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Journal of the African Cement and Concrete Industry

trends

African Edition



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A lost Roman city discovered

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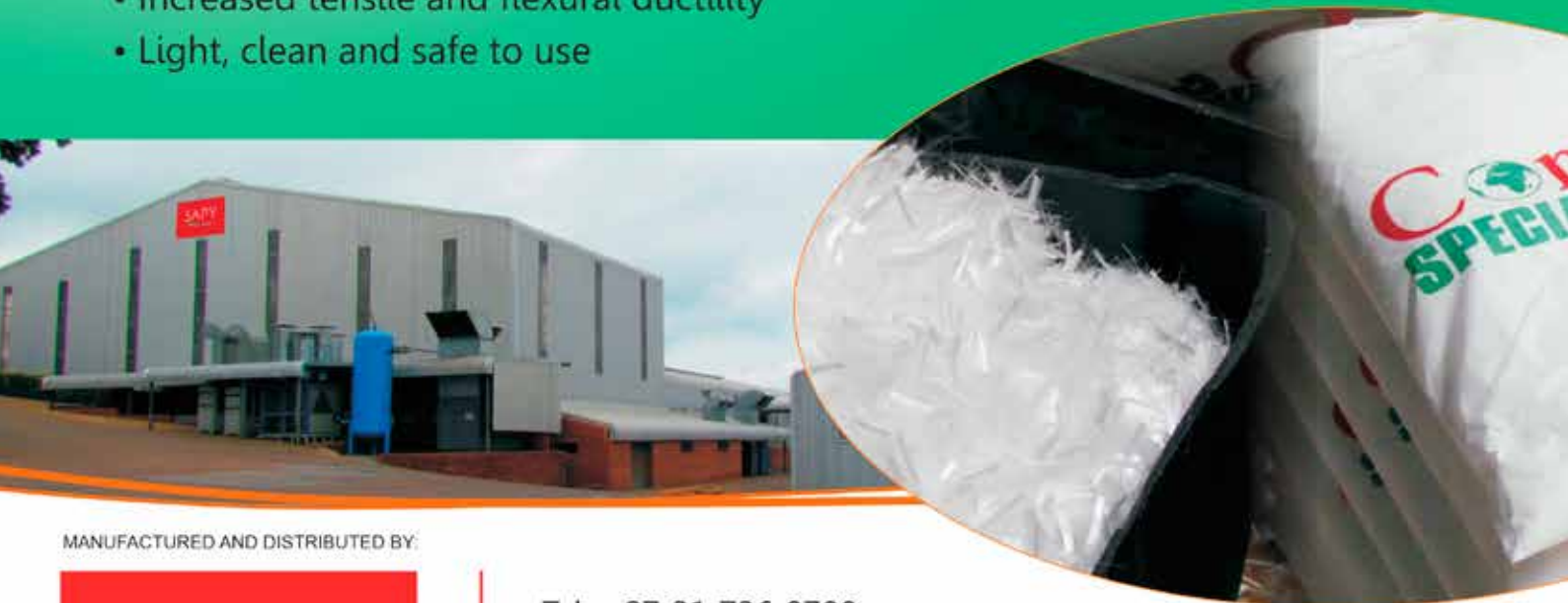
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CONCRETE trends

10 | COVER STORY



The FCB Horomill® is highly reliable, versatile and environmentally-friendly.

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Host publication of
Totally Construction East Africa



Laico Regency Hotel, Nairobi, Kenya
4 - 5 October 2016



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Concrete Trends is the official quarterly journal of the African Cement & Concrete Industry and is officially endorsed by



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ISSN 1560-2710

Africa's growth will come from Africans investing in Africa

During this year's World Economic Forum on Africa in Rwanda, African business-people repeated a shared sentiment: Africa is less risky now in terms of politics, trade and governance, and is offering rates of returns far more appealing than can be realised in developed economies.

While local and global investors are lured into Africa by the current peace and stability, sustained economic growth, a burgeoning youth population and a rising consumer class, investors from Africa lead the pack. Surprisingly, the greatest source of investment in African economies is not the USA or China, but actually South Africa.

Ernst and Young reports that intra-African investment into new projects has grown by 32.5% since 2007 – four times faster than investment flows from developed economies – and a joint publication by the Tony Elumelu Foundation and Brenthurst Foundation titled 'Africans Investing in Africa' reflects the diversity of sectors engaged in cross-border economic activity across the continent. It also emphasises the importance of Africans investing in the continent to build stronger diplomatic, political, and cultural ties.

Without this inter-regional trade, economic growth and shared prosperity are impossible. To achieve an environment that encourages Africans to invest in Africa, the obstacles that thwart private-sector investment must be eliminated. These include the limitations posed by hugely inadequate infrastructure, difficult access to finance and regulations that

make for a complicated and unwieldy business environment. By addressing these challenges, an enabling business environment can be created – one that makes inter-regional trade a pleasant and profitable experience.

