

Sustainable housing in practice

Renier Smith is Group Manager: Engineering and Planning for Garden Cities NPC(RF), an established developer in the housing sector of Cape Town with a 100-year pedigree. We spoke to him about the successful implementation of an overarching green building programme within its substantial developments over the past decade.

 **Garden Cities, rvb geomatics and Gareth Griffiths**

 **Gareth Griffiths**

Garden Cities' South African origins go back to its first suburb Pinelands, in Cape Town, based on the concept of British town planner Sir Ebenezer Howard who pioneered the movement in the UK early in the 1900s. In 1919, the South African company was established by Cape Town businessman Richard Stuttaford, whose great-grandson Sean is the current chairman. Pinelands Development Company (PDC), which was first established to provide finance for Garden Cities homebuyers, has since 1945 built all the developer's houses.

Garden Cities is today a dynamic developer with an impressive portfolio under its belt, which Smith confirms has developed approximately 15 developments with the complete sphere of typologies included.

"These cater for various categories, including group housing, retirement villages, commercial, shopping centres, schools, light industrial and various other facilities to ensure that all-encompassing housing developments are delivered in which sustainable and well developed communities can establish and grow," he says.



Aerial photograph of the whole site by professional land surveyors, GVB Geomatics.



Sunningdale - extensive landscaping practices underway.

Embracing sustainable building and green technologies

Perhaps it's a swing back to its roots in Pinelands which has always been well known for its trees and other greenery, but the developer has embraced sustainable building and green technologies wholeheartedly, beginning with its adoption of SANS 10400-XA, the prevailing standard for energy efficiency of buildings inside the National Building Regulations.

They also became the first South African developer to achieve Green Building Council of SA's (GBCSA) 4-star Green Star rated Sustainable Precinct Development, for a development called Northridge Coastal Estate, located in Sunningdale, on which construction will commence from September 2021.

Smith explains: "We developed an overarching Green Building methodology and created a series of comprehensive guides called Greening our Supply Chain. Our intent was to change the mind-set of our homeowners, suppliers, contractors and consultants; resulting in a cumulative approach and positive impact on the



A recent development on the ground in Sunningdale. Note the emphasis on drought resilient hardscaping practices and plantlife.

overall Garden Cities' Green Policy. The ultimate drive and goal is that of 'Zero Waste to Landfill' throughout our complete supply chain from raw land all the way up to handing over the keys to the new homeowners and thereafter".

With the intention of creating an ongoing ripple effect to add to the cumulative green impact, the company has adopted various interventions within its houses over the past decade.

Importantly, the developer believes its own sustainability policies will be the company's greatest reward in the long term.

"Our belief is that applause dies, awards tarnish, achievements are forgotten and accolades and certificates are buried with their owners. But a sustainable approach to the complete supply chain in our developments will have a permanent impact and prove to be the true reward." says Smith.

Green building interventions to residential opportunities

Roof insulation: A well-known brand of cellulose fibre thermal insulation, Eco-Insulation, has been used across the developments since the year 2013, due to its high recycled material content.

Grey water reuse: "Initially each house was fitted with a grey water solution. Later, in line with the City of Cape Town's policies on grey water usage, each house was plumbed as grey water-ready".

This allowed for the easy retro-fitting of grey water systems by residents prepared to make the changes needed to align their usage and type of cleaning products with the system. This behaviour change ensures that the grey water is a beneficial and sustainable alternative water source for landscaping and external uses.

Rain water harvesting: Each residential opportunity that is undertaken by Garden Cities is conveniently installed with two 1000 litre rainwater tanks.

Solar water heating: Each house is fitted with an aesthetically pleasing solar water heating unit to ensure that compliance is achieved with SANS 10400 XA.

"From our data and theoretical calculations the heat pump is by far the most consistent and suitable solution for water heating purposes in the home, however we opted for solar water heating due to issues such as load shedding and other factors that impact on the heat pump solution" adds Smith.

Waste reduction and recycling: Dual bin systems included and built into the kitchen layout to ensure that recyclable and non-recyclable waste are separated at source.

Water wise landscaping: Verge areas are landscaped being mindful of creating an aesthetically appealing landscaped verge and streetscape, but at the same time incorporating green and sustainable landscaping verge areas.

Water wise fittings: The developer has utilised flow restrictors and water wise plumbing fittings and cisterns for many years. They frequently review these products and fittings to ensure sensible and effective use is achieved.



Site layout - Northridge Coastal Estate a 4-star Green Star Sustainable Precincts development.

About Northridge Coastal Estate

The Northridge Coastal Estate is a residential estate located in Sunningdale, Cape Town, which comprises approximately 429 residential dwellings. The Estate has been designed in such a way to preserve biodiversity and enhance community interaction. Specifically, an approximately 7ha conservation area has been created to protect the dune thicket vegetation, and residents can enjoy the boardwalk, footpaths, and educational biodiversity signage provided in this area.

