covers 620 m².

The facility is complemented with outdoor courts: 3 tennis courts, 6 paddle courts and 1 multipurpose court.

Formalisation of the architecture and the materials

The building's construction materials are simple but noble: white exposed concrete, laminated wood, phenolic panels, glass and ceramics.

The areas open to the exterior feature curtain walls spanning the full height of the building. Varying shades of blue are introduced on the north façade as a feature reflecting the colours of the Mediterranean Sea.

The roof of the 50-metre pool is of laminated wooden trusses that configure large skylights, through which the light enters the building from the north.

Sustainability and energy conservation

The building has been designed to take account of the most important criteria for optimal energy performance, the idea being that its performance should adapt to the climate and weather of the part of the Mediterranean where it is located, to its shape, south-facing orientation, type of thermal inertia, degree of transparency, control of interior ventilation, thermal insulation in the overall transmission coefficient, and lastly the technologies that are adopted, as well as meeting the needs generated by the activity.

The project is based on the implementation of efficient systems making use of free energy sources, either solar energy or the use of free cooling or anti-crush systems (free cooling and DHW production with recovery). The capacity and the possibility of dividing and separating the different spaces generate energy savings of up to 20%. All this is designed to make the investment cost reasonable for the planned proposal.



Special aspects of the country and the pool

In Spain there are a total of 120,000 swimming pools (not including communal residential and hotel pools). Of them, 100,000 are indoor and outdoor public pools, for a population of 47 million.

On average there is one indoor public pool for swimming in the coldest months for almost every 59,000 inhabitants.

However, there are huge differences, depending on the autonomous communities and cities. The city with the highest proportion is Vitoria, with one swimming pool per 28,000 inhabitants, while Madrid has one pool per 75,000 inhabitants and Malaga, one pool per 137,000 inhabitants.

Public pools are usually managed by way of licenses granted to private management companies, or directly by the local council.

Conclusion: what makes this pool outstanding?

The swimming pool in Lloret de Mar represents the paradigm of the public pool in management terms, addressed to serving the community. The pool design took into account the site, the size of the municipality and the number of people who would be using it. The result was an energy-efficient public pool whose cost and use would be sustainable.

Even so, what makes it stand out is the Olympic-standard pool (50x25m), making it possible to practise and learn all forms of swimming: instruction, leisure, training and competition in the different swimming and water polo disciplines, in this way stimulating the training of swimmers and athletes.

The design and the possibilities offered by the swimming pool in Lloret de Mar make it a high-level pool, something found in very few municipalities in Spain.



Investment in euros

€10,800,000

User numbers

Number of users: 843 users/day on average

Number of pass holders: 3,100

Maximum capacity: 1,468, including 560 spectators

Number of staff

40: 30 customer service and administration, monitors and lifeguards; 1 manager; 6 cleaners, and 3 maintenance workers.

Standard adult admission price

Price of monthly pass: €44

Price for complete access per adult per day: €7

Total heating, electricity and water consumption in kWh/m³

Electricity consumption in 2019: 31.17 kWh/m³

Water consumption in 2019: 15,500 m³

Gas consumption in 2019: 34.20 kWh/m³

Mg chlorine per litre

Sand filtration with 1.50 mg/l

Gross m² and m³ of building including technical area

8,240 m² / 52,800 m³

Water surface area in m²

1,250 m²



SWITZERLAND

OVAVERVA

Contact Marco Michel, department head of Tourist Information, info@ovaverva.ch www.ovaverva.ch

Photos Daniel Martinek

Architects Arbeitsgemeinschaft Bearth & Deplazes Architekten AG und Morger + Dettli Architekten AG

Pool concept + goal

After 26 months for construction, OVAVERVA Pool, Spa & Sports Centre had its opening in July 2014. The promising project adds value to tourism in the mountain region with its recreational activities, spa treatments and sports programmes. An attractive range of offers is available to tourists and locals. The tourism industry and small hotels benefit from this, as many hotels cannot offer their own pool, wellness centre or fitness centre to their guests. Whether athletes, families, school groups, hikers, skiers, clubs, old or young – everyone will find the right offer at the OVAVERVA. The municipality of St. Moritz made its largest investment in years at € 63.3 million in the construction of the new centre that will, however, pay off for the entire region in the long term.