The scale of the opportunities offered to the construction sector is apparent from estimates that Africa's infrastructure gap is US\$90 billion per annum and that infrastructure to support a city the size of London needs to be built in Africa each year till the year 2050.

The private sector has the most critical role to play in Africa's transformation, but global private capital goes where it is most welcome. African governments must therefore strive to create a business climate that is conducive to investment and both African and foreign investors should be encouraged to more actively explore opportunities on the continent.

It is this last that demonstrates the value of meetings which bring experts together to share their knowledge and experience. Totally Construction East Africa 2016 is such an event, offering an unprecedented opportunity to access the entire African cement and concrete ecosystem and enabling interactive networking with everyone involved in the region's construction industry.

I hope your participation in this event will be enjoyable, stimulating and, above all, profitable.

Gill Owens, Editor

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Three African renewable energy projects win the US\$7million Access Co-Development Facility Prize

Access Power, which is a developer, owner and operator of renewable power projects in many emerging markets, has announced the winners of the 2016 US\$7-million Access Co-Development Facility (ACF), a financial support mechanism for renewable energy projects in Africa.

Three projects, from Nigeria, Madagascar, and Sierra Leone, fought off very fierce competition from 96 entries coming out of 25 countries across Africa, to win a share of US\$7 million prize. The prize also includes a package of technical support designed to bring their renewable energy projects to fruition.

The winners are AGES PLC (25-MW solar project in Sierra Leone), Mentach Energy (50-MW wind project in Nigeria), and Stucky Ltd (25-MW hydro and solar project in Madagascar). Collectively, the projects will deliver 100 megawatts of electricity to 340,000 homes in their respective regions.

The winners were announced in London at the 18th Annual Africa Energy Forum, following a presentation by five shortlisted developers to a panel of expert judges. The judges selected the three winners based on commercial, technical and environmental merits, as well as the local regulatory environment, and the capability of the project team.



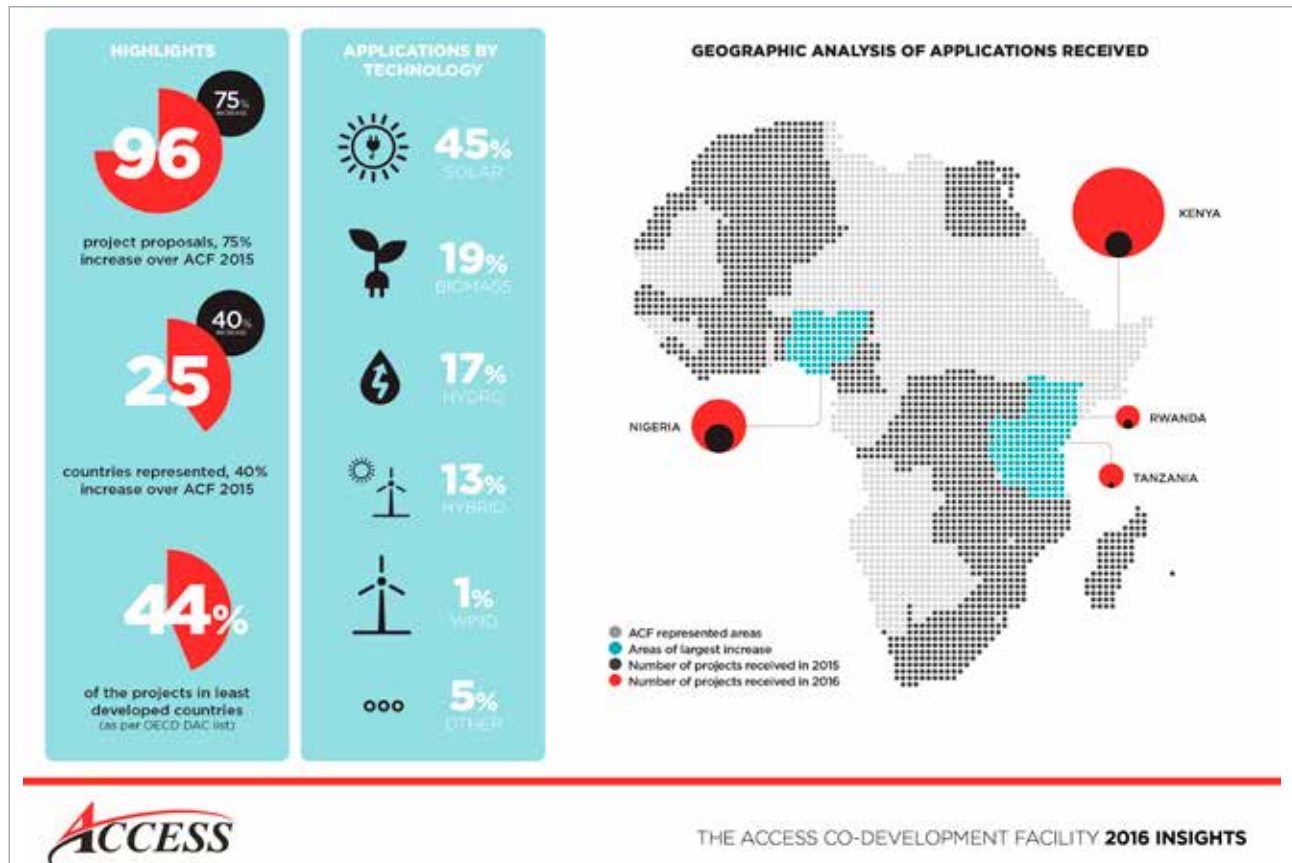
The winners: Ages (Sierra Leone): Albert Smith and Joachim Baumgaertner; Menatach (Nigeria): Rayan Kassis; Stucky (Madagascar): Antoine Dubas.

