

Aquatic Facility Design in the 21st Century

Spaces that inspire people encourage participation. Designing appealing, flexible, well-located and universally accessible spaces that function efficiently is the way to go for facilities in the 21st Century.

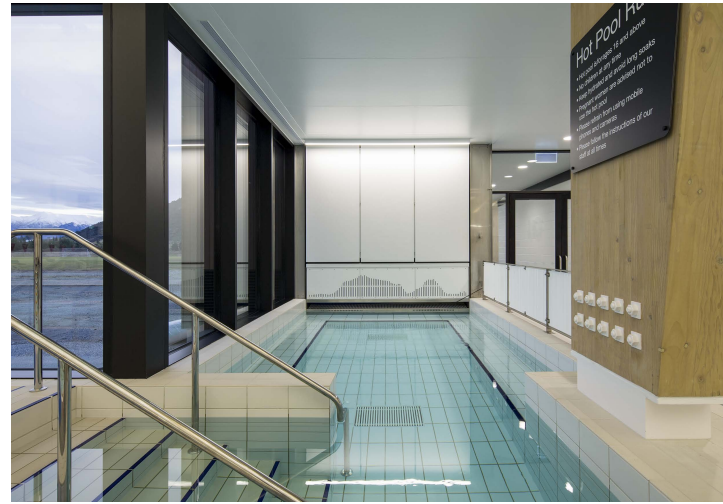
International Best Practice

Alex Head, leader of Warren and Mahoney architects' sports design team, clarifies the need for 'international best practice' in design rather than 'innovation' for its own sake. As lead architect for the new [Taiora QE II sports facility](#) in Canterbury and the [Wanaka Recreation Centre](#), (opened June 2018) as well as Ashburton EA Networks Centre and Selwyn Aquatic Centre, Alex has plenty of experience to reflect on.

He describes International Best Practice as *'the constant iterative improvement [in design] by taking lessons from home and overseas – and completing the feedback loop on what works.'* Using this thinking and continually adding to a knowledge base with lessons learned from previous design, modern facilities stand a much better chance of meeting the expectations of community, functioning effectively in terms of energy consumption and lasting the distance.

Simple things done well

The unseen practices of building science principles are where the most important lessons lie. To create robust and efficient buildings that endure over 50 years, and where OPEX is prioritised over CAPEX, the following key principles need to be understood and addressed.



Spa at Wanaka Recreation Centre, photo Warren & Mahoney

	What?	How?
1	Thermal envelope controls the flow of energy, moisture and air in buildings	High performance building envelope
2	Airtightness - is related to energy loss from buildings. Measured in m ³ of air leakage between inside and outside of building.	High performance windows Thermally broken window structures Controlled ventilation
3	Attention to detail	Durability of structure Timber structure Collaborative 'one team' approach working with engineers Design visible structure and fixings. Correct fixing selection and detailing of structural and non-structural elements.
4	Verification And CIBSE soft landings <i>Soft Landings is the antidote to [certain handover] problems. At its core is a greater involvement by designers and constructors with building users and operators before, during, and after building handover.¹</i>	Verification is about testing that designs work in practice. This occurs: <ul style="list-style-type: none"> • During design using tools such as WUFI • During commissioning • Post building occupation Promoting 'soft landings' might include: <ul style="list-style-type: none"> • Passing on knowledge from designers to operator • Optimising the building systems after practical completion Passing on lessons learned and feedback to the consultants so the feedback loop is completed

For more information, check out Alex's presentation at [WAVES conference 2018](#).

Wellbeing: where wellness and recreation meet

More aquatic and sports centres today are being designed as community hubs, bringing together complimentary wellness activities with more traditional recreation, pool and fitness offerings under one roof. Our role is to create inviting environments that encourage participation by providing a variety of wellness services for a healthy lifestyle, encompassing food, culture, community and fitness. [Alex Head]

Facilities that offer places to eat, relax, play or be with others as well as places to swim and exercise are those with the most appeal across age, gender, culture, ability and interests.

The changing nature of recreation means we need to design hubs that not only meet all the sporting and recreation needs of our communities but that also nourish their soul. We need to create spaces that people want to spend their leisure time inside. Facilities are also taking a holistic view of health and wellbeing and looking at including allied health functions such as nutrition, naturopathy, massage, meditation, podiatry and physiotherapy under the same roof.

These places will have enduring appeal and adapt as communities change and grow.



Taiora QEII Recreation and Sports centre, photo by Warren and Mahoney

Natural materials

People feel more relaxed and 'at home' in spaces with natural materials and lighting. Some of the elements that may contribute to appealing and durable facilities are:

- Use of [timber](#)
- [Good natural lighting](#)
- Quality materials
- Low [VOC paints](#)
- Green plants

Universal design approach

A [universal design approach](#) recognises human diversity and designs for life scenarios, such as pregnancy, childhood, injury, disability and old age.

Research tells us we are designing for an ageing population; by 2022, [at least a fifth](#) of New Zealanders will be over 65. Universal design takes into account changing needs throughout the lifecycle, making facilities accessible to all.

Principles in action

Principles	➔ Actions
Universal design	Accessible spaces that can be used in a variety of ways according to need
Efficient	A high performance 'building envelope' verified airtight, high performance windows, & good insulation
Durable	Inspectable elements, pre-fabricated components minimising corrosion, contiguous welding
Wellness market	Good location, spa experience, convenience

Further reading and resources

[Accessibility Design Guide and Checklist](#)

[Aquatic Facilities Guidelines](#)

[Territorial Authority Sport and Recreation Facilities Decision Guide](#)

[The Soft Landings Framework Australia and NZ, ANZ 1/2014](#)

[Sport NZ National Sporting Facilities Framework](#)

[Community Sport & Recreation Facility Development Guide](#)

Another paper in our series will cover the engineering aspects of Wanaka and Taiora. We'll be talking with an engineer and covering how 'Simple things done well' looks in practice.