

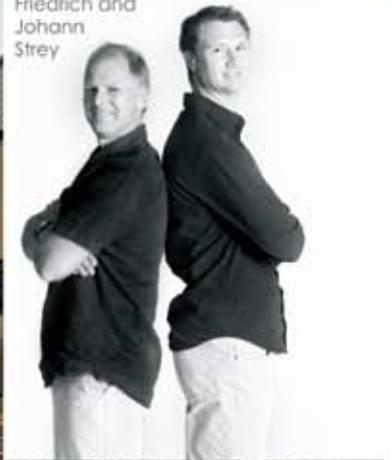
Great South African Architecture

Barn House, Southdowns Estate, Irene, Pretoria



Photography by Dennis Guichard

Friedrich and Johann Strey



World Class Brands + Professional Relationships

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Classicorr Corrugated by Strey Architects & Interiors

Friedrich Strey states: "Our long-standing relationship with Safintra Roofing, their quality brands and technical expertise made them the natural choice as supplier for this project. Our firm embraces green building principles, as illustrated in the Barn House, and the legion of environmental benefits in using metal roofing sheeting in matters such as rainwater harvesting, simply cannot be disregarded. We hope that this example will inspire others to push the boundaries of architecture and fulfill their dream while doing their bit for the future users of our world...our children."

Corrugated sheeting defined the aesthetic of many early South African buildings; it was strong yet light, provided safety, and travelled well. It also could also be used for a multitude of purposes, from fencing to rainwater tanks. And as we return to a more earth-friendly lifestyle, corrugated sheeting is proving its timeless appeal.

Safintra's roofing system components include standard and bespoke flashings, louvres, ventilators, fasteners, above-roof attachment clamps, specialist polycarbonate products, and the Metsec purlin system. Manufacturer warranties on all components are available on request.

Full technical support is offered to our clients at no cost.

Six branches in South Africa: Johannesburg, Cape Town, Durban, Port Elizabeth, Nelspruit and Polokwane. www.safintra.co.za

Affiliated operations in Mozambique, Malawi, Zambia, Angola, Uganda, Tanzania, Kenya, Rwanda, Burundi and Ethiopia. www.safintra.com

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SAFINTRA
world class roofing systems

A member of the



Basket of innovations will be a game changer for roofing

South Africa embraces a variety of architectural styles, from Cape Dutch and French Huguenot to Tuscan and English.

Some work, some do not, some are timeless, some are trite. But one fact is a game changer – the need to look at sustainability in the built environment. And steel roofing is leading the charge for change.

Roofing needs to rise to the challenges posed by global warming, the move to eco-neutrality, the rising cost of energy and the financial returns required by an investor.

Metal roofing has impeccable sustainability credentials, and its versatility makes it the material of choice for stunning architecture from modern to traditional. But it is functional performance that sets it apart.

A building is always an investment. So durability and the lifetime costs of occupation and ownership are critical. So too is its impact on the well-being of the people who live and work in it, and the way it uses resources. Quality components which are correctly

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Above: Metsec purlins of 202 mm web depth x 1.6 mm thickness spanning 8.0 mtr. Test certificates are supplied for the high yield strength steel which is used in forming these ultra-light sections.



Left: Saflok 700 roof sheet with S-5 clamp – the use of S-5 clamps will not void the warranties on concealed fix sheeting because they are non-piercing. The patented clamp design has been tested to over 1,000 kg pull out value.

installed in a well-designed roofing system offer returns that are financial, social and environmental.

The Safintra Innovations Roadshow will unpack a basket of best-of-breed components, which make up a metal roof system that delivers returns for the full occupied life of the building – each component separately warranted but when used together, the system stands apart.

- For increasingly violent weather, Safintra has a new generation Saflok clip system for concealed fix roofing.
- For energy-efficiency, Safintra has clamps that will make the roof a source of power without compromising the performance or warranty of the roof sheeting.
- To minimise maintenance costs, Safintra offers fasteners which will

have a life expectancy longer than that of the roof sheeting.