Reda El Chaar, executive chairman of Access Power said: "I am delighted to congratulate today's very deserving winners and we look forward to working with each of them to provide the technical skills, expertise and financing to get their projects across the finish line."

"There is still a massive, urgent need for electrification in Africa and we firmly believe that renewable energy will be a significant part of the solution. This year's ACF competition introduced us to almost 100 projects, demonstrating the scale of entrepreneurialism and ambition across the African continent to meet the electrification challenge."

ACF 2016 saw unprecedented participation with a 75% increase in applications from the inaugural ACF 2015. Submissions came from 25 different African countries, a 40% annual uplift in the number of countries involved, with 95% of the projects submitted coming from Sub-Saharan Africa, a key growth area for Access Power. ■

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CHRYSO Southern Africa adopts global standards

CHRYSO Southern Africa has just adopted the Global Harmonised System (GHS) making it the first construction chemicals company in South Africa to comply with an international attempt at standardising safety communication around chemicals.



Andries Marais, GM Operations of CHRYSO Southern Africa explains that the system, which was implemented by the United Nations, harmonises the classification and labelling of all chemical products.

This development demonstrates CHRYSO Southern Africa's strong commitment to health and safety. The GHS has already been adopted by the European Union with other countries expected to follow suit soon. This move will also boost the company's export drive into the rest of sub-Saharan Africa.

Andries Marais, GM: operations of CHRYSO Southern Africa says the company will now have a formidable competitive edge when doing business with international contractors and consulting engineers who are operating on the continent.

The system, implemented by the United Nations, harmonises the classification and labelling of all chemical products in a direct response to the challenges created by differing safety communication standards from one country to the next. Some states even have more than one standard for classifying and labelling chemical products, which restricts trade, increases costs and, at times, hampers compliance.

Marais says that the GHS will also improve and promote consistent hazardous information; encourage safe transport, handling and use of chemicals and promote better emergency response to chemical-related incidents.

CHRYSO Southern Africa will also communicate important product information on all of its material data sheets (MDS), over-and-above replacing all existing labels and transport classification signage and documentation requirements.

Marais describes the MDS as the "bible" of the GHS. "It is a very thorough document that details everything the consumer needs to know about our products," he says.

GHS is still voluntary in South Africa, but work is already under way by the relevant government bodies, including the Department of Trade & Industry, to make its adoption compulsory. ■

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World's most significant competition for sustainable design now open for entries

The 5th International LafargeHolcim Awards seeks leading projects of professionals as well as bold ideas from the Next Generation that present smart solutions for cities and the built environment.

The competition identifies the ideas with the highest potential to tackle today's challenges to increasing urbanisation and to improve quality of life. Projects and concepts from the fields of architecture, landscape architecture, urban design, planning, technology, and civil and materials engineering are eligible to be entered online at: www.lafargeholcim-awards.org

The competition's main category is open to architects, planners, engineers, students of related disciplines, project owners, builders and construction firms that showcase sustainable responses to technological, environmental, socioeconomic and cultural issues within contemporary building and construction. Projects must have reached an advanced stage of design, have a high probability of execution, and may not have started construction before July 4, 2016.

Participants up to the age of 30 years of age can also submit visionary concepts and bold ideas in the competition, irrespective of the probability of actual implementation of the project: the Next Generation category specifically seeks "blue-sky" solutions by students and young professionals.



The 5th International LafargeHolcim Awards competition closes for submissions on March 21, 2017. ■

More information at www.lafargeholcim-awards.org



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Sika establishes two African subsidiaries

Sika has established new national subsidiaries in Djibouti and Cameroon, taking its total number of subsidiaries on the African continent up to 18, and its global total to 97.

Djibouti is an important location for market access to the neighbouring country of Ethiopia, which is one of the largest markets in Africa. In addition to developing the local market, the subsidiary will supply Ethiopia's fast-growing construction market with admixtures to enhance their concrete.