Description of the facility

The spacious indoor pool area (a total of 3,200 m²) at OVAVERVA offers the following facilities: a 25-metre pool for leisure lap swimming or competition training, a learners pool for beginners and for water gymnastics, a paddling and splashing area for small children (toddler pool), and a diving pool with two 1-metre boards and one 3-metre platform. The outdoor pool with bubble loungers and the sun terrace offer relaxation with a magnificent view of the Maloja Pass. The fun tower is inside the building and contains three different tubes with a total length of 190 metres. The tubes vary from a comfortable slide to a “kamikaze fall”. The indoor pool activities also include a bistro.

The spa (mixed nude sauna area) is “hidden” in the roof of the building, protected from outside views, but with fantastic views of the Upper Engadine landscape. In the centre is the lounge area, which receives daylight from the skylight of the central staircase.

Separate cloakrooms are available in the spa, and access from the indoor pool is also provided. In two sauna areas, one of which is for females only, there are various sweat rooms with a dry or humid climate. The relaxation rooms and the large whirlpool are great places to unwind after a sauna. The offer in the spa area also extends to a bar.

Furthermore, the facility contains a fitness centre and an outdoor centre offering shops for swimwear, casual wear and fitness wear.

Specialities of the country and the pool

Switzerland has approximately 450 indoor and 300 outdoor pools for roughly 8.5 mio inhabitants. Pools in Switzerland are normally owned and operated by the municipalities. Only thermal pools and large leisure pools/water parks are owned and operated by private companies. Public-private partnerships are rare.

Many pools were built between the 1960s and 1980s. In the last two decades, refurbishment has been the key activity in the pool sector. Most new pools are replacements for pools unamenable to modernisation.



In general, the Swiss build extremely high-quality buildings. Construction costs are accordingly high. From an architectural point, the Swiss like purist designs with natural materials (including exposed concrete). This “coolness” at pools sometimes reduces the feel-good factor.

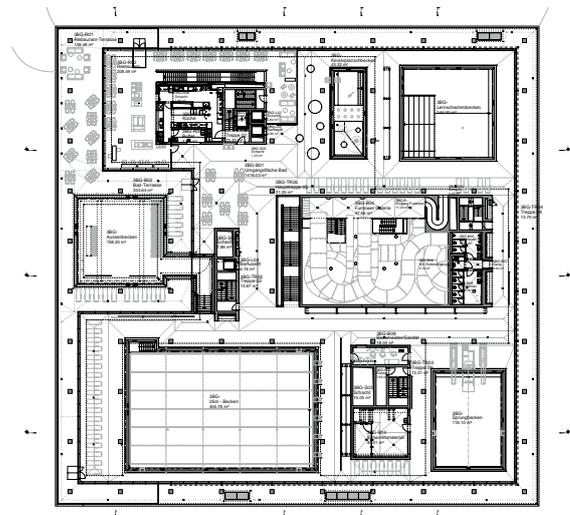
The architecture of Ovaverva is outstanding: The building, cast in white artificial stone, is limited from the outside to a 3-part structure. The open main level with its characteristic columns is located on the closed base, capped by the flat roof above it.

The four very similar façades of the square ground plan differ only in subtle usage-related characteristics. The complex spatial structure of the interior with its diverse range of offers is not apparent from the reduced exterior.

Conclusion: what makes this pool outstanding?

St. Moritz is a world-famous mountain resort in Switzerland with strong tourism seasons in winter and summer. Between these tourism seasons, it is a very rural area with a low catchment area, which are difficult circumstances for

pools as a fixed-cost business. It took St. Moritz almost 10 years to decide on a strategy and realise it. Ovaverva is larger than many other evaluated concepts in the decision process. It represents well the Swiss tradition of leisure pools for all with its purist design and high construction quality.



| | | |
|--|---|---|
| <p>User number Pool: 110,000 per year with 63% adults & 37% children (public: 97.2% & school: 2.8 %) Spa: 30,000 per year Fitness: 7,000 per year</p> | <p>Gross m² and m³ of building including technical area 12,168 m², 56,000 m³</p> <p>Water surface in m² 915m²</p> | <p>Total consumption of heat, electricity in kWh/m³ and total water consumption (2019) Heat: 56.68 kWh/m³ Electricity: 52.73 kWh/m³ Water: 28,732 m³</p> |
| <p>Number of staff 25 – 35 (depending on season)</p> | <p>Pool water treatment system Multi-stage process: glass filter material (3 different sizes fine/medium/coarse), activated carbon treatment with chlorine/ozone</p> | <p>Further Swiss pools representing this design philosophy of purist design and high quality: Therme Vals (Zumthor), Bernaqua, Ägeribad, Tamina Therme, Tschuggen Arosa (Mario Botta)</p> |
| <p>Standard adult admission € 14.25 pool for an adult (all-day ticket) € 35.60 pool and spa for an adult (all-day ticket)</p> | <p>mg chlorine per litre 0.2 – 0.8mg/l (according to Swiss guideline SIA 385/9)</p> | |
| <p>Investment in euros € 63.3 million</p> | | |



