

STRINGENT DEMANDS

in green star quest

Pretoria building contractors, J.C. van der Linde & Venter Projects, successfully coped with the challenging demands of complying with the Green Building Council of South Africa's Green Star rating construction requirements for the refurbishment and redevelopment of Total House in Rosebank.

➤ Total House was renovated, re-vamped and redesigned to comply with a GBCSA 4 Star Green Star rating. Application has been lodged for this coveted rating for both the construction and design of the final building. The building demolition and upgrade had to meet the requirements of the stringent SA National Building Regulations, which places particular emphasis on safety. Total South Africa also required an additional 1 000 m² of office space to accommodate increasing staff numbers and to allow for future growth.

Arrie Venter, contracts director at J.C. van der Linde & Venter Projects, who was in charge of the R95-million construction contract, says the project is significant in that it represents one of the first refurbishment projects to strive for a GBCSA 4 Star Green Star rating.

Hazardous Materials survey

"This, of course, involves both demolition and rebuilding – and provided unprecedented challenges for us, as contractors, right from the outset. For example, before we could start any demolition work on the old building, constructed in 1998, a Hazardous Materials (Hazmat) survey had to be undertaken. J.C. van der Linde & Venter Projects therefore appointed special environmental consultants to guide us through the project, for which we had to regularly report to the client's Green Star Consultants, P.J. Carew Consulting, specialists in evaluating and designing strategies for the improved environmental performance of buildings."

Venter said the requirements of the Hazmat survey was extensive and included aspects such as a soil assessment (to determine if the current soil would meet Green Star rating requirements or had to be replaced by new soil), as well as a thorough investigation of the eco-qualities of the existing building's structural components. "A detailed report had to be filed to – and approved by – the Green Star Consultants before we could lift a brick from the old building."

The followed the formulation of an Environmental Management Plan (EMP) and Waste

Management Plan (WMP), both drawn up for J.C. van der Linde & Venter Projects by its own appointed environmental consultants.

Included in the EMP were commitments by the contractors on a wide variety of building operations that would normally have been regarded as routine e.g. how and where the contractors' paint brushes would be washed, and how the contractors would prevent oil leaks on site.

The WMP, on the other hand, laid down strict requirements on how demolished components would be disposed of. "For example, we had to create three waste skips: one for items that could be recycled, another for material that would be disposed of in landfill, and another for contaminated components. The old Total House had a sprawling glass façade and it is interesting to note that the many square metres of glass could not be re-used because it was laminated: laminated glazing cannot be recycled," Venter observes.

To meet other 4 Star Green Star rating compliance regulations, the building contractors had to use paint and adhesives with acceptably low VOC levels.

"The cementitious products also had to be approved on behalf of the client by P.J. Carew Consulting. We approached the concrete ready mix supplier to design a 'project specific' concrete mix that would meet the Green Star requirements as well as the engineers' design criteria. The concrete reinforcement also had to be sourced from a supplier that utilises reinforcement steel with a post-consumer recycled scrap metal content in excess of 90%."



The interior challenges

Once work had shifted inside the building, the contractors faced new challenges. For example, to demolish the existing lift shaft, only hand tools could be used as the shaft was virtually adjacent to the room that housed Total Africa's strategically vital computer servers and sophisticated equipment. "Any damage to the operations of the server room would have had disastrous consequences for Total," Venter recalls.

Axient Architects' design for the new building comprised a new central core in the middle of the existing building, stretching from the lower basement right up to the mezzanine level, in which a new central staircase, lift and escalators had to be installed. Consequently, the contractors had to virtually carve a large diameter hole through three floors of the existing building, utilising an intricate method of demolition. Piling for the foundations for the new lift and staircase structure had to be done with a special piling rig due to the limited space available in the existing lower basement. Nick Mallandain, principal architect at Axient, explains: "For J.C. van der Linde & Venter Projects, this procedure was the main element from which the rest of the building work would follow, so the contractors' programming of construction was based from this point."

To create the additional 1 000 m² of office space as innovatively devised by the consulting structural engineers, BSM Baker, it was necessary for Axient to redesign the roof truss structure to add more height in a specific grid area. This meant J.C. van der Linde & Venter Projects had to remove 1 000 m² of the existing hollow tube trusses and replace it with castellated beams.

Nick Mallandain adds some of the other challenges faced by the entire professional team in this extensive refurbishment contract:

"The old entrance to the building was on the east side but this was problematic in that the space was not efficiently used and faced a public transport centre. So the idea to move it to the north made sense. A double volume area existed already and because it faced the sun at its harshest it made seating staff in this area impractical. This gave us, as architects, the perfect opportunity to position the entrance here, creating the necessary additional parking around it. Paragon Interiors created an impressive new reception area – with seated waiting areas and green walls – to bring life into the building. For J.C. vd Linde & Venter Projects, however, there was a big task of excavating down to the lower basement to construct a new stairwell up to the newly positioned entrance as well as civil works for the new parking area and entrance.

"The two existing atrium areas were reduced from 12 x 24 m to 12 x 12 m. In these voids, Paragon Interiors had the idea to create cantilevered meeting rooms. Working in close cooperation, the engineers, architects, interior designers, and main contractors, managed to successfully create the meeting pods.

"In fact, team work was important throughout. As part of Total South Africa's new corporate branding strategy, the entire professional team were called on to provide maximum skills and expertise. The new building provides an inspiring environment for its staff, emphasises the client's brand strength, and shows how an existing building can be refurbished and redesigned to high environmental standards through the combined input of dedicated professionals. The role that the main contractors played in ensuring that the

client was ultimately able to apply for a 4 Star Green Star rating was important and praiseworthy," Mallandain adds.

Kim Hutchins, project manager from Capex Projects, says: "Any alteration or refurbishment project is a challenge. When you add the requirements to meet Green Building criteria, the task becomes even more daunting. A lot of these requirements covered new ground for both the professional team and building contractors, but Arrie Venter and the team from J.C. van der Linde & Venter Projects rose to the task at hand and proved a highly efficient and cooperative company to work with. Much of the credit for the success of the project must go to them."

J.C. van der Linde & Venter Projects handed over the site in May 2015. The prolonged strike in the steel industry – which had severely delayed the availability of building materials – coupled with alterations to the original design, and early summer rains that started just when the old roof had been opened, led to an extension of the original contract 12-month contract. <



Professional team

- **Client:** Total South Africa
- **Main contractor:**
J.C. van der Linde & Venter Projects
- **Principal agent and project manager:**
Capex Projects
- **Quantity surveyor:**
Schoombie Hartmann
- **Architect:** Axient Architects
- **Interior designer:** Paragon Interiors
- **Consulting structural engineer:**
BSM Baker
- **Environmental consultant:**
P.J. Carew Consulting
- **Electrical consultant:**
Thatani Consulting Engineers
- **Mechanical consultant:**
Adaptive Resource Engineers

