



environment-friendly

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The Clay Brick Association
of Southern Africa

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The Clay Brick Association represents the clay brick and paver manufacturers of Southern Africa. We research and advise our industry on energy-efficient, sustainable, inclusive production technologies. We inspire eco-friendly, contemporary brick architecture and educate South Africans on best practice in masonry construction and restoration.



SEE OUR NEW TECHNICAL NOTE
ACOUSTIC COMFORT



THE VOICE

NOVEMBER 2020

OF THE CLAY BRICK INDUSTRY



Hendrik van Dyk
President

I had the good fortune to travel with my wife from Mpumalanga to the Eastern and Western Cape by road, and took the opportunity to visit 15 CBA member factories. I have scheduled another trip to the this region during May 2021, to catch up with those members I didn't reach this time around.

I attended regional meetings in Port Elizabeth and Cape Town from 11 to 24 October 2020. I also attended the joint regional meetings for the northern provinces - Gauteng/ KZN and Mpumalanga/Limpopo in early October.

My impression is that all regions have higher-than-expected sales after the lockdown, to the extent that clay brick stock levels came under pressure for the first time in decades.

I am sure we all pray that this higher demand will be sustained in the months ahead while our nation's economy recovers. Visit our website to brush up on your clay brick benefits. Give your sales team all the facts to take advantage of a strong negotiating position!

During my one-on-one discussions I was reminded many times how the unique realities and experiences of each of our members influences what they need and want from the CBA. Each brick factory faces different challenges - clay, the production process, labour, customers, business structure and history. For some, just remaining financially viable is their most important focus. Others are already taking critical steps to improve their overall sustainability score, reduce waste and minimise carbon tax.

What is universally endorsed by EVERY member, is the huge value added by our Association's long term investment in promoting clay brick as the **best** building material.

The past few months have made most of us pretty despondent. Our road trip (and avoiding the news) has opened my eyes to the quality of people, infrastructure and resources in our country. We are world class! But most importantly we are a nation of winners, especially when all looks lost. Just ask the All Black and England rugby teams!

Learn from coach Rassie: 'Let the main thing STAY the main thing'. So let's produce more, better quality bricks and sell them at prices that will allow our businesses to thrive!





We make production processes highly efficient – with our efficient vacuum solutions.

**U
BUSCH
U**
VACUUM SOLUTIONS



NMMU - Algoa Brick



Imvisiswano Junior Primary School - Makana Brick



Sol Plaatjie University - Federale Stene & Corobrik

Built-in soundproofing with clay masonry walls

Working from home has shown us how poorly our homes are insulated from noise. We have never been so aware of loud neighbours, barking dogs, laughing children and how loudly our spouse talks on Zoom!

Home and business property owners take noise into account out of self-interest. But in learning environments funded by the public sector – where excessive noise is inevitable – sound insulation takes a back seat to cost and speed of construction.

Noise in classrooms directly interferes with concentration, reduces memory and knowledge retention and makes student-teacher communication difficult.

The World Health Organization advises that classroom noise levels should not exceed 35 decibels. A French study found that with every 10-decibel increase in noise, students' language and math scores decreased by 5.5 points.

Improving classroom acoustics is therefore critical to a proper teaching-learning process. This also affects educators, who don't need to push their voices beyond its natural range.

Airborne Noise

The noise performance of a building system is called the Weighted Sound Reduction Index (Rw). The higher the Rw the better the system is at isolating airborne noise. Airborne noise comes from common sound sources such as voices, TVs and traffic.

The greater the mass of the walling material, the less the vibration. This makes it more difficult to transfer sound from one room to the other. Due to their mass, clay brick walls perform particularly well in reducing airborne sounds.

Impact Noise

When the building shell itself is impacted, noise travels easily via walls, floors and concrete slabs. Multi-unit residential buildings with shared walls are particularly susceptible to this type of noise.