UNITED KINGDOM

HEBBURN CENTRAL

Photos Hufton + Crow

Architects FaulknerBrowns, www.faulknerbrowns.com

Pool concept + goal

Hebburn Central is a striking new library and community sports facility located in South Tyneside, just south of the River Tyne on the outskirts of Newcastle, north-east England. It provides 5800m² of library, public sector customer service facilities, dance studios, community events spaces, a 6-lane 25m pool, fitness suite and 4-courts sports hall.

The project represents the first phase of an ambitious regeneration project that seeks to redefine the existing town centre which has, during the late 20th century, suffered dramatically from the effects of the de-industrialisation of this region.

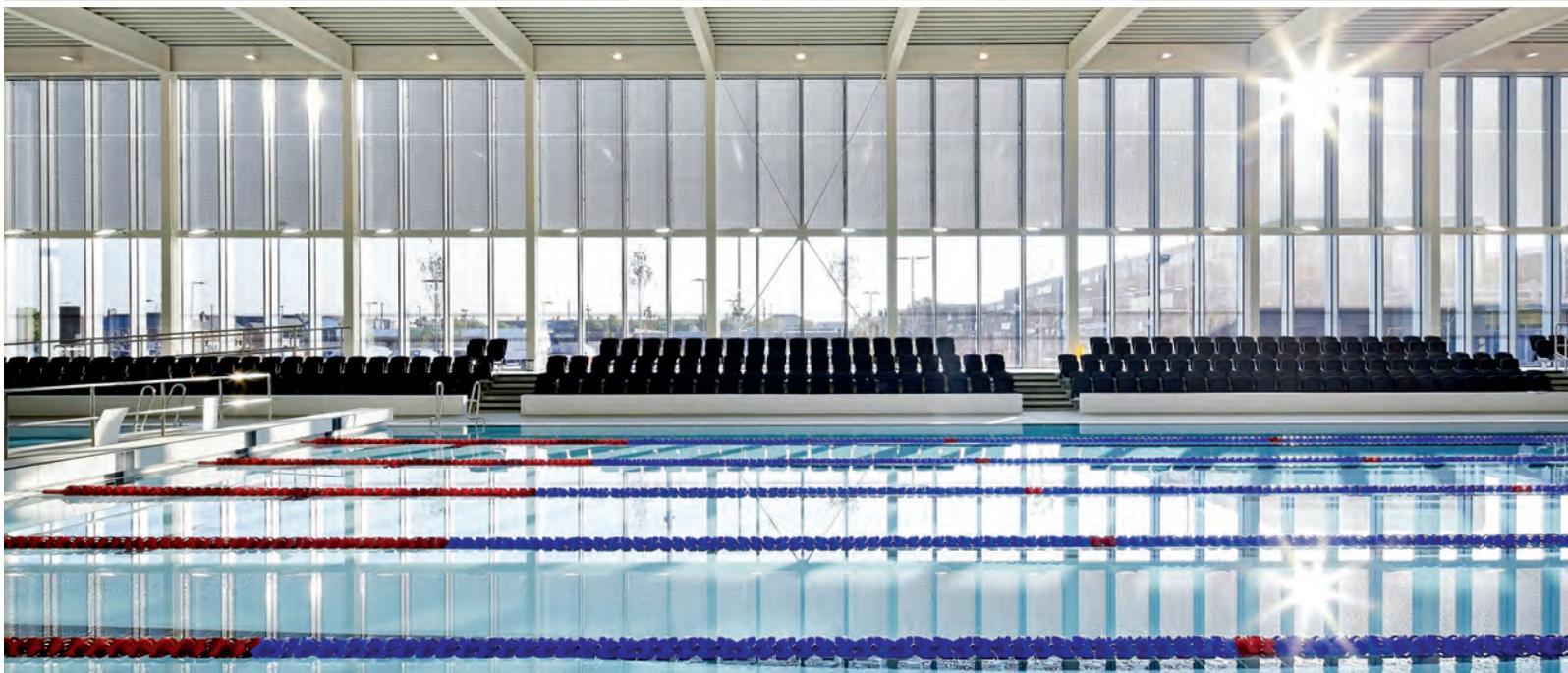
Whilst the heyday of large-scale shipbuilding has long since gone, marine maintenance and ship repair helps to create a strong community with a proud industrial heritage. FaulknerBrowns Architects were commissioned by Willmot Dixon and South Tyneside Council to develop a new town centre masterplan which has at its heart Hebburn Central, a community facility and ambitious first step to promote wider urban regeneration.

