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ADDING FUNCTION TO FORM

With just over 9 000 m² of construction required, the green-friendly retrofit of Eastgate 20 has given it a place in the sun.



The significance of Eastgate 20 is that there is no significance at all... externally that is. From the outside, the building, located on the corner of Grayston Drive and Katherine Street in Sandton Johannesburg, is yet another beautifully designed project from the Paragon Group. "Nothing really stands out," says Paul Carew of PJ Carew Consulting, "but that's what makes it so impressive, that despite the green aspect makeover – nothing has detracted from its attractiveness".

Skeletally, however, the ex-motor dealership venue is a wealth of energy, water and resource-based efficiencies that has culminated in a 4 Star Green Star SA rating, the first such accreditation for Paragon Architects. Whilst its location was always prominent, situated as it is next to the Sandton vehicular flyover, its new silhouette has quite literally elevated the view from the northern side of the roadway bridge. The addition of two floors and a facade will push tenant branding into the eye of the innumerable motorists travelling into and out of the busy metropolis.

The layered "box out of a box" design creates spacious patio levels on both the first and fourth floors. External louvres provide sun protection.

Being able to understand the traditional elements of the original building design and adapting them to embrace eco-rebuild, was a challenge that the Paragon Group were ready to accomplish. "We realise that sustainable design is no longer seen as an unusual concept, even though it's a relatively new approach in South Africa," says Paragon Group's Hugh Fraser.

"It's not our first eco-friendly building, having been through the learning curves when we designed 15 Alice Lane Towers, also in Sandton. Such stepping stones are particularly useful in understanding the requirements for Green Star SA ratings, especially when attempting to refurbish existing buildings where the clues for doing so are not readily available. Eastgate 20 is such a case."

The client, Tiber Projects, insisted that a Green Star SA rating was an imperative. "Knowing this from the outset, was crucially helpful and not a choice that can be made midstream given the technical decisions that need to be made in consultation with the contractor, such as the waste recycling aspects and all the other critical implications of the greening rebuild," states Fraser.

NUTSHELL

Location corner Katherine Street & Grayston Drive, Eastgate 20, Sandton

Site size 9 839 m²

Building cost R 40 million building

Commencement date September 2010

Completion date 29 January 2012

Total construction area 9 072 m²

Lettable area 4 500 m²

Parking ratios 4 bays/100 m²





ABOVE:
Lighting in the remodelled lobby space was specifically designed to prevent light pollution at night.

BOTTOM RIGHT:
Preferred parking for motorbikes is provided next to the lift lobby.

Although not particularly overwhelming in size, Eastgate 20 competes with neighbouring commercial enterprises for tenants. Nevertheless, the main motivation for its eco-friendliness was not tenants' requirements. "I'm therefore rather impressed that the client focused on Green Star SA, because it's a relatively expensive retrofit for a small building, given that consulting and time costs are similar to that of a big project," says Carew. Aesthetically the architects conceptualised a "box out of a box" design, refining the layers with crisp edges and folded planes defined by hard glass and tiling finishes. An almost three-dimensional effect has been created as a result, offering a number of vantage points and height levels, with deep-set window openings on the north-east and south-west sides.

In presenting itself to the sun, glare has been reduced by external louvres and performance glass to offer sunscreen protection. These still allows taking advantage of the natural light, so that 64% of the office space is less dependent on electrical energy.

Internal lighting embraces fluorescent technology that has been optimised to decrease the number of fittings, with switches collectively positioned at

tenant entrances. This concentration of groupings of switches allows for unoccupied and day-lit areas to be easily managed, along with occupancy sensors. Coupled to this are effective meter measurements, so that building management can monitor the energy usage and take action if needed.

A detail such as the incorporation of natural lighting, is one of a number of criteria to satisfy SANS 204 regulations that were enforced only after the building was designed. However because elements from the Green Star SA guidelines had



already accounted for energy savings it is now a simple matter of applying for formal recognition.

