

SCHULPHOEK HOUSE Hermanus

Green Initiatives - sustainable building practices at the heart of our hotel

When talking about 100% power efficiency or as some like to call it 'off-grid', Schulphoek House can be seen as one of the leading examples of this phenomenon in South Africa.

Water

All rainwater from roofs is harvested and piped to above and below ground storage tanks with storage capacity of 62 000 litres. The rain water is filtered and fed into the hot water reticulation system and is used in the garden. It is estimated that the saving in municipal water will be in excess of 500 000 L per annum.

Fountain: We are fortunate to have a natural spring on the property. It has been tested and yields in excess of 3000 litres per hour. Only a very small portion of this water is utilised for irrigation due the scarcity of water in the region.

High Thermal Insulation

Building construction

The new building is constructed from the latest technology from Futurehouse (www.futurehouse.co.za); high-density insulation panels clad with reinforcing mesh which is gunited with concrete. **Insulation properties: 'U' value = 0,5 | 'R' value = 2,2**

Windows and doors

Double glazed windows and doors for maximum temperature control. The windows and doors are fitted windows with swivel and tilt mechanism to allow for security while still allowing ventilation.

Rooves

All roofs on the property are triple insulated with:

- 13 mm ceiling boards with 100 mm THERMGUARD cellulose fibre.
- An air gap.
- 40 mm layer of woven mineral wool with a sheet of reflective aluminium foil on both sides.
- Roof sheeting is off-white in colour, to maximize heat reflection rather than absorption.

For the technically minded: the total **R value (thermal resistance) of the roof insulation is 5.69**. Far higher than the legal requirement of 3.7.

Floor construction

Ground floor: a multi-layer construction was used. The floor is suspended over an air void, over which is installed 20 mm of solid wood, followed by a 200 mm thick layer of insulation, then concrete.

First floor: Excellent sound and thermal insulation between floors; 200 mm thick high-density polystyrene panel, topped with a slab and screed.

Finishes: top floor, 100% wool wall to wall carpeting, which further reduces noise transmission. The ground floor has 20mm bamboo flooring. Below the slab is an air void to the ceiling board.

Excellent Sound Insulation

Windows and doors

All windows are double glazed for maximum sound control. While many of us love the sound of the sea, it can be overwhelming to others. Sea facing doors can open or tilt.

The walls

Bedrooms wall have a 60 mm layer of sound insulation.

Hydronic Air Conditioning

Room temperature is regulated using an energy efficient hydronic system, which circulates either hot or cold water to every room via a ring main; air is heated or cooled through a radiator and circulated into the room by means of a fan. There are no conventional type electric compressor driven air conditioners on site.

During the day excess energy from photovoltaic solar panels powers an inverter, which heats or cools water, which is stored in a 1000 L cold water and 2 x 1500 L hot water storage tanks for use when required. In essence, solar energy is stored.

Hot Water

There are no geysers on site. Hot water for the bathrooms, heated towel rails and the kitchen is produced by 12 x high capacity solar panels. Heated water is stored in 2 x 1500 L fully insulated storage tanks. Water is distributed to each point via a ring main. During prolonged inclement weather an inverter, powered by solar-powered backup batteries, steps in to maintain temperature.

Fresh Air Exchange

...for a refreshing peaceful sleep.

Schulphoek House is the first property to install an intelligent heat recovery ventilation system into all bedrooms, thereby conforming to international standards. The innovative Lunos system (<http://lunos.de/en/>) removes 'stale' air and humidity from the room. Sensors memorize the temperature of air leaving the room and filter fresh air back into the room at the same temperature. This remarkable energy saving device (3% energy saving) is recognised by the Federal Industrial Association of Germany for House, Energy and Environmental Technology and by the Fraunhofer Institute for Building Physics.

Solar Electrical Power

The roof of the administration building is fitted with solar panels. The entire property is fed by a 3-phase 10Kw system, with backup batteries for power at night. Excess power is fed back into the grid. Prior to the 2017 build, the property accommodated 15 persons. The property had 3 x 3-phase and 2 x single phase municipal power connections. The property can now accommodate 32 people and has retained just 1 x 3-phase connection. This connection will assist with peak demands and facilitate the feeding of excess power back into the grid.

Lights

The latest available low energy LED lighting technology has been installed. Where possible motion sensor switching is installed. Natural light has been maximized through large windows and strategically placed windows, thus reducing the need for artificial light.

Schulphoek House

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