BUILDING TRUST



The subsidiary established in the city of Douala in Cameroon will assume responsibility for the distribution of concrete admixtures and mortar products throughout the country and will continue to expand Sika's market share in Cameroon's flourishing construction market. Sika products have been marketed through distributors in the country for over ten years.

Cameroon's building industry is growing dynamically under the stimulus of investments in infrastructure and residential construction. Important projects include the expansion of the Kribi seaport in the south of the country, the extension of the country's rail network and the construction of stadiums for the 2019 African Cup of Nations. ■

Source: <http://goo.gl/opKtwk>

Japan pledges \$30 billion for Africa over next three years

Japanese Prime Minister Shinzo Abe told African leaders on 24 September that his country will commit \$30-billion in public and private support for infrastructure development, education and healthcare expansion in the continent.

Resource-poor Japan has long been interested in tapping Africa's vast natural resources, even more so since dependence on oil and natural gas imports jumped after the 2011 Fukushima nuclear disaster shut almost all of Japan's nuclear reactors.

Abe, in the Kenyan capital Nairobi to attend the sixth Tokyo International Conference on African Development (TICAD), said the package would be spread over three years from this year and include \$10-billion for infrastructure projects, to be executed through cooperation with the African Development Bank.



Japanese Prime Minister Shinzo Abe.

"When combined with investment from the private sector, I expect that the total will amount to \$30 billion. This is an investment that demonstrates our faith in Africa's future, an investment for Japan and Africa to grow together," he told a gathering of more than 30 heads of state and governments from across Africa.

The \$30 billion announced on Saturday is in addition to \$32 billion that Japan pledged to Africa over a five-year period at the last TICAD meeting in 2013. Abe said 67% of that had already been put to use in various projects.

"Today's new pledges will enhance and further expand upon those launched three years ago. The motive is quality and enhancement," he said.

One tranche of Japan's new package will go towards various power projects to increase production capacity by 2,200 MW across the continent, according to the Japanese Foreign Ministry.

Money will also be spent on training 20,000 mathematics and science teachers throughout Africa, as well as 20,000 experts on how to handle infectious diseases.

Chadian President and current African Union Chairman, Idriss Deby, urged Tokyo to also contribute to the African Fund Against Terrorism that was set up and established by the Kigali Summit, referring to the AU meeting held in Rwanda in July. ■

Source: <http://goo.gl/9Muabx>

China Wu Yi to construct housing materials plant in Kenya

A housing materials plant worth US\$98.7m is set to be constructed in Kenya by a Chinese firm, China Wu Yi, and will be completed in June 2017.

The new plant will be developed in Athi River and will manufacture precast materials that are expected to be sold to other construction firms in the region.

Chairman of the company, Qiu Liangxin confirmed the news and said that the mega project is expected to create a modern building industry base especially for research, manufacture, sale and demonstration of precast elements in Kenya.

"The development and emergence of prefabricated buildings is significant to the transformation of the construction industry as a whole with an advanced guarantee on construction quality and safety," Liangxin said.



He further pointed out that the company has been involved in various projects in the region and this will be their foremost building materials producer established overseas and that is why they are very eager to have it commence.

The new housing material plant will sit on a 30-acre piece of land in Athi River, off Mombasa Road and will comprise a precast element plant, a warehouse, display area and a construction material supermarket which will pioneer different materials from China, effectively making it a one-stop shop for building materials in the country. The supermarket is expected to stock stones, ceramic tiles, bathroom appliances, construction electrical fittings, lamps and kitchen furniture among other things.

The precast products will include solid wall panels, hollow-core slabs, sandwich wall panels, lift shafts, facade panels, staircases and foundation piles.

The Chinese firm, which is a multinational company, is constructing the factory through its locally incorporated subsidiary China Wu Yi Precast (Kenya) Company Limited.

It has also partnered with two German technology services providers, Ebawe Anlagetechnik to assist in the supply of equipment for the precast concrete production and Nemetschek to provide the software for the design of the housing elements. ■

Source: <http://goo.gl/w2Dohh>



Ghana set to construct a US\$1.2-bn recreation park

A new recreation park in Ghana that will cost US\$1.2bn is set for construction and a sod-cutting ceremony was held to mark the beginning of the development project.

The Accra Eco Park will be constructed in phases which are scheduled for completion in the next five and seven years. However, the first phase is projected to be completed within the next 24 months.

It is being undertaken by the Forestry Commission and its private partner, Aikan Capital Limited.

In a speech read on his behalf, President John Dramani Mahama said his government had decided to convert the Achimota Forest into a top-notch recreational facility and a key tourism destination in the West African region. This will also serve to discourage further encroachment and dumping of waste into the forest.

