

HILLBROW DISTRICT HOSPITAL

SHABA &
RAMPLIN

Hillbrow District Hospital is a 26 building precinct that consists of different building types, including administration offices, specialist wards, physical rehabilitation, mental rehabilitation, day clinic, biosafety laboratory, chapel facilities, kitchen facility, laundry facility, mortuary and staff accommodation. The main hospital facility is a 25000 m², 7 storey building called the McKenzie building. The McKenzie building is the main health facility on site and the Hillbrow Hospital precinct is targeting Green Star certification. Shaba & Ramplin was appointed as the green building and engineering consultants.

FIRST GREEN HOSPITAL IN AFRICA

Hillbrow District Hospital is the first healthcare facility in Africa targeting Green Star certification. As the first green building consultants appointed to do so, Shaba & Ramplin has been working the Green Building Council of South Africa to develop the Green Star Custom – Healthcare rating tool. The prerequisite for developing the custom tool is experience and a good Round 1 submission in prior projects – both of which we demonstrated.

BENEFITS OF INTEGRATED GREEN DESIGN

Our mechanical engineering services appointment for the McKenzie building also meant that we were able to synergize our engineering and green buildings approach to offer maximum benefit through our Integrated Green Design approach.

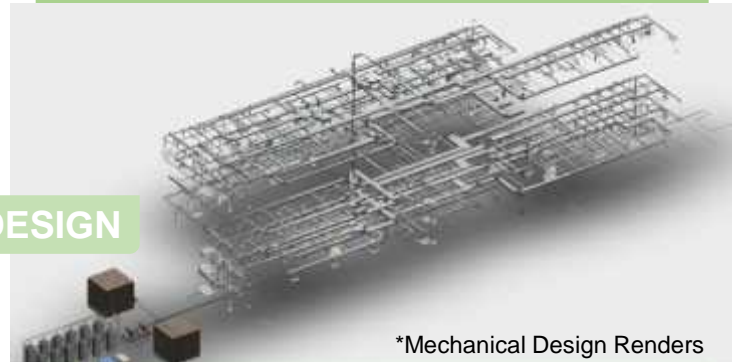
Our Integrated Green Design approach is a systemic methodology that looks at integrating green building and mechanical engineering requirements for optimal design considerations and optimising workflow to maximise design for energy efficiency results, maximise services synergies and minimise the client's capital expense for both services.

This meant reduced design and modelling time and increased collaboration in energy efficiency designs and HVAC modelling to suit both green building and mechanical ventilation requirements that complies with Green Star, SANS, ASHRAE and IUSS standards without compromising on design efficiency or lifecycle costs for capital.



*Existing Building Before Base Building Refurbishment

Value:	R 870 000 000,00
Location:	Hillbrow, Gauteng
Size:	265 000 m ²
Services:	Green Building Consultant Mechanical Consultant - HVAC, Wet Services, Fire & Medical Gas



*Mechanical Design Renders

SPECIALIST HVAC DESIGN

One of the specialist design features of the facility is the air conditioning and ventilation layouts for the McKenzie building. Due to the stringent health requirements for zero respiratory disease transfer and significant high levels of Tuberculosis infections in the area, the system had to be designed optimally with significant restrictions.

Using first principle engineering designs and both engineering and green building design software, we were able to recommend a high specification enthalpy wheel configuration as the most optimal HVAC design feature. This design feature is a South Africa first for such a large healthcare facility of its nature in South Africa.

85 ANDERSON STREET

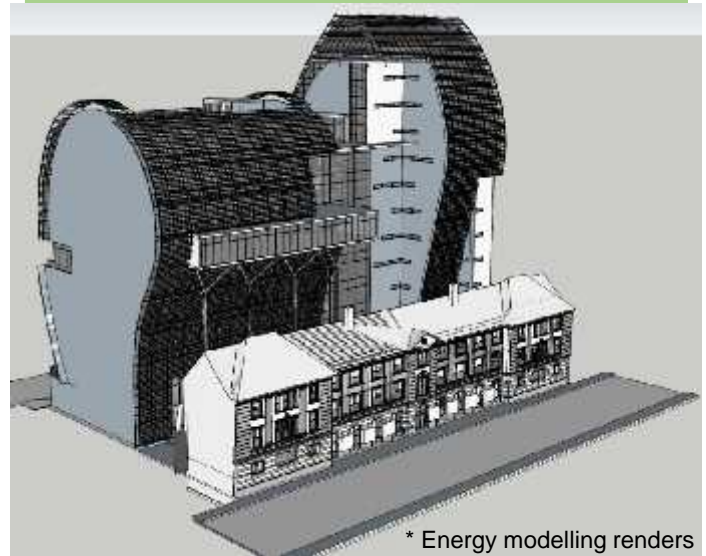
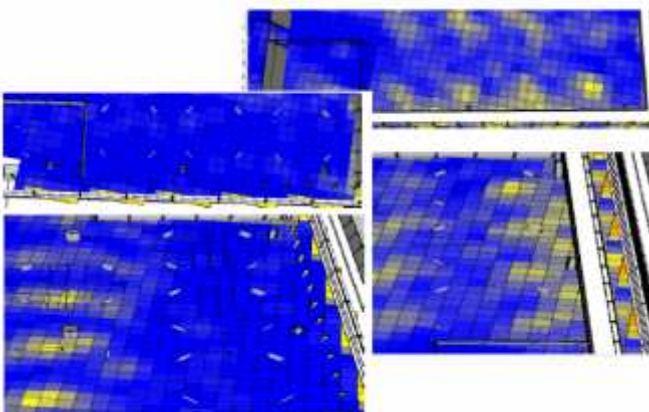
The new provincial head offices for the Department of Public Works building on 85 Anderson Street is a showcase of specialist engineering and architectural features. One of the specialist features of the building is the distinct curved glazed façade on the northern side which showcases fine architectural vision but also presented a significant challenge to our team of green building consultants and engineers on the project. Shaba & Ramplin was appointed as the green building consultants for Green Star. Our engineering team is also involved as internal engineering consultants and project reviewers.