- To reduce energy costs and lower the environmental impact, Safintra offers an over-roofing and roof spacer system which ensures the insulation you buy gives you the performance you paid for.
- And to reduce its environmental impact, Safintra has the long-span Metsec steel purlin system.

Finally, Safintra will warrant the integrated roof system for performance – thermal, functional and durability. That is a game changer.

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Debate heats up on insulation usage under roof sheeting

“The cheapest, most reliable source of new energy is saved energy,”

says Peter Turnbull of PG & E.

The promulgation of SANS 10400 XA requires that insulation should be installed to achieve prescribed R-values in the roof space.

The obvious methods of installing insulation are to lay it under the roof covering or above the ceiling. If laid under the roof covering, the logical response is to lay it over purlin.

However, the use of insulation of any bulk presents issues of stability for the roof sheeting, and the performance of insulation is questionable if it is severely compressed. If used under pierced (positively) fixed sheeting such as IBR, the fastener is longer, and is put under high stress. If used under concealed fix sheeting, the concern is that a thick blanket insulation will bulk up under the sheet and could force the sheet off the clip securing it.

Various methods have been developed by the roofing industry to address these challenges:

- U-shaped stirrups or spacers have been used. They press through the insulation and rest on the purlin, providing some structural support to the fasteners and the roof sheet. However, stirrups are laborious to install and are prone to rock. They also do little to reduce the stress on the longer fasteners and do not adequately support the span of the roof sheeting.
- Another commonly used method is to install a row of timber purlins or packers, which are fixed to the lower row of purlins over the insulation. Not only is this practice a fire hazard, but it results in excessive compression of the insulation. And seldom is a

timber spacer in perfect alignment or of perfect dimension with all other packers, providing a sub-standard base for the roof covering, compromising the performance of the insulation.

Various other methods include metal straps, secondary metal purlins and more.

EVERY METHOD ABOVE FACES THE SAME UNRESOLVED ISSUE

For insulation to perform to its optimum level, a continuous layer must be installed with minimal compression or thermal bridging. None of the above methods achieve this, and the performance of excellent insulation material is compromised by the method of installation. Architects and home owners do not achieve what is claimed or being paid for, and the entire thermal rating of the building is downgraded.

However, a properly engineered roof spacer system such as Ashgrid will, by the creation of a defined cavity or roof space, accommodate blanket insulation at its full depth. Such systems are pre-engineered for rapid and easy installation, and have varying leg heights for various depths of insulation. The resulting R-values of the insulating material may therefore be taken at full design value as claimed by the manufacturer.

TESTS ON THE PERFORMANCE OF BLANKET INSULATION OVER PURLIN

Safintra South Africa recently undertook tests to determine the performance of an insulation blanket installed with their respected Safflok concealed fix system.

A 135mm fibreglass blanket with a density of 12kg/m³ was installed under



Safintra Mock-up Compression Measurements

the sheet and over purlin. Straining wires were installed with sufficient slack to allow the insulation to maintain as much loft as possible between purlins, within practical considerations. Safflok 700 was installed as the roof covering.

Two methods were compared in the test. The first test was conducted without a roof spacer system. The second test was conducted using the Ashgrid roof spacer system.

The tests clearly showed that

1. Even without a roof spacer system, the integrity of the Safflok system was unimpaired, with the clips securely locking the sheeting over the blanket which had compressed to 15mm
2. However, compression of the insulation blanket at the purlin compromised the thermal performance of the insulation by almost 40%, whereas the roof spacer system allowed the insulation to perform to its full design value. There is no doubt that the cost of roof construction has been increased by the requirements of SANS 10400:XA. This cost increases by the cost of insulation materials and labour at time of construction, but is more than amortised by energy savings over the first seven years of the occupied life of the building.

The cost of a roof spacer system with properly performing insulation is in most instances actually lower than the cost of additional layers of insulation to achieve the required R-value in the roof space.

Speak to Safintra about roofing systems that deliver as they should – for owners, for occupants and for the environment.

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COMPLIANCE WITH SANS 10400 XA AND OTHER
REGULATIONS ARE DRIVERS OF CHANGE - AND
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