C and Ctr are correction factors used to modify the measured sound insulation, and they take into account mid- to high-frequency and low-frequency noise.

Clay brick - superior acoustic comfort

In their research report William Siekman of Riverbank Acoustical Laboratories found that the average double-leaf plastered clay brick wall cuts out over 50% of the noise from outside. Ambient noise of around 65db (moderate to loud) is reduced to less than 20db which is barely audible.

A double skin clay brick wall is therefore defined as a superior performer even without any additional insulation.

The density of ceramic clay brick provides an inherent resistance to the passage of airborne sound. It attenuates low-frequency, airborne noise caused by elevators, air-conditioning and plumbing, amplified music, traffic, banging doors and scraping furniture. Cavity walls have the added benefit of isolating and reducing impact sounds. Clay brick masonry also provides a textured surface that reduces sound reflection, resonance vibration and reverberation.

MEASURING SOUND

The sound insulation is expressed as a reduction factor in decibels (dB).

- 130dB+ Jet plane take-off, machine gun, riveting. Even a short exposure can cause hearing loss and permanent tinnitus.
- 100-120dB Hard rock band, thunder, siren at 50m. Threshold of pain.
- 80-100dB Pneumatic jack hammer, unmuffled truck, power lawnmower,. Threshold of discomfort
- 60-80dB Noisy office or home, average factory, average street noise. Intolerable for phone calls, difficult for conversations.
- 40-60dB Average office or home, quiet street. Difficult for phone calls. Loud speech can be heard intermittently.
- < 40 dB Private office, quiet home, library. Positive effect on focus and performance.

This important benefit of clay brick is drawing new attention! Download Technical Note #38 from the website and add it to your Clay Brick Fact File!



EcoMetrix Africa

Streamline your compliance process and minimise tax exposure with the Sustainability Portal, designed and developed by specialist partners EcoMetrix.

If you are not yet making use of the Sustainability Portal, call for a free demonstration and expert assessment.

- 011 4477-892
- team@epcam.co.za

Simplify your sustainability reporting!

The brick making sector in South Africa currently emits roughly 2.2 million tCO₂e per year (Sector Sustainability Report 2018). Monitoring and reporting must cover all industrial processes, including fugitive and combustion emissions.

CBA Members have been making good use of The Sustainability Portal to report GHG emissions. The Portal ensures that they meet all the many stringent requirements in terms of data quality. Companies were able to calculate accurately, and were aware of their tax obligations well in advance. The payment of carbon tax levies to SARS was due by the end of October 2020.

Reducing risk through data quality

"The online Sustainability Portal includes a GHG Reporting and Carbon Tax module to streamline regulatory compliance and minimise tax exposure for companies," says Lodewijk Nell of EcoMetrix.

"Ensuring data quality and correctly calculating the tax liability is crucial, as failure to comply with regulations or providing false or misleading information carries penalties of up to R5 million or 5 years imprisonment for a first conviction and up to R10 million or 10 years imprisonment for subsequent convictions."

While authorities might not enforce and apply these penalties during the first years of the tax, it is a stern warning to data providers and taxpayers.

The Current greenhouse gas (GHG) emissions reporting threshold is a combined capacity under operational control of four million bricks per month.

Amended National Reporting Regulations have **reduced this threshold** to one million bricks per month from ALL GHG sources.

The user-friendly, flexible dashboards are custom-designed for each producer's reporting and monitoring needs.

- Consumption and activity data can be captured across multiple sites and companies
- Measurable indicators for both direct and indirect GHG emissions and air pollutants.
- Missing data is flagged, there are out-of-bound warnings and based on this, values can be corrected.
- Tracking records a history of changes with comments.
- Supporting attachments can be added for auditability.
- GHG emission data is aligned to DEFF and SARS requirements
- Automatically aggregate your data and apply the appropriate IPCC code and technical factors.
- Calculate the correct basic allowance, trade exposure, tax-free emissions allowance and carbon tax offsets.
- Accurate, comparative data over time.