"This development will preserve the only green belt in Accra and allow the forest to continue functioning as a carbon sink and clean the air, while at the same time it will create jobs and business opportunities for the private sector," read the speech.

The mega development will comprise the construction of amusement parks, orchards, an arboretum, wildlife safaris, museums, eco-commercial enclaves and eco-lodges and will affect the natural vegetation as little as possible. It will also involve a spiritual enclave to cater for spiritual/worship activities that bring more than 180,000 people annually to the Achimota Forest. High seating capacity conference rooms are also set to be constructed outside the main forest area.

The new Accra Eco Park Project will target about 2% of all visitors to West Africa Sub-region, attracting more than 600,000 visitors to the park annually.

The lease agreement gives Aikan Capital the go ahead to design, build and operate the facility for 10 years. ■

Source: <http://goo.gl/uBYxKV>



Architects Registration Council of Ghana registers new Architects

The Architects Registration Council of Ghana has registered 43 newly-qualified Architects who were inducted onto the Standing Register of Architects permitted to work in Ghana.

The event was part of the 16th induction of the Architects Registration Council of Ghana that took place in Accra under a champion theme 'The Architect – A Vital Partner in Development'.

Turkson Stephen Leslie Bentum, Abbey Tei Mensah and Afram Maxwell Ofosuhen, who were among the inductees,



were awarded with the 1st Runner-up, 2nd Runner-up and Overall Winner prizes respectively for Best Performance in the qualifying examinations.

Inductees were urged to stand out in their field of endeavour and be relevant to society. To be able to make meaningful contributions to society, the inductees were advised to familiarise themselves with contemporary best practices in architecture and make public buildings accessible, safe and inclusive for persons with disabilities.

Arc. Joseph Hayford, the President of the Ghana Institute of Architects (GIA), observed that the Institute's reputation depends on each individual who strives for excellence in the service of clients, eschews corrupt practices and engages in ethical and truthful practice.

Arc. Henry Yartey, the Chairman of the Governing Board, advised the inductees to be guided by the Vision of ARC to be a regulator of world-class standards for professionalism in architectural practice as well as its Mission of promoting the practice of architecture, protecting the public by ensuring quality and sound professional conduct, education and practice. ■

Source: <http://goo.gl/9HqnSI>

NSE launches highways arm, urges maintenance culture

To address the problem of road transport infrastructure in the country, the Nigerian Society of Engineers (NSE), Lagos chapter, has formally inaugurated a new body, Nigerian Institution of Highways and Transportation Engineering (NIHTE).

Speaking at the launch at the University of Lagos, the MD of Delran Nigerian Company, Adenuga Opanuga, an engineer, noted that for effective highway reform, policy formulation must involve all stakeholders at all levels.

Citing his experiences while in public service, Opanuga said politics sometimes took pre-eminence over professional advice and competence. He noted that many urban roads are badly constructed and not maintained, with allocated funds being mismanaged.

In addition, factors affecting highway management included inconsistency of government policy, indiscipline exhibited by truck drivers, lack of adequate resources and manpower, the increase in traffic and heavily-loaded trucks without a corresponding road network.

"With these litany of causes, one would recommend regular assessment of our highways, with missions and objectives of planning, design and construction departments properly analysed to determine their roles in achieving a common goal of good and safe highways for the people of Nigeria," he advised.



He said delays in maintenance would result not only in expensive reconstruction and rehabilitation, but would also have an adverse effect on national development.

In his acceptance speech, the Chairman of the newly inaugurated Lagos Chapter NIHTE, Dr. Adeoye Olowofoyeku, reiterated the determination of his team to ensure that the objectives of the NIHTE to plan, design, build, operate and maintain a best-in-class transport system and infrastructure are achieved. ■

Source: <http://goo.gl/Z0tmLs>

VIHY Masterflex

The VIHY Masterflex machine is an allround machine for the production of concrete pipes as well as concrete manholes.



The VIHY Masterflex machine offers following benefits:

- The renowned VIHY core vibration with oil-lubricated bearings and its precision built quality allow for unmatched performance and highest product quality – in even very adverse production environments.
- The machine demoulds the concrete product within the machine. This eliminates the need for an overhead crane in the building and the machine operation can take place in basically any kind of building. This minimizes the total investment in the plant compared to other installations.
- The machine is designed to run full-automatic. This allows the machine operator to perform other operations around the machine during the production cycle – giving a very lean manufacturing process.

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With FCB Horomill®, grind your cement without a drop of water

By Loïc Pottier, Area Sales Manager, Fives FCB

FCB Horomill® was introduced to the cement industry for the first time in 1993.

It was at that time making a decisive breakthrough in grinding and processing technology, in achieving smooth integral cement grinding with the lowest energy consumption when compared to the roller presses – which were then considered to be the solution to reducing grinding energy requirements – and operating at lower pressures as well as with lower mechanical stresses.