The site's central location within the masterplan provided the opportunity to re-establish a sense of place, providing a focus and heart for the community. The 1940's historic street pattern of the town was analysed and used to mend and heal the broken townscape and reinforce the urban grain of the town centre. Dynamic and animated ground floor uses have been incorporated into the design of the new community facility, which exudes civic pride, enabling the creation of vibrant and flexible spaces that contribute to Hebburn's contemporary and progressive regeneration agenda.

Description of the facility

The design of Hebburn Central brings together previously disconnected community facilities into one centrally located entity. This includes a wide range of leisure elements including a six-lane 25m pool, learning pool, fitness suite, dance studio, sports hall, external 3G artificial pitch and children's play area.

The entrance area is also home to a cafe and seating area which directly overlooks the shallow fun pool, enabling



parents to enjoy refreshments in a comfortable atmosphere whilst being able to watch their children having fun or being taught to swim.

These are integrated alongside a community library and customer service centre operated by the local council, providing public access to key resources and administration, as well as digital media and event spaces.

Combined within one single space, the series of uses overlap to deliver a vibrant and sustainable mix of people of all ages and abilities into one active and diverse community platform, central to the project, with shared and interconnected views of the wide range of sports facilities on offer.

Furthermore, the project had engagement from, as well as following the guidance of, Sport England.

Taking inspiration from the community's industrial heritage, the design solution for Hebburn Central utilises technologies and fabrication methods which are synonymous with Hebburn's engineering and shipbuilding pedigree.

Specialities of the country and the pool

In 2019 research showed that there were 3,170 swimming pool sites containing a total of 4,559 pools. The 2019 State of UK Swimming Industry Report shows that 84% of the UK population live within 2 miles of one of the 3,170 swimming pool sites. The total stock of swimming pools doesn't change dramatically, but, year to year, the carrying capacity of the water keeps expanding and participation is growing across the industry.

Libraries, pools and public-sector service centres are common assets throughout the UK. Recent evolutions in public-sector asset management strategy allowed us to promote the agenda that successful place-making for public-sector building projects should not focus on isolated nodes of service provision, but rather as single continuous environments, incorporating community spaces alongside the more traditional public-sector services, which usually reside in dedicated administrative buildings.

At Hebburn Central we have been able to bring together housing administration, library services, municipal cus-



tomor services and traditional leisure uses (pool, sports hall, fitness suite etc). These facilities sit alongside a dedicated customer service facility for the council that brings civic services and enquiries directly to the heart of the community in an accessible and integrated format, ensuring through shared use and co-location that operational efficiencies for the local authority are realised. Using heat exchange from the library and gym to heat the pool environment helps to drive holistic and integrated environmental sustainability in parallel.