Correctly calculate tax liability

The carbon tax payable to SARS is based on the GHG Net Emission Equivalent calculations, as verified by DEFF. SARS will compare emissions reported to DEFF with the amounts used for calculation of the carbon tax payable. While a comparison is not possible for the first year (2019), SARS will require strict adherence to amounts reported in the GHG Report in subsequent years.

Data calculated must be complete, accurate and auditable, with measures to substantiate data collection. All data, reports, algorithms, systems and technical references used must be available for inspection and archived for five years.

SARS/DEFF may require data providers to verify and validate with supporting data and even undertake 3rd party validation and verification at their own cost.

The carbon tax rate is currently R120 per ton of carbon dioxide equivalent emissions (tCO₂e), increasing annually by inflation plus 2% until 2022, and annually by inflation thereafter.

For clay brick makers, a basic tax-free emissions allowance of 60% applies during this first phase, with a potential top-up of up to 5% performance allowance if the company outperforms the sector benchmark. Taxpayers can further reduce their carbon tax burden by buying Carbon Tax Offsets covering up to 5% of the gross total GHG emissions.

Promoting Inclusive Sustainable Practices in the South African Clay Brick Sector



Switch Africa Green
is funded by the
European Union



The Sustainability Project is executed jointly by Clay Brick Association of Southern Africa, EcoMetrix Africa (EMA) and Partners for Innovation.

B.3 Calculation of Net Emission Equivalent:
 $[E \times (1 - Z) - (D \times Z - M)] + [P \times (1 - Z)] + [F \times (1 - K)] = \text{Net Emission Equivalent (N)}.$

IPCC Code	E Total fuel combustion emissions	S Sequestered emissions	C Sum of allowances under sections 7, 8, 9, 12, and 13	D Petrol and diesel emissions	M Sum of allowances under sections 9, 12 and 13	P Total industrial process emissions	F Sum of allowances under sections 7, 8, 9, 12 and 13	Z	K	N Net Emission Equivalent
1A2m	5,115.00		545	0	545	0	0	0	0	7766.00
Total										7766.00

Note: If factor is insufficient, complete an emissions sheet.
 C. Determination of Environmental Levy payable
 C.3 Calculation of Gross Levy Payable

Total Net Emission Equivalent	7766.00
Multiply by Rate of Environmental Levy	120
Gross Levy Payable	931,920.00

The Carbon Tax module is automatically populated based on the information in the GHG Report module.

A special feature in this module is the selection of either the actual or default Net Calorific Value (NCV). By comparing actual vs default NCVs, tax liability can be optimised. If actual NCVs are selected, data must be supported by documentation such as lab analysis reports.

“Using the Sustainability Portal has allowed us to understand and optimise our reported and taxed emissions to avoid overpayment,” explains George Balambanos of Clyde Brickfields.

“The support we received from the EcoMetrix team was excellent,” says George.

The online Sustainability Portal is sponsored by the Switch Africa Green Project. We thank all our project sponsors, as well as EcoMetrix and Partners for Innovation for their support and advice over the past three years. This project would not have been possible without the ongoing commitment of CBA members to greater sustainability in the industry. At the end of the project, sustainability and carbon tax advice and downloads will continue to be available at www.claybrick.org.

Sustainability team visits Thohoyandou informal brick makers

Submitted by: Yster Maduana, Sustainability Desk Manager

Limpopo province – and particularly Thohoyandou in the Vhembe regional municipality – is well known for the quality of its clay and the manufacturing of clay bricks. The Switch team visited the region to collect data, and to share sustainable and clean production practices with local informal brick makers.

In the Vhembe region, over 90% of the informal clay brick manufacturers are foreign nationals residing in the country illegally, so they are reluctant to engage with authorities.

Clear understanding of land ownership and education especially among traditional leaders is proving to be an issue. Traditional leaders are giving authorisation for clay to be mined on land that they do not in fact own.