The energy and environmental strategy applied to Eastgate 20 also concentrated on transportation and to encourage the use of electric and alternative fuel vehicles preferential parking spaces are provided next to the lift lobby. Cyclists' needs are taken care of with the provision of separate men's and women's locker rooms fitted with showers further to enhance occupant health and wellbeing. Being on the bus feeder line for the Gautrain and other bus services is certainly a drawback, and to encourage the use of electric and alternative fuel vehicles preferential parking spaces are provided next to the lift lobby. Cyclists' needs are taken care of with the provision of separate men's and women's locker rooms fitted with showers to enhance occupant health and wellbeing.

Improved air quality is controlled by a mechanical ventilation system that offers 15 litres per second per person of fresh air – a 150% improvement on the baseline of the Green Star SA rating requirement. The inverter-driven air-conditioning system has increased the efficiency of compressors, so that heating and cooling operations have the least possible effect on costs. The use of low-VOC paints, adhesives and sealants have also minimised the chemical usage and airborne emissions that can result from more

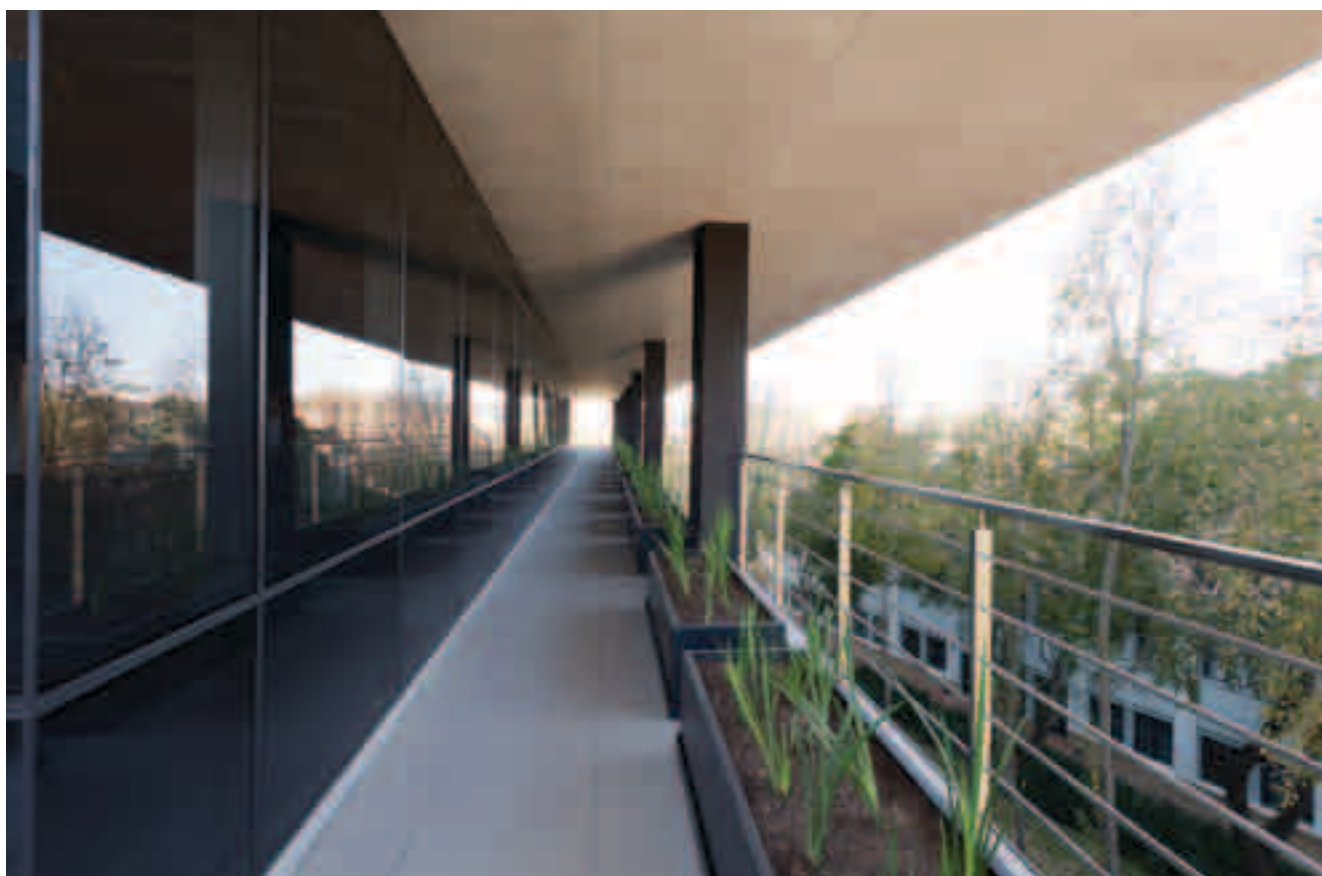
generally-used interior finishes.

