

Dynamic, innovative, quick and cost-effective construction

Renico Construction, Entity Architects and Entity Structural Engineers in conjunction with Robor have formed a team that uses the latest cutting-edge technology and team synergy to construct state-of-the-art buildings in record time.

The successful fabrication and erection over a three-month period of the structural steel on the Eureka (DIY) phase two warehouse in Lea Glen X2, Gauteng, by main contractor Renico Construction in conjunction with Robor, a steel tube and pipe manufacturer, was as a result of Robor's new lightweight hybrid structure designed by Entity Engineering.

The hybrid structure is an alternative to the traditional structural steel systems used on various commercial and industrial applications.



Interior view of the lightweight hybrid structure inside the Eureka DIY II 800 m² factory in Lea Glen X2, Roodepoort, Gauteng

The hybrid structure allows for reduced weight per square metre from 22 kg/m² to as little as 12,5 kg/m². In addition, the hybrid structure enables rolling and fabrication on site without the need for boilermakers and welders, who are in short supply, as well as the rolling of long lengths on site, thereby minimising transport costs and the amounts of splicing in the structure. Lower maintenance requirements as well as a reduction in corrosion protection costs by up to half as the structure is made from pre-galvanised steel are characteristics of the hybrid structure.

"In the current tough economic climate only cost-effective building concepts and feasible projects will be backed by financial institutions, making the hybrid structure an ideal solution," says Nico Louw, founder of Renico Construction.



Aerial view of the Eureka DIY factory

According to Andrew Bull, director of Entity Engineering, the hybrid structure used in the Eureka DIY factory is an outstanding application of advanced building technology to deliver an efficient, economical and strong building.

"Eureka had very strict requirements and tight project deadlines, which the team successfully met due to the speed of construction," he says. "The structural steel was effectively erected in a three-month period from November 2009 to February 2010."

The hybrid structure offers construction industry professionals the freedom to customise their products and solutions for a wider range of services as well as presenting the opportunity for up to 40% savings in mass and a major reduction in project delivery times. With a footprint of 148,4 m by 79,5 m by 8,8 m high eaves and a total structural steel weight of 147,8 tons, the Eureka warehouse is testimony to the power of this hybrid structure's unique characteristics.

Says Almero Retief, principal architect at Entity Architects, "The tempo and erection method not only ensured a saving for the client but also allowed for minimal rain delay during the construction period. We will definitely be using the lightweight steel structure in future projects."

Bull further emphasises that the placement of polystyrene void formers made from high-density polystyrene on the Eureka DIY factory made for much convenience and economy over the more traditional ash blocks/concrete blocks.

"This is of great interest to me because Entity Engineering specialises in developing economical building solutions for industrial buildings," he says.

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Bull explains that polystyrene blocks do not crack or shatter; that they are light and can be installed quicker than ash blocks for reduced labour costs; and that due to their weight reduction, a more structurally efficient slab can be designed.

Onsite advantages include the easy installation of plumbing, electrical, air-conditioning and other services; as easy plastering as with an ash-block system; possibility of quick last minute changes; reduced risk of injury due to the fact that polystyrene is 90% lighter than ash blocks; and greater safety when walking on polystyrene than ash.

By using polystyrene, the overall bulk weight of the building is reduced, which may be an advantage to the foundation design.

“Variable block sizes are available for ease of design and polystyrene is eco friendly,” says Bull. “Polystyrene void formers are available countrywide as a result of a deal that has been brokered with the manufacturer.

“Currently, polystyrene void formers are the most economical and strong slabbing system available in the market place. For the past two years we have been specifying more than 20 000 blocks a month for the industry.”

Bull, however, points out that the “market is too reactive, with most slab company’s still pledging allegiance to ash-block slabs”. “This is a real pity as use of polystyrene void formers equals real savings to the end-user in comparison to conventional slabs such as coffer slabs and post-tension slabs,” he says. Retief does add though that the benefits of polystyrene void formers are project specific.

Bull elaborates that phase one of Eureka was launched in 2007. “We developed, with Renico Construction as the main contractor, a large building at the best price we could with usage of ash blocks on mezzanine slabs and a conventional steel-structure style roof at 19,5 kg per m²,” he says. “In June 2010, we handed over Eureka DIY phase warehouse in Lea Glen X2 with its steel hybrid structure and polystyrene slabs quicker and cheaper than three years previously. In addition, the new building has 50% less of a carbon footprint than its predecessor.”

Retief point-out that the Eureka 17 000 m² phase one took six months to construct while the 12 000 m² second phase took four months to construct. “The footprints of Eureka phase one and phase two were pretty similar,” he says.