In terms of sustainability there are opportunities for better ground preparation, controlling water run-off, cutting back on burning local trees, improved clay mixes and more efficient kiln packing.



Mike Lusunzi (LEDET), Ramakonya SJ (LEDET), Idah Ngobeni (LEDET), Yster Maduana (CBA).

Through the Switch Africa Green project, the Limpopo government engaged with the CBA. They have agreed to investigate opportunities to support the informal clay brick makers. Initiatives that were identified include allocating an area that can be safely mined for clay, compliance with various mining licenses and permits and formalising a market where the informal sector can display and sell their products.

KEY SUSTAINABILITY ISSUES

The issues associated with the informal production of clay bricks across Limpopo echo those of other provinces.

- The area is close to the river and not suited to mining
- Mining endangers pollutes and endangers the riverine ecosystem.
- Wood is a poor fuel sources for firing. Clay bricks should be burned to 1000 °C but wood only achieves 600°C.
- Lack of manufacturing and business skills.



Informal clay brick production mostly takes place in rural areas, and tends to be a family business.

Meet the Queenstown clay brick sustainability champion!



CBA Executive Director Mariana Lamont first met with Sekela Mpekula and her mother on her 2018 visit to Queenstown. These sustainability champions have continued to work with the project over the past 2 years.

READ MORE ABOUT THE SWITCH AFRICA GREEN PROJECT ON OUR WEBSITE

Sekela Mpekula is a rising star in the small informal clay brick settlement in Queenstown in the Eastern Cape. Sekela is an accounting graduate born and raised in Queenstown. In 1998 her parents started the business of making clay bricks. Due to her passion for business and love for clay brick making she left her job as an auditor to work with her parents.

Mpekula's operation consists of a single clamp kiln which produces approximately 30 000 clay bricks. During the CBA's most recent visit to Queenstown, Mpekula's ambition as a business woman became much clearer. She is pursuing mining licenses and permits, investigating an extruder and seeking out land where she can mine clay without damaging the environment. All this is being done to formalize her business. It was further learned that her business is quite prominent in the area and the demand for her product far exceeds her production.

Through engagement and workshops, Mpekula and other informal clay brick makers in the region were taught how to improve the quality of their bricks, correct ground preparation and awareness of their impact on water, timber and other resources.



The challenges faced by Mpekula are no different to those faced by both formal and informal brick makers.

- improving ground preparation
- controlling water runoff
- being in a position to let the bricks dry longer before firing for consistency.
- better fuel sources and safe storage
- ensuring consistent clay mixes and standardised preparation methods
- improving moulding and kiln packing

Sekela Mpekula produces clay brick that has strength, quality and visual appeal.

Promoting Inclusive Sustainable Practices in the South African Clay Brick Sector



Switch Africa Green
is funded by the
European Union



Goedehoop Bricks was the winner of the Switch Africa Green Lucky Draw, selected from companies who completed the Sustainability survey implemented by Partners for Innovation.

Dewald Liebenberg accepted the prize – a R3000 Cape Union Mart voucher – from CBA's Sustainability Desk Manager, Yster Maduana.

THANK YOU! SWITCH Africa Green

SWITCH Africa Green is a programme developed and funded by the European Union and implemented by the United Nations Environment Programme (UNEP) in partnership with European Union delegations in participating countries.

Since 2014, SWITCH Africa Green has been supporting African countries in their transition towards sustainable development, supporting policymakers, business to make the switch to sustainable consumption and production practices that also generate growth, create decent jobs and reduce poverty.

The CBA's specific sub-project – Promoting Inclusive Sustainable Practices in the South African Clay Brick Sector – was initiated by the CBA in 2018.

