

# LEADING ARCHITECTURE

AND DESIGN

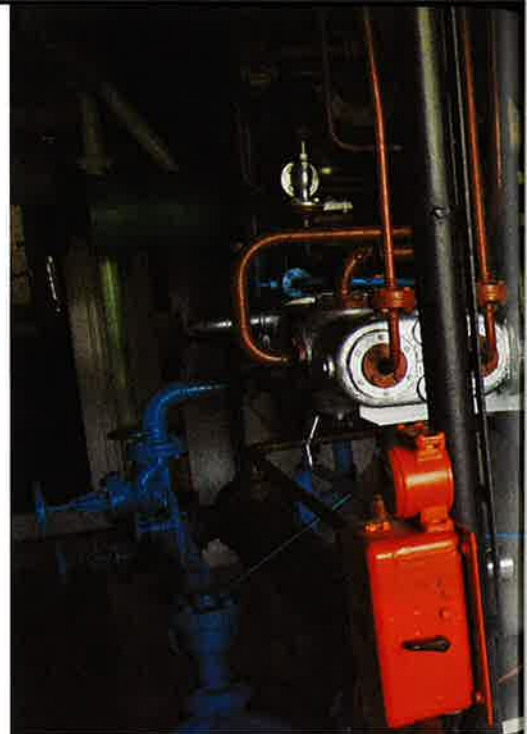
Shaping the future

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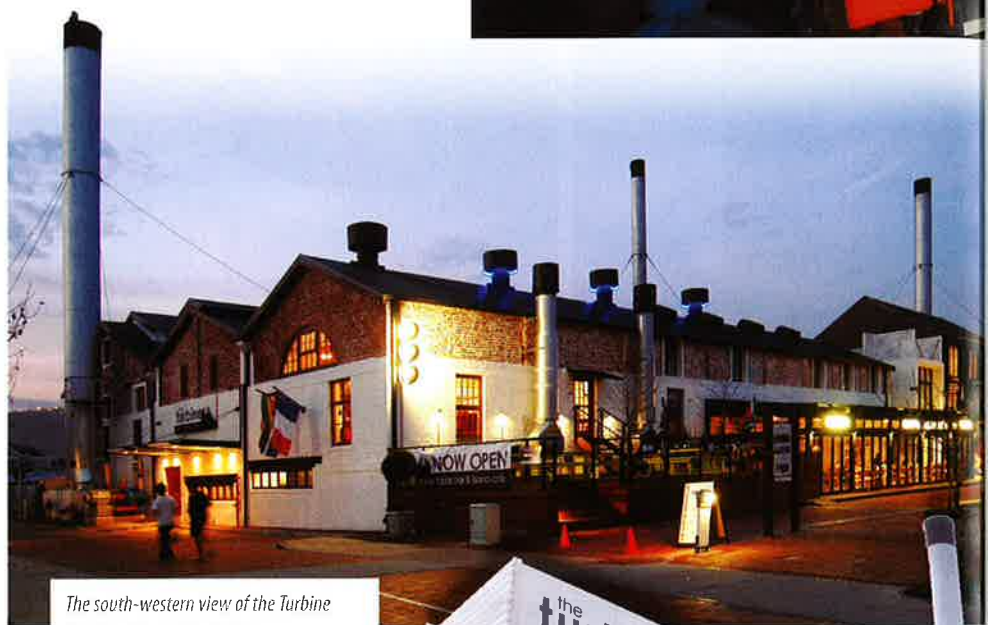


# Industrial mystique

A disused power station in Knysna that was part of the old Thesen Sawmill has recently been transformed into the Turbine Hotel, a modern hotel which draws inspiration from the building's past



The brief presented to Mike Louw of CMAI Architects was unique – refurbish the existing power station building on Thesen Island into a boutique hotel with 24 bedrooms, four staff bedrooms, a restaurant, bar, spa and conference facilities, while preserving and refurbishing all the existing machinery. “The full scope of work was from concept stage through to final completion, although we’ve been working on the building on-and-off for 11 years!” he exclaims. The practice documented the building in 1999, and had already started doing some preservation work when they began the site works for Thesen Island in 2001. “We were employed by the developers of Thesen Island to do a first round of refurbishment prior to the building being sold to a private developer in 2007. This started the second phase, which was the design and construction of the Turbine Hotel. Ironically enough, we struggled to get electricity for the building from the municipality and implemented a range of energy-saving measures to reduce the required demand, so the approvals took some time. We finally began construction in June 2009 and completed the building at the end of June 2010.”



*The south-western view of the Turbine Hotel on Thesen Island, Knysna.*

Louw studied Architecture at the University of Pretoria and completed his studies there in 1998. He worked for Chris Mulder & Associates for a year before going to work in London-based architectural firms for two years. “I returned in 2001 and have been working in Knysna ever since. I also completed a BPhil degree in Sustainable Development Planning & Management at the University of Stellenbosch last year, and I became one of the Directors of CMAI Architects in 2006.” Chris Mulder & Associates was formed in 1980 and was split into two companies in 2006: CMAI Architects (which is the professional practice that does Architecture, Urban Design and Landscape Architecture) and CMAI Property Development. CMAI, which specialises in large-scale mixed-use developments, was responsible for the award-winning Thesen Islands Development, for which the firm did all the urban design and landscape architecture and most of the architecture.



*Given the heritage status of the power station, most of the primary components were left in position and now form an integral part of the theme of the hotel.*



*The Turbine Hotel was a unique project since there aren't many derelict industrial structures in the country that get adapted for re-use, especially not power stations.*

### A unique site

The new and intriguing Turbine Boutique Hotel and Spa was opened by Next Leisure Group, the owners of well-known Walkersons Hotel in Dullstroom in Mpumalanga. The Turbine is a reincarnation of what used to be the old Knysna wood-fired turbine and power station of the Thesen Sawmill. It has been transformed into a hotel that the owners describe as "breathtaking in its industrial mystique." The property officially opened on August 12, but its restaurants, the Island Café and the Turbine Tapas Bar, opened on June 11 in time for the 2010 FIFA World Cup.