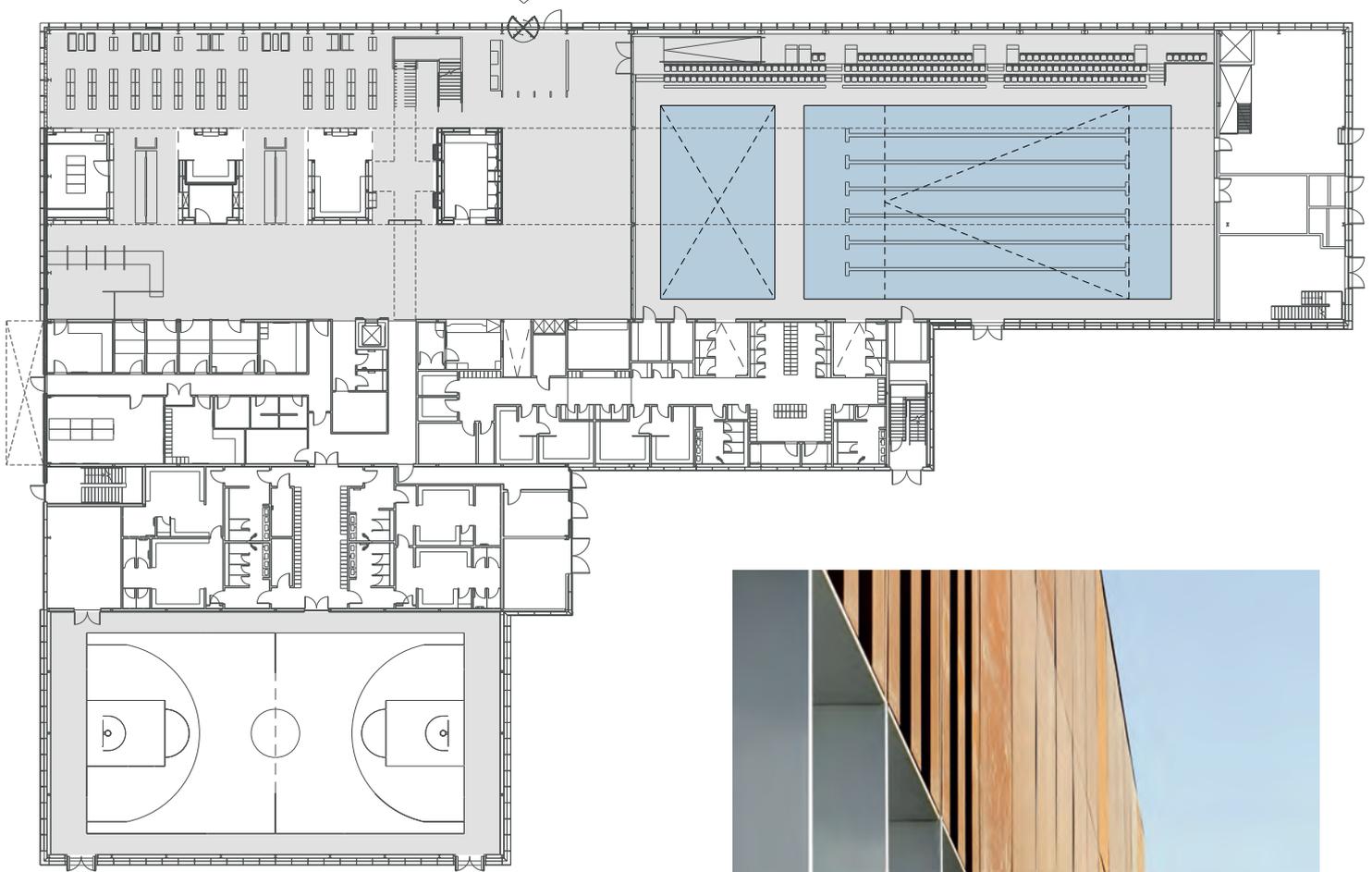
The benefits of this type of shared space initiative not only generates clear efficiencies, but also generates community buildings that are rich in character and distinct in identity, creating spaces that are socially driven and environmentally responsive.

Conclusion: what makes this pool outstanding

Hebburn Central provides an innovative, distinctive and significant piece of community place-making that plays a key

role in the regeneration of an area that has suffered from decline in industry, against the backdrop of extensive demolition campaigns. Together with the local authority, the project paves the way for economic and urban regeneration on a significant scale. Our project helps to redefine the concept of mixing use at community level, and employs intelligent technical design solutions that deliver highly on value and quality.

The community facilities at Hebburn Central provide both health and social benefits, the facility has been used extensively by the public, schools, voluntary groups and local businesses. The centre has become a key focal point within the community, acting as gateway to wider Council services and helping to make South Tyneside a genuine destination of choice as a great place to live, work and bring up families. Hebburn Central has become a popular, vibrant attraction, drawing a customer base not only from South Tyneside but also neighbouring towns and cities.



Investment

€15,248,000

User numbers (2019)

Swim (457,000)

Gym (279,000)

Classes (139,000)

Gross internal area

5,800m²

Pool water surface area

325m² (main) / 91m² (learner)

Pool water treatment system

Medium-rate sand filtration, with chlorine as primary disinfectant, pH control and UV as secondary disinfection

Mg chlorine per litre

1mg/l

Special learner pool feature

Hydraulic moveable floor system, complete with self-depositing steps, which provide access for able-bodied and ambulant bathers, whatever the depth of the pool

Current admission

Adult monthly membership: £29 for all activities

Adult non-member swim: £5.25 per session

Adult non-member gym: £7.10 per session

Adult non-member fitness class: £5.55 per session



IAKS

International Association
for Sports and Leisure Facilities

www.iaks.sport