This sustainability strategy is leading to cost-effective, fuel-efficient, resource-efficient production reducing damage to human health and the environment. The Switch Africa green project aims to support, promote, realize and stimulate informal brick making sustainable consumption and production,

More bricks at a lower cost

Vacuum solutions from Busch

In 2016 Busch Vacuum South Africa introduced a new technology for delivering vacuum in the clay brick industry. Today they have over 20 installations at small and large brick factories, with their units replacing traditional liquid ring vacuum pumps. The impact on production rates and savings for customers has been significant. Two customers - Federale Stene and Apollo Brick - relate their experience with the new technology.

The History of Busch

Busch Vacuum Solutions is a family-owned business that was founded in Germany in 1963. More than 57 years later, the Busch group is still managed and operated by its original owners, Dr and Mrs Busch, who are actively involved in the company's global operations. Today, the Busch group is present in 42 countries with 60 subsidiaries, positioning the company in the top ranks of original equipment manufacturers globally

The Busch group supplies the latest manufacturing machinery, techniques and solutions that may be used in every industry. Quality management procedures for the group exceeds ISO 9001 requirements – an assurance that all product certifications will meet clients' specific requirements. Busch globally offers the widest range of vacuum pumps and is a world leader in R&D spend and so is at the forefront of improving vacuum technology. Keeping pace with the move to remote automation, Busch vacuum systems are available with variable speed drives as well as all relevant sensors to ensure optimum vacuum levels are achieved or to pre-empt when services are needed.

Busch South Africa was established in 2007 as a direct subsidiary of the Busch Group, and is fully equipped to deliver high-quality vacuum technologies and provide expert advice to industries in Africa seeking solutions for a vast range of manufacturing applications. Busch offers free vacuum audits/checks to current or potential customers where they test your systems and assist with fault finding and improving your available vacuum. The company's head office is in Johannesburg, with branches in Cape Town, Durban and Accra Ghana. Maximise your productivity and savings - call today for a professional assessment from their experienced specialists.

CBA MEMBERS!

**20%
discount**

on any pump purchased
before year-end!

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info@busch.co.za

+27 11 856 0650



Federale Stene

"Federale Stene installed a Busch Vacuum Pump in January 2019. Since the installation, our brick wastage has been reduced by 2.5% and we have experienced an impressive reduction in extrusion electricity use - an average of 60 amps per hour.

"Our factory has also been able to produce clay bricks with better compressive strengths. I'd like to add that with this improvement, our factory is more environmentally friendly which is a major benefit for our company. The after sales service we have received from BUSCH employees has been immaculate."

Johan Humphries, General Manager

Apollo Brick

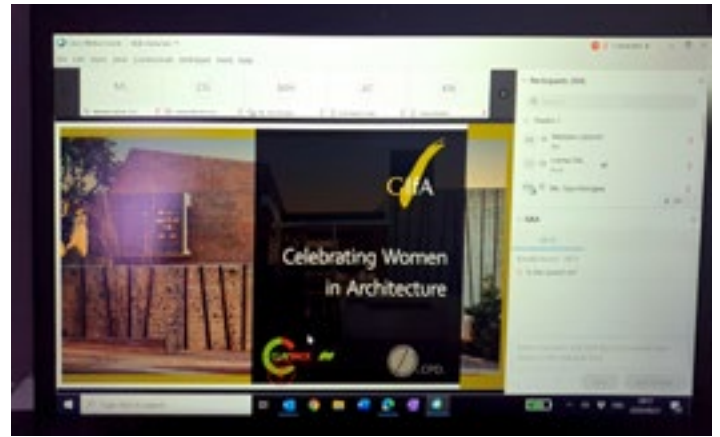
"Apollo Brick was the first clay brick manufacturer in South Africa to install the Busch Vacuum pumps in 2016. From the get-go the service from Busch was exceptional.

"The improvements in our business were immediate and we recorded a consistent 2 kPa better vacuum and on average a 2% reduction in waste on 10 million bricks per month. The system is more expensive than traditional liquid ring technology as these pumps are far higher spec, and they do require services by Busch technicians every 6 months. However, these costs are negligible compared to the reduced downtime, the energy savings of 15 kW per pump over the old motor size and the increase in green break strength."

