

Kwinana Recquatic



Sustainability Initiatives A Community centre for tomorrow as well as today!

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History

- Kwinana Recquatic has been operational in its current state since August 2002.
- Prior to this the centre comprised of a separate 50m outdoor pool and an additional building housing indoor courts, meeting rooms, squash courts, hydrotherapy pool and office space.

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History cont...

- In the late nineties It was decided to revamp the centre to cater for a growing community as well as create a recreational hub that combines all services in the one building.
- Construction began on an indoor 25m pool, leisure pool, steam room and spa area, gym, meeting rooms, crèche, group fitness room and office space.

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The Facility Today

- 25m indoor 10 lane lap pool
- Multi purpose Leisure Pool with whirl pool, bubble grid, water cannon and beach entry
- Health suite with spa and steam room
- 2 court stadium
- Group Fitness room
- Cardio Theatre
- Multi purpose rooms
- Crèche
- Total centre area is approx 14,800sqm

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Challenges

- The combination of having existing infrastructure and new features has provided some interesting challenges. The main one being trying to link old and new technology.
- No say in design and fit out of new building
- Power usage, water usage, fixtures and fittings all had issues that required to be addressed.
- Not set up with sustainability in mind

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The Issues

Reducing CO2 Emissions
Reducing operational expenditure
Being proactive rather than reactive in our approach
Catering for future generations
Matching the TOK Town Centre project
Being as sustainable as possible

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Where to Start

- Find out our biggest problem areas, for those involved in recreation and particularly with aquatics areas it's a no brainer!
- Water usage, Power usage, Heat exchangers, Air handling, Evaporation.

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Evidence and Data

- We undertook an energy and water audit over a 1 week period looking at all facets of the facility.
- Data for the last 2 years was reviewed in compliance with AS/NZ Standard 3598:2000
- Our usage : Water 0.71 KL per m2, Electricity 87Kwh per m2 and Gas 53Mj per m2.
- This gave us an overall use of 366mj/m2 which was considered VERY HIGH to other pools and recreation centres.

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Primary Usage

- It was identified from the audit the key areas that were contributing to our usage. Again these were fairly common knowledge in but clarification and exact figures were required to stimulate action to act on these items.
- Also to aid in support from our Executive Team and CEO

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Main Offenders

- Overall centre lighting – we had over 200 T8 Fluorescent tubes in various areas. These were converted to T5 Fluorescent tubes saving us \$10.35 per tube per year or \$2070 per annum, install cost was \$3,300 so pay back period of around 18 months

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- 120 halogen down lights in Group Fitness, function rooms and front entrance were replaced with 5 watt LED's cost \$5208 (15,768 kWh) savings per year \$2018 pay back period just over 2 years
- Replacement for these units is on average once every 25 years

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Water Wise Refit

This was achieved via a successful Water Wise funding application for \$29,000.

From this the following works were completed :

Aqua Loc tap fittings (reducing flow rate)

Water wise shower heads (reducing consumption)

Self timer switches for pre swim showers

Waterless urinal systems

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- The results of the refit meant a 2 million litre per year reduction in our water usage.
- Taps and shower water use was reduced by 75%
- Urinal units refitted with a waterless system that saved approx 151,000l per year.
- The reduction on total water usage per year was around 20%

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Pool Covers

- Replaced with reversible 4mm pool blankets which has reduced pool evaporation compared to our old 3mm blankets by approx 20% also this decreased our water heating and pool air handling costs by retaining our pool temperature closer to set point

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Solar Booster Tanks

To work in with sustainability changes we installed a solar booster system to our non operational dry change area. This only runs off the electric booster tanks when required.

It has put this area back on line and expanded our change area options to meet our ever expanding dry program needs.

The savings on this install is around \$2,000 per year as opposed to standard electric booster heaters.

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Solar Booster System



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Other Items Considered

- Replace pool halogen lights to 100 watt LED lights.

The barrier with this is cost (\$54,000) as at present due to limited options of LED's that are available.

Most Local Governments will only consider refits with a 5 year pay back period, this came in at 16 years.

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Reduction in pool temp by 2 degrees

Although this option could reduce the operating cost of the pool considerably (up to 50%)

The result being for us as a centre would be loss of patrons and user groups.

(This is being looked at for the future now our Air Handling system is fully operational)

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Solar Pre Heat

This will be going ahead in 2010 for our 25m pool

Cost is approx \$90,000

Pay Back period is between 2 to 3 years

The scope is to utilise the large roof surface area to get the pool as close to set point as possible lessening the load on the heat exchangers and reducing energy expenditure.

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Savings \$\$

- Cost savings water 4410 KLt per Year = \$3889.6 saving per year
- LED's Savings 11,827 x 0.992 = 11.7 tonnes Greenhouse savings/yr
- T8 Replacements 15651 x 0.992 = 15.5 tonnes GHG savings/yr
- Solar booster - save approx 20 tonnes per year (assuming 20% usage of existing two electric tanks)
- **Total CO2 savings = 47.2 tonnes**

- Total CO2/yr output for Recquatic = **436 tonnes**
- ie all new measures has reduced CO2 emissions by **9.2%** (It is actually more if we can calculate savings from the pool blanket.

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Tips for others

- Do your home work
- Get your data, record your data, use your data
- Look at your options/pay back periods/savings
- Apply, apply, apply!
- Create your case and get support
- Link in with other areas of your organisation eg Environmental Team, Engineers, Planners , Health Team etc
- Think outside the square

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What's on the cards?

Rain Water Harvesting – Gardens, concourse use, change facilities

Wind Power - as a means of back up for small plant items

Solar pre heat for the other 2 pools cost approx \$45,000

Pool temp reduction – for 25m

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Thanks to :

Town of Kwinana

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