"At one time this building produced electricity for both Knysna and Plettenberg Bay by burning wood chips left over from the sawmill operations on the island," explains Louw. "Seawater was used to cool the machinery, some of which is close to 100 years old. The building was built in sections, some of which are over 50 years old, but the machinery is the most important element from a heritage point of view," he says

Given the heritage status of the power station, most of the primary components were left in position and now form an integral part of the theme of the hotel. The most noticeable feature of the 2 618m<sup>2</sup> building is thus, unsurprisingly, the old building shell and all the old machinery, in particular the boiler and the turbines. These features are integral to the ultimate style of the project, a preservation of the industrial vernacular with various modern elements integrated into the design. "It was a very unique project since there aren't that many derelict industrial structures in the country that get adapted for re-use, especially not power stations," notes Louw.

When asked how the environment influenced the design, Louw says that in terms of the physical environment, it was in this case an award-winning redevelopment of a polluting timber factory. The other refurbished factory buildings on the one side thus provided the public context, while the new canals on the eastern side provided a wonderful setting for the bedrooms. "This side also faces out onto the private residential part of Thesen Island, so it had to be dealt with a bit more sensitively. The climate and use of resources also had a big influence on the design, as can be seen from the sustainable initiatives introduced into the building." From a social and economic perspective, job creation was a major consideration, with the use of local labour being promoted as far as possible.



*The foyer with its prominent glass floor.*



*The boiler is a highlight of the revamp, which is "breathtaking in its industrial mystique."*



The reception lobby of the refurbished Turbine Hotel.



A typical bedroom in the hotel.



### Energy-saving measures

From the outset, due in part to the fact that the sourcing of electricity was an issue, numerous sustainable initiatives were implemented in the design. The biggest energy saving of all was probably the fact that the whole building was 'recycled' in the design. "We re-used as much of the existing material as possible, including old firebricks, steel, old windows and doors and even building rubble for filling under the buildings. The observatory structure was also re-used for the pool," says Louw.

Passive design was another prime energy saver. Most of the bedrooms are north-facing and shading devices such as pergolas were used to keep out the summer sun and admit the winter sun. The design further provided roof lights and openings where possible to maximise natural lighting and limit

artificial lighting, while openable windows and doors were included where possible to maximise natural ventilation. By providing two layers of insulation in all the roofs and in the timber frame walls, and using lightweight drywall construction for most of the new-build portion of the building (the Tin Shed's walls), further passive design processes were implemented

With regard to water and lighting, solar water heating was included for all the public areas and heat pumps were installed in all the bedrooms. Energy-saving modules for all the bedrooms (automatic shut-off devices for lighting, air conditioning and sockets) were specified, while LED and CFL light fittings were installed throughout the building. In the bathrooms, low-energy heated towel rails were installed and water-saving shower roses and dual-flush toilets are standard. To further limit the reliance on municipal power, gas was chosen

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The Turbine Hall, now the stylish Island Cafe.



The preserved features are integral to the ultimate style of the project, a preservation of the industrial vernacular with various modern elements integrated into the design.



The courtyard lounge.

for cooking and heating with non-vented gas fireplaces. In addition, energy-saving appliances were purchased where needed.

The hotel's comfort control is maintained by a Daikin VRV Heat Recovery System. Concealed hideaway units have been installed in each room and ceiling cassettes in other areas – this allows each hotel room to be maintained at its own temperature as set by the guest, as the air conditioning system can provide heating and cooling at the same time. The installation was carried out by Air-Fit Air Conditioning and Refrigeration from the Garden Route and was designed by Clink Scales-Maughan and Brown Consulting Engineers, George Office. Tiling throughout was supplied by The Tile House, a hands-on business with twenty years of accumulated experience and knowledge.

Rainwater harvesting and storage was a further initiative implemented by CMAI Architects at the Turbine Hotel. Artificial lawns were chosen to limit water use, with a minimum of hard surfacing to prevent excessive rainwater run-off. Finally, the architects and main contractors, Cape Island Construction, decided on the use of local labour and materials as far as possible.

A number of challenges were encountered by the team during the project. "Heritage approval and municipal approval were quite difficult to obtain," notes Louw, adding: "The refurbishment of the old equipment was very challenging, as was working within the existing building shell. We had to cast new concrete floors within the existing structure since the formerly single-storey building is now three storeys in places. The existing shell also posed quite a few challenges as far as waterproofing, structure and deterioration is concerned."

"Almost every step of the building process required an innovative on-site solution so the role played by the main contractors, Cape Island Construction, and TI Paint (the company responsible for refurbishing the existing equipment) was crucial. I think the relationship between the architect, contractor and refurbishment contractor was one of the factors that contributed most to the successful outcome of this project," says Louw.

Yet it was all worthwhile in the end. "Looking back on the completed project, it was quite challenging but very rewarding at the same time – we had a great team of professionals, contractors, sub-contractors and suppliers who all became somewhat precious about the building and went the extra mile wherever they could. We also had a brave client who was willing to take the plunge in redeveloping this building – it's usually much easier starting from

scratch! The new building really gives one a sense of the history of the old power station and the Thesen Sawmill, and it's great to have played a part in preserving some of this heritage. More and more developers are seeing the potential (and beauty) of old industrial structures and are willing to work through the challenges of preserving them – the more examples they have to refer to, the better!" 



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