Over sixty FCB Horomills® have been sold to date, for cement grinding and also for raw meal or slag grinding. Whatever the application, the same type of machine is used, thus proving the extreme versatility of this technology.

FCB Horomill® is nowadays operated worldwide by most of the major cement manufacturers:

- Buzzi Unicem, which has actively participated in the development of the mill, owns 19 machines. Its prototype FCB Horomill® 2200 is still producing cement in the Trino plant (Italy). The company now operates FCB Horomill® technology in Cementos Moctezuma plants (Mexico) and in Maryneal, Texas (USA).
- Holcim Brasil SA has purchased and installed one FCB Horomill® 4400, the biggest size ever built, for the Barroso plant in Brazil. This has a production capacity of 420 t/h of raw meal.
- Cemex and Vicat are using FCB Horomill® for cement production in Panama and Turkey.
- Lafarge Republic Inc. has recently commissioned two cement grinding workshops at its Teresa and Norzagaray plants in the Philippines.

Regional players also benefit from FCB Horomill® advantages. These include Jingye and Rizhao Jingua (China), Vinaconex and Vinaincon (Vietnam) and Denizli Cimento in Turkey.



Twin-FCB Horomill® in Thai Nguen plant (Vinaincon, Vietnam).

Low energy consumption and consistently high-quality products

Without again presenting and discussing all the basic principles of FCB Horomill®, let us just highlight, in addition to the bed compression grinding technology that makes de facto FCB Horomill® efficient, the other advantages linked to its specific process and innovative design that enhance its benefits for end users:

- With a small quantity of material circulating in the circuit (there are about 10 tons of material for a FCB Horomill® 3800 standard workshop), rapid and frequent changes of product types are possible within very short period (5 minutes) and without the need of a purge bin to deal with intermediate production grades.
- Thanks to the material centrifugation onto the shell rotating over critical speed, combined with a large grinding contact area, FCB Horomill® is a stable machine that enables achieving fine cement grinding without the need of any process water spraying.
- FCB Horomill® is not air swept, only dedusted, and the ventilation is only needed for the selection circuit. The gas circuit is then 100% devoted to the classifier operation with relevant cooling or drying effects. Consequently, this leads to huge energy savings in electrical consumption for the fan compared to plants that use vertical roller mills.

Thus, the energy consumed by the grinding workshop is low, and a high cement quality can be produced.

FCB Horomill® leads to substantial energy savings, more importantly with harder to grind materials, such as slag cement or pure slag. It is true not only compared to the conventional ball mill technology, with 30 to 50% saving for the whole plant,



FCB Horomill® in Hermosillo plant (Holcim-Aspasco, Mexico).

but also compared to the other bed compression grinding technologies, with 15 to 30% savings since the ventilation circuit is sized only for classification, and not for the material transport. In addition, it has been measured that strength developments and values are similar to those obtained with ball mill cement, and even with a lower specific surface area! It also applies for both mortar and concrete and for any cement type.

Various cement types meeting all quality targets are produced very steadily thanks to FCB Horomill® process stability and FCB TSV™ Classifier's proven efficiency. Some plants process various types of products using the same FCB Horomill®, taking advantage of its flexibility and versatility, with three to four daily changes of the recipe, depending on production and sales needs (Karsdorf, Germany). And as is the case for standard daily operation, along with modifications of cement compositions, every adjustment of process parameters, and the selection of the cement silo can even be fully automated (Trino, Italy).

Easy management of moist materials

Because FCB Horomill® is not air-swept, the drying function is ensured in the selection gas loop, mainly in the rising duct below FCB TSV™ Classifier. Since dried and hot after classification, external material the classifier rejects constituting the circulation act as a dilution for moisture, which facilitates material handling in case of raw mix, but also enables minimising the moisture content into the mill. The design and equipment of the grinding plant and of its drying arrangement is selected by Fives FCB according to the type of material to be dried, its grain size and moisture content.

It is important to note that FCB Horomill® also gets rid of two major inconveniences: high venting speed and material moisture (efficient drying and no water spraying) that ensure the lowest operating wear rate (typically from 0.2 to 0.7 grams/ton). Drying is done by feeding the moist material into the riser.

This moist material can be either some wet fine additive component that is used in cement, such as:

- Pozzolana in the Tepetzingo plant, Mexico, representing 15% of the composition up to 24% moisture in the wet season.
- Blastfurnace slag in Karsdorf plant, Germany, up to 100% of pure slag feeding at 10% moisture or as a part of the mill outlet in the case of moist-blended cement mixes of up to 10% moisture content or raw material grinding.
- Raw mix in Tepetzingo plant, 9% moisture (230 t/h dry minimum), 20 to 50% of bucket elevator outlet is devoted to the flash dryer

Whereas the fine particles are dried during their gas lifting to the classifier, the coarsest particles are mechanically fed back either to the classifier top feeding via the bucket elevator, or to FCB Horomill® via the classifier reject belt.