The water meters on incoming mains, showers and irrigation supplies, are designed for operational excellence, and are projected to save 35% of what would be normal consumption for a building this size. As one would expect, Eastgate 20's hot water is sourced from solar water heaters, the waste generated from the building has been accounted for with space for recycling operations and separation.

The only real water challenge, Carew explains, was that the building's storm water lies within a 100 metres from a river. "Fortunately for us, another building stands between the river and Eastgate 20, which meant we needed only to ensure that the storm water was clean to meet the Green Star SA conditional requirements. This proved to be a relatively easy process that the civil engineers were easily able to accommodate."

Waste management was addressed already during construction, by reusing as much of the previous building as possible. Foundations and columns, for example, remained but were increased in strength to support the two new floors. However, by using an innovative composite floor system, such weight in itself was further minimised, decreasing the need for additional material in support of the retrofit. As this was a refurbishment from an automobile

Large overhangs on the first floor provide for patios and extra sun protection.



“ DESPITE THE GREEN ASPECT MAKEOVER, NOTHING HAS DETRACTED FROM ITS ATTRACTIVENESS ”

showroom, the space was double-volume and needed an intermediate floor installed. This was constructed from a Bondek system, comprising permanent steel shuttering and a 140 mm concrete slab.

In redesigning a centralised lift core, the architects were provided with open and deep commercial plates that have been evolved to account for four zones on each plate at 324 m² per subdivision, without passages but with toilets and services also centralised for optimum usage.

The demand by the builder that toilet flush rate testing needed to be undertaken proved how serious they were about embracing the eco retrofit. Carew explains that attention to such detail was not actually required for the Green Star SA rating, which only requires confirmation that the set water pressure at the toilet itself is to factory-tested standards.

“We were pleasantly surprised that the plumber who had undertaken the commissioning of the actual water supply had been so meticulous, and willing to accommodate the request, and ultimately was able to provide us with the documentation we needed,” says Carew. “Consultants are often nervous about the level of commitment contractors apply to Green Star SA, but in the case of Eastgate 20, we saw the priority this was given in their processes and in the delivery of specifications.”

The Green Star SA certification procedure, says Carew, was smooth and without incident. “In our experience projects similar to this typically manage to achieve between 10 and 25 points during the first round, with the balance of points subject to the second round submission. With Eastgate 20 we were able to achieve 44 points in the first, just one point

short of the 45 point target we needed for the 4 Star certification.”

This indicates how crucial it was that Green Star SA requirements were included at the start of the Eastgate 20 project. “It also proved that the project team has become more *au fait* with the processes and language of Green Star SA. No longer is this the onerous task it was perceived to be, and the time saving as a result on creating the documentation, allowed for the main focus to be on the actual design work being accomplished. In total, it only took 16 months for us to achieve the rating.”

As the economy turns and businesses begin to adjust accordingly, and as tenants again start seeking new premises, Carew believes that Green Star Certified Buildings are going to become more attractive, and the long-term savings of the green built projects are going to swing the pendulum in favour of Eastgate 20-type retrofits, especially given the focus on accessibility and cost savings.

Fraser and the Paragon Group agree. “In total the cost for Eastgate 20’s revamp amounted to R40-million but in return Tiber Projects now have an attractive eco-friendly building, with its lettable space increased from 2 900 m² to 4 500 m². We have also been able to improve the parking ratios from two to four bays per 100 m²,” says Fraser. ☉

SOURCEBOOK

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