Gerrie Nel, Production Manager



Promoting the CBA & clay brick to Gauteng Women in Architecture



Women in Architecture (WIA), in association with Gauteng Institute for Architecture (GIa) inspires change in the profession by honouring women in practise. The CBA sponsored August's "Celebrating Women in Architecture" webinar.

Timed to coincide with Woman's Month, the event acknowledges inspirational female leaders in architecture and related fields. There were presentations by top architects and professionals. Mariana Lamont led a 10 minute discussion about the CBA and its members to almost 200 architects.

Architects are a critical market for clay brick. If they believe clay brick is exciting and trendy, they will use it in their designs. Once clay brick has been specified, CBA members are likely to make a sale. Female architects often choose to work in the luxury residential housing sector.

Through the CBA's regular newsletters, our website and architectural publications, our marketing team continually provides architects with inspiration and new trends as well as information on green building and changing building regulations.

Year-end shutdown

The CBA offices will close on Friday 11 December 2020 and reopen on Monday 4 January 2021.

Thank you for your support of the CBA and its vision for a sustainable future. 2020 has been a tough year, and your continued commitment has been integral to CBA's progress.

AGM 2021

The 58th AGM will be hosted by the Eastern Cape region at Oubaai Hotel, Golf & Spa in George from 13 - 16 May 2021.

The AGM expands on the CBA's sustainability theme of **Today's Footprint, Tomorrow's Legacy**, focusing on water and ocean conservation.



Algoa Brick donates to Khayaletu Youth Centre

Algoa Brick has donated R50 000 for road paving to Khayaletu Youth Centre in Port Elizabeth. This hard-working organisation provides intervention programmes and alternative care for street children, specifically boys, between the ages of 8 and 18. They follow a holistic and developmental approach with the ultimate aim of re-socialisation as well as family re-unification.

In thanking Algoa Brick, Dr Marietjie van der Merwe reported: "Our paved road is such a blessing and is used every day. It makes our property look well maintained and we are looking forward to the next phase. Thank you to Algoa for being part of the growth and improvements of Khayaletu."



Algoa donates paving to Khayaletu Youth Centre in Port Elizabeth.



Federale continues to support NADA upgrade through 2020

Through Covid-19, Federale Stene has continued to support upgrades at NADA. Federale committed to a 20 000 sponsorship consignment of masonry bricks to the Recreational Hub for Nasaret Against Drugs and Alcohol (NADA).

The NADA Recreational Hub is aimed at providing a space for kids in Nasaret, Middelburg to hang out and interact with one another in a positive way.

These bricks are being used in the foundation and boundary walls around sports fields, that will provide healthy exercise and entertainment. NADA and Zero Tolerance to Drugs have joined together and are now part of Drug Free World South Africa.

Does your company have community and social involvement stories to share? Email your story and photographs to web@claybrick.org for the next issue!



Jeruselema is a gospel-influenced song by South African DJ and record producer Master KG, and features South African vocalist Nomcebo. The song has become the sound of the pandemic for millions across southern Africa when it was endorsed on Heritage day by President Cyril Ramaphosa as the #JeruselemaDanceChallenge.

“We reflect on the difficult journey we have all travelled; we remember those who have lost their lives and we quietly rejoice in the remarkable and diverse heritage of our nation,” the President said.

The team at Beta Bricks produced their own unique version of the inspiring song for the #JeruselemaDanceChallenge. https://youtu.be/ylz_e3d52P8i



Beta Bricks supported their local community with a generous donation of PPE safety gear to The Zvimba Rural District Council as well as Beta Bricks Primary School.