CURVED FAÇADE PARAMETERS

The curved glazed façade of the building is a very distinct architectural feature making the building highly distinguishable from all the surrounding buildings in the vicinity. The curved façade allows for a maximum visual exposure for indoor occupants with a louvred façade on both the northern and southern side of the building to minimise indoor solar heat gains.

Using façade modelling and engineering principles, Shaba & Ramplin was able to work in conjunction with the architectural team to create a louvred façade that not only creates a great architectural feature to the building but also adheres to energy efficiency and best practice engineering requirements to ensure year round productive and comfortable indoor quality.

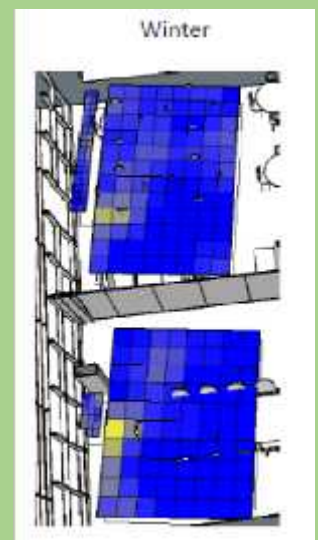
FAÇADE OPTIMISATION RENDERS



Value:	R 300 000 000,00
Location:	Johannesburg, Gauteng
Size:	20 000 m ²
Services:	Green Building Consultants Mechanical Consultant – HVAC & Fire

FAÇADE ENERGY MODELLING

The solar heat gains through the glazed façade would generate a large amount of sensible indoor heat load which would have a direct impact on the size, nature and design of the air conditioning system and subsequently have a large capital and operating expense for the building.



Using the Integrated Green Design approach, we were able to model a specialist solution for the aluminium louvred façade that minimised the solar heat gains through the glazed facade but also maximised the indoor visibility to the outdoor environment so as not to lose the architectural vision.

RHEINMETTAL FACTORY

Rheinmettal Denel Munitions has a large ammunitions manufacturing plant based in Boksburg in Johannesburg. The factory is approximately 100 000 m² and consists of both manufacturing and office space. Shaba & Ramplin was appointed as a mechanical engineers consulting on fire.

SPECIALIST FIRE ENGINEERING

The manufacturing plant presented various fire challenges including highly volatile areas such as hydraulic plants, open fire furnaces, heat treatment areas and welding and coating bays. Using our specialist fire engineering experience with international, local and municipal standards like SANS, BS Standards, NFPA & ASHRAE standards, we were able to design systems included rational fire designs, sprinkler systems designs, fire detections systems designs using heat beams, designated gaseous systems and smoke ventilation systems to ensure the plant remains operational and comprehensively insured.



Value:	R 15 000 000,00
Location:	Boksburg, Gauteng
Size:	100 000 m ²
Services:	Mechanical Consultant - Wet Services & Fire

TARA PSYCHIATRIC HOSPITAL

Tara Psychiatric Hospital is building an additional ward for its adolescent patients. Tara Psychiatric Hospital is one of two hospitals currently targeting Green Star certification in South Africa. Shaba & Ramplin is the green building consultants on both healthcare facility projects. As a psychiatrist hospital, the facility has specialist design features which includes ensuring that the design is suitable for patients admitted for different degrees of mental health disease profiles.

CUSTOMISATION OF GREEN STAR

Tara Psychiatric Hospital will be the first psychiatric hospital in Africa targeting Green Star Custom – Healthcare. From our experience with Hillbrow District Hospital, the client thought it best to appoint us for the project to capitalise on us having worked on the development of the tool on a larger scale. Shaba & Ramplin is working with the Green Building Council of South Africa to develop the tool.



Value:	R 35 000 000,00
Location:	Sandton, Gauteng
Size:	21 000 m ²
Services:	Green Building Consultant, Mechanical Consultant - Wet Services, Fire & Medical Gas

SHABA RAMPLIN

Shaba & Ramplin is a multidisciplinary consulting firm specialising in engineering , green buildings and interiors services in South Africa. We add value to our clients and partners through our Integrated Green Design approach which maximises engineering efficiencies and sustainability. We design, optimise and certify the buildings in your portfolio. Shaba & Ramplin ia a 100% Black owned firm with BBBEE Level 1 and 135% ESD contribution recognition.

Shaba & Ramplin
102 11th Street
Sandton
Johannesburg
2149

info@shabaramplin.co.za

Find out more at
www.shabaramplin.co.za

