

MEDIA RELEASE

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NEW TECHNOLOGY ENSURES CLAY BRICKS ARE MORE SUSTAINABLE THAN EVER

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Jeffrey's Bay, internationally renowned as 'surfers paradise' for its challenging waves is once again 'making waves' in the international arena, through the launch of South Africa's first operational brick and mortar, energy efficient Vertical Shaft Brick Kiln (VSBK) on the 27th September 2011 at Langkloof Bricks, under the auspices of the SA-VSBK project.

The Clay Brick sector in South Africa is a modern state of the art industry as far as mining and green brick production is concerned (green being unfired). However, faced with new environmental regulations, increasing coal costs and shrinking profits, South African brick entrepreneurs, especially those making use of more traditional brick firing techniques will in the very near future be motivated to source alternative, financially viable, energy efficient brick firing methods in an effort to contribute towards a significantly cleaner environment.

The VSBK technology contributes towards a significant reduction in energy consumption during the brick firing process, by as much as 50%, if not more, thereby reducing carbon emissions, fuel consumption and manufacturing costs. This open source technology has been made available in South Africa through the support of the Swiss Agency for Development and Cooperation (SDC), and implemented by the consortium Swisscontact (Swiss Foundation for Technical Co-operation) and Skat (Swiss Resource Centre and Consultancies for Development).

The VSBK is a continuous updraught kiln that comprises of a vertical shaft, with an unloading tunnel running through the centre of each kiln allowing for access to both sides of the shaft. The bricks are loaded by batch at the top of the shaft. Measured amounts of coal are spread evenly between layers of the stacked bricks to control the firing temperature. The position of the fire in each shaft in relation to the updraught is determined by the rate the bricks are removed and loaded into the shaft, thereby reusing the rising heat - making the VSBK extremely fuel efficient.

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The firing shaft is very well insulated on all four sides, so heat loss is minimised. Once the kiln reaches the specified temperature, the heat from the coal pieces ignites the internal coal of the bricks, resulting in very little heat to be lost through exhaust gases or the construction of the kiln.

The VSBK affords the benefits of simplicity in operation, low cost updraught firing with very good fuel economy through the benefits of continuous operation. Brick wastage is also very low, due to the fact that the bricks are fired under controlled conditions, resulting in reduced over- or under-fired wastage.

Given the enormous potential for this Open Source Technology in this country, SDC together with Swisscontact/Skat and a team of brickmakers have developed a project, aptly named SA-VSBK, to make this technology readily available to the entire clay brickmaking industry - thereby multiplying its economic benefits in terms of improved energy efficiencies and reduced coal consumption. The environmental impact (CO₂ emissions) will also be remarkably reduced. On top of economic and environmental benefits there are substantial social benefits to be reaped from the VSBK technology in terms of job creation, skills development and improved health and safety for the workers.

The SA-VSBK initiative is funded by SDC, as part of their Climate Change Mitigation Programme, with the facilitation, implementation, construction and refinement of the technology being co-coordinated through Swisscontact with the technical support of Skat. The Project is also supported by a specialist team of local experts in the field of clay brick manufacturing.

Francois Droz, Resident Director SDC Southern Africa, says, "South Africa has a very energy-intensive economy and is ranked as the 7th highest per capita greenhouse gas (GHG) emitter in the world. Being the most urbanised country in Sub-Saharan Africa with a fast growing suburbia, South Africa's building sector alone contributes towards nearly 30% of the country's GHG emissions.

"Given the enormous potential for this technology in South Africa, the SA-VSBK Project Team have refined this technology, and formulated a project to make the VSBK technology and economically viable, and readily available to the entire clay brick making sector with the necessary technical support in place."

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The concept of VSBK as an Open Source Technology means that the technology is not only made available for brick entrepreneurs around the globe, but also makes provision for global experiences to be fed back into the technology, thus allowing for continuous improvement. These benefits will then be shared globally as part of Open Source Technology feedback.

Juancho Hagnauer, Country Representative for Swisscontact South Africa, says, "The operational advantages of using this cleaner firing technology are that the VSBK provides flexibility in production output and lower capital investment, thereby making it a viable and sustainable alternative for the South African brickmaker."

Hagnauer adds, "It is estimated that even if only 50% of South African brick production moves to the VSBK brick firing technology, 380 000 tons of coal will be saved in South Africa per annum. This equates to over 950 000 tons of CO₂ emissions annually. In fact, every VSBK shaft implemented will conserve a staggering 324 tons of coal per year and reduce CO₂ emissions by as much as 810 tons. Notwithstanding that the emission of other gases and particulates as PM₁₀ (particulate matter <10 microns) will be reduced by an anticipated 90%."