According to Bull, the biggest expense in the construction of a building is the roof and then the flooring. “Steel and concrete are carbon unfriendly,” he says. “In future they will not be prescribed. Polymer floors are set to take their place in that they are more economical than concrete, with savings up to 50%, depending on the specification. Moreover, the reduction of carbon in the product is in excess of 95% over concrete, no joints are required in floor slabs, and a self-levelling pigmented polymer screed

offers strength up to 500 MPa within a 24-hour period, thereby saving project time.”

In addition to the Eureka phase one and two buildings, Renico Construction in conjunction with Entity Architects and Entity Engineers has constructed the UTI/Sun Couriers building in Laserpark and the Bytes Technology/Lasercom building in Amalgam amongst many others.

The UTI/Sun Couriers warehouse comprises a new 9 574 m² corporate head office and distribution warehouse at Lazerpark in Honeydew, Gauteng.



Aerial view of the UTI/Sun Couriers warehouse building



Interior view of the UTI/Sun Couriers warehouse building

The 14 333 m² Bytes Technology/Lasercom building in the Amalgam Industrial Estate complex in Bessemer Road, Amalgam, was constructed in seven months. “From late September 2009 when Renico Construction commenced with new platforms and earthworks till the handover date at the beginning of May 2010, we were delayed by torrential rains,” says Louw. “An amazing 63 working days were lost due to the 1 836 mm of rain on site and an annual builder’s holiday tucked into the project plan.” Despite these delays, the experience and professionalism of the team ensured that the deadline was met.

Bull says that the team’s synergies that result in quick turnaround times are as a result of him and Retief working together for the past 16 years, with Louw developing



Pictured is the traditional structural steel used at the Lasercom building and the UTI/Sun Couriers warehouse building

industrial space since 1998. "Our team can get a client's mandate up and running in record time, with the omission of one team member resulting in real delays," he says.

Louw elaborates that the team hasn't stopped evolving despite the recession and remains abreast of the most modern building techniques and cost saving measures for clients.

Retief adds that team has the experience and insight to know "what works and what can be improved upon".

"This is because we've built over 5 500 buildings across the range from Bathroom Bizarre to Verimark," he says.

Louw concludes by pointing out that over the last three years Renico Construction has developed among others Lea Glen X, Lazerpark X26, 27 and 30 townships. In addition, it has constructed an A-grade warehouse, not only for UTI but also for Pailpack, AGI, Afrox, Unisa, Stanley Tools, Aqua Divers, Almex SA, Honeydew Lawnmowers, Hi-Tech Global and Cobra Watertech. "Renico Construction constructs and hand over 6 000 m² of industrial building a month. That's really something, ie that this figure is drawn up by one architectural company, designed by one engineering firm, and built by one contractor from start to completion." ●



From left: Andrew Bull, Nico Louw and Almero Retief

Servest Parking

Servest Parking, previously known as Parking Strategies, was established in the mid 1990s.

"It was aimed specifically at providing parking management services to the South African retail industry," says a Servest Parking spokesperson. "As of August 2008, the company was acquired by the Servest Group of Companies, becoming part of a stable comprising 30 000 staff nationally across service-related disciplines. This provided it with additional reach within the South African property market."

Servest Parking has established itself as a leading "Pay-On-Foot" operator within the South African market, providing parking management services to property management companies nationally such as Hyprop, Parkdev, Old Mutual and Growthpoint.

The cornerstone to this success has been threefold. The spokesperson elaborates that the investment by Servest Parking in its staff has resulted in the retention of key senior staff since then; that the formulation of a management development programme has seen individuals progress from site positions to that of senior managers within the company; and that significant investment has taken place with respect to policies and procedures with respect to parking operations, with an emphasis on the audit component relating to control of revenues collected.

"The company has the ability to offer each client a customised parking service aimed at creating operational efficiencies while at the same time placing an emphasis on costing saving," adds the spokesperson.

A key component in this regard has been the application of the integrated security/parking solution within the industry. The integrated approach has to date focused on combining two key operational components within the property management sphere, namely security management and parking management respectively.

"Cost savings are realised in terms of the management structure, with key individuals responsible for managing both disciplines. In this respect, greater operational efficiencies are obtained, with staff being in a position and trained to perform in terms of both the security and parking requirements," says the spokesperson.

"An exciting development has been the recent take-up of parking strategies into the Servest stable. This has provided Servest with an opportunity to bundle additional services into a single solution for a respective property owner, which includes the provision of security, cleaning, hygiene, landscaping, and parking.

"We have seen a significant amount of interest from the marketplace due to the current economic climate and an emphasis on cost reduction in terms of operational costs." ●