A multitude of open green spaces/parks for communal use, and a community zone has been established and will offer a community meeting space/clubhouse where community events can take place. The estate also promotes an active lifestyle and sustainable living amongst its residents by accommodating cyclist facilities and footpaths throughout. Rainwater harvesting tanks have also been provided as an incentive to all households.

The development was awarded a 4-star Green Star Sustainable Precincts v1.1 by the Green Building Council of South Africa. 🏆

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Project professional team - NCE

- Terramanzi Environmentally Sustainable Consultants
- BVI Civil Engineering Consultants
- Raubicon Electrical Engineering Consultants
- CNDV Landscape Architects
- MLH Town Planners
- VULA Environmental Services

Cellulose fibre serves major housing developer's insulation needs

Since 2013, when Garden Cities, a major developer of middle-income housing stock in the Atlantic and northern suburbs of Cape Town, embraced the vision of SANS10400-XA and introduced Eco-Insulation cellulose fibre thermal insulation. The supplier has worked on every site that the Garden Cities group has developed.

📷 Gareth Griffiths and Richard Ellis

Richard Ellis, team-leader and distributor for Eco-Insulation in Cape Town, says that this remarkable relationship has been a win-win for both parties.

"We have cemented a very strong relationship with PDC (the construction arm of Garden Cities) having completed 2 300 house installations to date since Jan 2013 and installing over 380 000m² of cellulose fibre insulation over two schemes, Pinehurst and Sunningdale. Over the past eight years, Eco-Insulation has successfully installed in excess of 1 million kilograms of cellulose fibre insulation on the ceilings of the 2 300 homes. This is a phenomenal amount of waste removed from possible landfill and upcycled into an energy-saving role!" he says.

According to Ellis, at the time his client was addressing SANS 10400-XA as early-adopters of this standard and found in Eco-Insulation "exactly what they were looking for".

Recycled quality a strong motivating factor

Garden Cities group Manager for engineering and planning at Garden Cities, Renier Smith, says that the fact that Eco-Insulation is made using cellulose fibre that has been recycled from newsprint waste streams was a strong motivating factor for the brand.





About Eco-Insulation

As a thermal roof insulation, Eco-Insulation offers the following standout features:

- Award winning cellulose fibre ceiling brand with a national footprint.
- Exclusive and professional turnkey service - you call and we install.
- The brand is a SABS mark-holder, is fire-rated B/B1/2 'no spread of flame' and holds the TIPSASA Product Compliance Certificate, the customer's assurance of quality, performance and safety.
- The product contains over 80% recycled material, plus a non-toxic inorganic salt for its fire-retardant nature.
- Eco-Insulation is SANS10400-XA compliant and offers an insulation solution for each climatic zone defined by the National Building Regulations - summer and winter.
- Acoustic insulator: Eco-Insulation makes a great sound-deadening layer in the attic, under the floor, or even under the stage - for concert venues.
- Due to the moisture absorbing nature of cellulose fibre, the product 'breathes' helping to promote a comfortable humidity in the building envelope.
- The product is unattractive to rodents, insects and fungal growth - in fact it repels them.
- People-friendly - no detachable inorganic fibres, safe on the hands, eyes and lungs.
- Non toxic and zero VOCs

"Garden Cities took an in-principle decision several years ago to align itself with a more sustainable and 'greener' approach in terms of the all-encompassing suburbs we deliver. We ensure that we minimize and mitigate negative practices and impacts as far as possible by establishing an overarching green building methodology. The ultimate drive and goal is that of 'Zero waste to landfill' throughout our supply chain, from raw land all the way up to handing over the keys to the new homeowners and thereafter," Smith explains.

"With the introduction of SANS-10400 XA and subsequent additions to the building regulations, Garden Cities aligned its overall approach with the development and implementation of our homeowners guide as well as the supporting and continuously refined guides addressing the sustainability themes of water, energy and materials, with the vision guide defining and elaborating on our overall approach and intentions", he adds.

Immediate and seamless service

So exactly what is it that makes the cellulose fibre insulation stand out enough to win such a prestigious contract over the years?

Ellis reckons it is due to the level of service, wherein it is immediate and seamless.

"Eco-Insulation prides itself on its professional, turnkey-type of service. We arrive on site on time, conduct the installation within only a few hours, and clean up afterwards, leaving the site in a better condition than prior to starting. We then issue the warranty and certificate of compliance under the auspices of the Thermal Insulation Products and Systems Association of SA (TIPSASA) then leave the site. No fuss, no disruption and no mess."

"We have cemented a strong relationship with the client over the years and have pretty much put in a dedicated installation team (with an installation rig) just to manage their sites, with that kind of volume.

"They make a good (housing) product. They have the strictest safety, health and environmental housing site protocols in the country;- by far the most superior in my view. They run a really good ship and so does Eco-Insulation," Ellis adds.

Indeed, house prices of the Garden Cities homes have experienced growth, with Sunningdale currently around the R2.8 million mark and in Pinehurst, near Durbanville, around R2.9 million per dwelling. **T**