An even improved drying efficiency is obtained by the use of an aerodecantor.

Total feed moisture reaching up to 10% has been successfully practised in industrial plants. Trials undertaken at a representative test rig scale in the Fives FCB Research & Testing Centre indicated that it would be possible to reach 20% moisture without any difficulty.

Operation stability in association with a very high-efficiency classifier

The stability of FCB Horomill® combined with the very efficient FCB TSV™ Classifier is also a major advantage for the production of even finer cement, a target which seems today be shared by all cement producers.

While the vertical mill needs significant water addition to avoid rollers dipping through the materials bed, FCB Horomill® can keep the finished product dry. In trials carried out in the Fives FCB Research & Testing Centre and adequate classifying condition, high fineness has been reached with CEM I at more than 7000 cm²/g.

The operation is fully automatic, without intervention of the CCR operator, after pushing the start button. Thus, automatic changes to the cement composition, the adjustment of plant parameters and the selection of the target silo have even been successfully implemented in some plants, enabling overnight and week-end operation without the need for supervision.

A reliable machine

The design of the FCB Horomill® was a challenge for process aspects as well as for mechanical solutions, even if the basics were adapted from proven technologies. To date, many improvements have been introduced, making the technique mature and giving FCB Horomill® a high level of reliability. Today innovation is ongoing in order to meet the evolving needs of the cement industry.

FCB Horomill® is the latest innovation in comminution technology, with a different design allowing for a compact installation footprint with flexible, automatic, reliable and stable production.

With more than sixty machines in operation for cement, slag, raw materials and minerals, FCB Horomill® has demonstrated the expected energy efficiency and versatility.

FCB Horomill®, adapted to the coming challenges of the market, is the ideal answer to sustainability expectations such as C/K ratio increase, and water savings. ■

**More information from Loïc Pottier, Tel: +33 3 20 43 75 85
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FCB Horomill® in Barroso plant (Holcim, Brazil).



FCB Horomill® in Teresa plant (Lafarge Republic Inc., Philippines).

Loesche technology chosen for cement plant in Angola

Sinoma International chose Loesche's complete grinding series of equipment when they were building the new cement plant for Nova Cimangola S.A. in Luanda, Angola. This installation will constitute the first Loesche vertical roller mills in Angola.

The order for Nova Cimangola S.A. includes one cement raw material mill of the type LM 48.4 with a capacity of 400 tons per hour and two cement mills of the type LM 46.2+2 C/S, each of which is designed to have a capacity of 150 tons of cement per hour. In addition, a Loesche coal mill of the type LM 24.20 DC completes the order for the well-established, reputable and reliable Loesche vertical roller mills.

Further equipment like rotary star feeders, metal detectors, the engineering for the cyclones, classifier motors and the control system are also in Loesche's scope of supply, as well as a two-year operation and spare parts contract.

More than 310 Loesche cement mills have already been sold throughout the world for the production of a wide spectrum of cement types. Loesche's experience in grinding technology, with the added advantage of a Low Specific Energy Consumption, have convinced many customers to decide in favour of purchasing the vertical roller mill from Loesche Germany.

At Nova Cimangola S.A. the coal mill and the cement raw material mill are scheduled to start operation in mid-2016, the cement mills will follow with a production start by the end of this year. ■

**More information from Loesche South Africa,
Tel: +27(0) 11 482 2933 / email: umeyer@loeschesa.co.za
www.loesche.com**

About Loesche

Loesche is an owner-managed, export-oriented company, which was founded in Berlin in 1906. Today, the company operates from its head office in Düsseldorf and has subsidiaries, representatives and agencies around the world.

In 1928 that Loesche built the first spring-loaded air-flow mills, which even today are still known as Loesche mills. Nowadays, Loesche vertical mills form the core of many plants used to dry-grind coal, cement raw materials, granulated slag, industrial minerals and ores.

Thanks to its grinding plants with throughputs of 2 to 300 t/h for the cement industry and self-inert, central coal-grinding plants for hard and brown coal power stations, Loesche is the global market leader for vertical mills and turnkey grinding mills.

Loesche supplies turnkey plants, which are individually planned and built for the required process steps. This includes plants for processing, material storage, transportation and delivery, vertical mills, hot-gas generators, filter and separator systems, complete automation technology, plants for all aspects of construction above and below ground, steel construction and piping systems.

The company has EN ISO 9001 certification and the grinding plants themselves are compliant with national and international safety regulations.

At present, around 330 people are employed at the company's head office in Düsseldorf, with around 600 employed worldwide.



A Loesche cement mill like this LM 46.2+2 in Duisburg, Germany, was installed in the Nova Cimangola factory in Luanda.