The CBA’s Northern & Western Cape road trip



Mine Manager Koos Harris, Berta Croucamp, Adrie Nel, Lana Stemmet and Namhla Shushu welcomed executive director Mariana Lamont to Namakwa Kleistene. The factory visit was a delightful stop on Mariana’s extensive road trip around the region.

“Namakwa is a smooth running clamp operation under hands-on owner Lana Stemmet and her team,” reports Mariana. “These hard-working ladies manage the entire process from production to final product.”

FACTORY VISITS

Nylstene

Modimolle, Limpopo



Algoa Brick

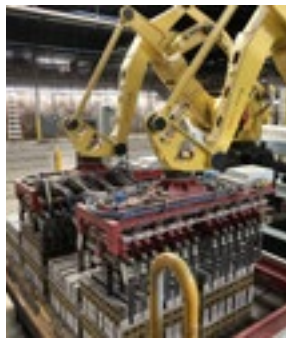
Swartkops, Port Elizabeth
Eastern Cape Regional Meeting



Vhavenda Bricks

Thohoyandou, Limpopo





Direxa Engineering is an EPC (Engineering, Procurement and Construction) company specializing in the ceramics and building materials industries.

Direxa designs and builds plants around stiff extrusion, soft extrusion or press technologies to produce a wide variety of heavy clay products such as facing bricks, thin bricks, pavers, hollow blocks, roof tiles, rain screens and other special products.

Direxa - global leader in the construction of manufacturing facilities for heavy clay products

Over the past 30 years, the team at Direxa has been directly involved with the construction of more than 35 clay brick and roof tile plants.



Direxa Engineering can handle projects of any size, from a small retrofit to a complete turn-key plant. Headquartered in Colorado, Direxa Engineering has subsidiaries in Australia and Brazil. They have successfully completed projects on 6 continents, and are set up to do business anywhere in the world.



Direxa is the worldwide leader for plant design with stiff extrusion technology: 90% of all the bricks made in the US are made by Direxa's parent company JC Steele, with 70% of these plants having been built by the team at Direxa.

The company also handles projects in fines agglomeration for the metallurgical and mining industries, as well as providing solutions for technical ceramics, specialty concrete products, refractories, gypsum, and fly ash.



Contact: Christophe Aubertot
Email: caubertot@direxa.com

Please support our CBA Associate Members!

Clay brick makers have benefited from the early return of the construction industry, together with reduced imports of foreign construction materials from the Far East. Our Associate Members have not been so fortunate! Some are operating in countries that are experiencing severe and ongoing Covid-19 outbreaks and serious economic consequences.

If you are considering any type of upgrade or repair at your facility, please contact CBA Associate Members first!



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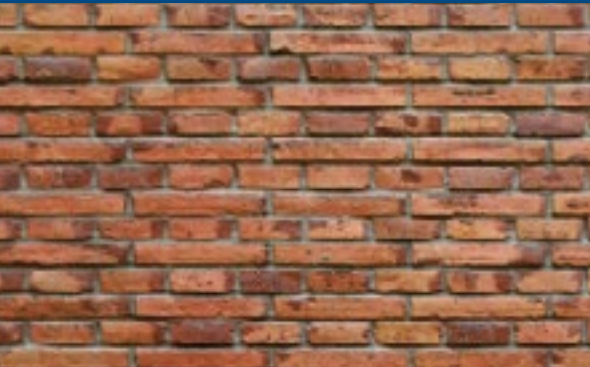
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Solution Provider

Direxa holds the view that the only way to a bright future for the Brick Industry in most countries, is through innovation. This means new appropriate innovative technology, tailored to the reality of each market.

With a dynamic team of engineers, we are well equipped and experienced to design, build, and retrofit plants for the Clay Product Industry and other Ceramic Industries.

We are able to customize and tackle any large or small project in the Clay Product Industry. Our job is to find the specific answer to the specific need of the customer. Contact us to discuss your next project today.

Designer and builder of complete plants for the Ceramic Industry



Represented in South Africa by:



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