Speaking on behalf of Mrs Una Blake, co-founder of Langkloof Bricks, Nico Blake, Executive Director of Langkloof Bricks, said, "After almost six years of researching the VSBK technology, and going through the process of building a single test shaft to assess the viability of VSBK, back in 2007, we decided to invest in the design and construction of a (back to back) 6-shaft VSBK kiln, as opposed to settling for the more standardised linear option - as this best suited our needs and that of the operational site.

"Together with our Production Director, Pieter Blake, we approached a team of local experts in the field of structural concrete, steel, airflow, hydraulics, refractory material and construction to assist in bringing our vision to the fore in terms of what the end result of Langkloof Brick's VSBK should be. Today we are very proud to be pioneering the most state-of-the art VSBK kiln in the world, but also this brick firing process in South Africa - with the backing of the SA-VSBK project and its stakeholders.

"There is no doubt that the VSBK technology is one of the most energy efficient and cost effective brick firing processes in the world, with the added benefit of providing a better working environment for our staff members.

"We believe the VSBK technology will fundamentally shift the way many clay brick manufacturers think about production in the future, from an economical, social and environmental perspective.

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The VSBK makes clay brick an even more sustainable building option by reducing the embodied energy of an average clay brick, at least by half. As the legislative criteria around green building become more stringent, we will obviously reap the benefits of our VSBK investment. "

At Coetzee, Executive Director of Claybrick.org, says, "The VSBK Project is a brilliant example of how local expertise can partner with international knowledge leaders to benefit an entire industry and country. The SA-VSBK team have invested a lot of time, money and energy on improving this technology to conform to South African conditions. This includes, refining the kiln design, improving process efficiencies and adding elements such as forced ventilation. The best technical minds have worked on this project for the betterment of the entire clay brick manufacturing and professional building industry. This will have lasting benefits for our members, their employees, the environment and our country for many decades to come, thereby enhancing the benefits of building with clay brick which is already proven to be the most sustainable building material for use in housing in the South African climate. "

The VSBK technology is an established technology, originally developed in China in the 1970's. Under the auspices of SDC, this technology has been significantly improved and re-pioneered in Nepal, Pakistan, Afghanistan, India and Vietnam. The SA-VSBK Project Team was put together to oversee the implementation of VSBK technology in South Africa and worked with stakeholders in South Africa, to make significant improvements to the VSBK designs implemented in other parts of the world. Langkloof Bricks, the pioneers of high-tech VSBK in South Africa, have used this work to construct the most state-of-the-art and technologically sound VSBK in the world.

"With South Africa hosting the International Climate Change Conference (COP 17) in Durban at the end of the year, projects such as the SA-VSBK Project are classic examples of how the private sector, with the backing of the Swiss Government, can significantly contribute towards reaching the South African National Climate Change Mitigation target of a 32% reduction by 2020. The endeavors of local industry, such as the brickmaking sector, to reduce emissions during manufacture will collectively have a larger impact on global climate change," concludes Hagnauer.

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ABOUT THE SA-VSBK PROJECT STAKEHOLDERS

The Swiss Agency for Development and Cooperation (SDC)

The Swiss Agency for Development and Cooperation (SDC) is Switzerland's international cooperation agency within the Federal Department of Foreign Affairs (FDFA). In operating with other federal offices concerned, SDC is responsible for the overall coordination of development activities and cooperation with Eastern Europe, as well as for the humanitarian aid delivered by the Swiss Confederation.

The goal of development and cooperation is that of reducing poverty. It is meant to foster economic self-reliance and state autonomy, to contribute to the improvement of production conditions, to help in finding solutions to environmental problems, and to provide better access to education and basic healthcare services.

About Swisscontact

As the development organisation of the Swiss private sector, Swisscontact, Swiss Foundation for Technical Development Cooperation, supports economic development in over 25 countries in Asia, Africa, Eastern Europe and Latin America. Founded in 1959, Swisscontact's focus areas are:

- Fostering vocational training and continuing education
- Supporting small and medium enterprise (SME)
- Reducing environmental impact

About Skat

Skat is an independent Swiss organisation working in the fields of technology development and transfer. Since 1978, Skat has provided technical expertise, management support, and training to bilateral and multilateral development agencies, and non-governmental organisations (and specifically to the VSBK project).

Langkloof Bricks

Langkloof Bricks is an established ClayBrick manufacturer situated between Jeffrey's Bay and Humansdorp. The company is owned by the Blake family who have been committed to the supply of quality clay brick products to the area for over 40 years. Langkloof Bricks was founded by the late Mr George Blake and Mrs Una Blake, who is still fully involved with the company. The day-to-day operations are managed by her two sons, Nico (Executive Director) and Pieter Blake (Production Director). In addition to pioneering the first energy efficient VSBK brick firing kilns in South Africa, Langkloof Bricks has also recently set up the Brick Centre, located in a high traffic area on the outskirts of Jeffreys Bay. This innovative outlet is designed to represent and sell products for all clay brick manufacturers in the area.

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