1906 – 2016 110 YEARS INNOVATIVE ENGINEERING



Since 1906, Loesche GmbH has been constructing vertical roller grinding mills. Patented in 1928, the roller grinding mill technology has been continually advanced and in the meantime is synonymous with Loesche GmbH.

The new year 2016 will be a very special one – celebrating 110 years of Loesche's innovative engineering and Loesche mills around the world !



For more information please refer to:
www.loesche.com.

LOESCHE 

Loesche designs vertical roller mills, plans and delivers individual equipment, complete grinding preparation and drying plants as well as turn-key plant units.

Loesche GmbH is a privately owned company certified according to DIN EN ISO 9001. Founded 1906 in Berlin, Germany.

Associated companies:

- Loesche Latinoamericana S.A., Madrid, Spain
- Loesche South Africa (Pty.) Ltd., Parktown, South Africa
- Loesche America Inc., Florida, USA
- Loesche INDIA (Pvt.) Ltd., New Delhi, India
- Loesche Mills (Shanghai) Co. Ltd., Shanghai, R.O.C.
- Loesche Energy Systems Ltd., Horsham, UK
- Loesche Middle East FZE, Dubai, UAE
- Loesche Equipamentos Ltda., Rio de Janeiro, Brazil
- Loesche OOO Moscow, Russia
- PT. Loesche Indonesia, Jakarta, Indonesia
- Loesche Nigeria Limited, Lagos, Nigeria
- Loesche Automatisierungstechnik GmbH, Lünen, Germany
- Representatives and agents worldwide

Loesche Service

Loesche guarantees investment confidence through:

Pre-Sales Service

- detailed demand and market analysis
- reality based scaled-down grinding tests
- competence and experience
- innovative equipment and production plants concepts
- transparent production process
- process and operational safety
- environment friendliness

Loesche quality is guaranteed through:

Quality – turn-key

- tailor-made grinding preparation and drying plants
- from the planning to the commissioning quality assurance to DIN EN ISO 9001
- individual solutions with proven standard modules
- construction of complete turn-key plants

The operation of Loesche plants is guaranteed through:

Guaranteed Reliability

- our Customer Service ensures your competitiveness of the equipment and plants
- the safe functioning of the supplied

equipment and plants

- the production rate and the power consumption of the supplied equipment and plants
- the quality of the ground product
- the supply of spare parts for 20 years
- guidance and continuous information about new developments for our customers and partners through our Customer Service

Loesche Manufacturing Program

For the cement industry:

- Cement raw material grinding plants with 2, 3, 4 and 6 grinding roller mills for a capacity up to 1,800 t/h of cement raw meal and drive motors up to 9,600 kW
- Grinding plants for cement clinker and blast furnace slag up to 550 t/h with fineness up to 7,000 Blaine

For the power, iron & steel and cement industries:

- Dry grinding plants for a capacity up to 200 t/h, grinding a wide range of coals varying from steam coal, bituminous-, anthracite-, lignite and predried lignite coal

For the industrial minerals industry:

- Dry-grinding plants for baryte, bentonite, quick lime, colemanite, dolomite, gypsum, graphite, feld spar, limestone, kaoline, magnesite, manganese ore, phosphate, titanium slag and titanium dioxide etc.

For the processing of iron and non-ferrous ores, as well as chalk:

- Grinding plants with Loesche grinding mills for the processing of minerals and ferrous and non-ferrous ores

For the production of hot gases:

- Hot gas producers with an outlet temperature of up to 1,000 °C which can be operated using traditional heating media and low-calorific gases

Feeders:

- Triple gate feeder
- Rotary valve feeder
- Screw feeder

Classifiers:

- High efficiency dynamic classifier
- Static classifier for the production of coarse products
- Rotary classifier with or without central material feed

Since 1906, Loesche GmbH has been constructing vertical roller grinding mills. Patented in 1928, our roller grinding mill technology has been continually advanced and in the meantime is synonymous with Loesche GmbH.



The key competence of the company is the design and development of individual concepts for grinding and drying plants for the cement, steel and iron, power, ores and minerals industry. The service portfolio ranges from first concept to commissioning augmented by maintenance, repair, training as well as modernization of grinding plants and spare parts activities. After the acquisition of ETIG – Elektronische Industrie Automatisierungs GmbH in 2008, Loesche GmbH, Düsseldorf, founded Loesche Automation GmbH (now Loesche Automatisierungstechnik GmbH)

In April 2012, Loesche GmbH, Germany, has entered into a close cooperation agreement with pyroprocess specialist A TEC Holding GmbH, Austria. Loesche and A TEC will be partners for the realisation of plant improvement projects, environmental projects and will be in the position to offer complete process solutions.

Loesche is a privately owned company with its headquarter located in Dusseldorf, Germany and is represented worldwide with more than 800 employees, subsidiaries in the USA, Brazil, Spain, Great Britain, South Africa, India, United Arab Emirates, Russia, P.R. China, Indonesia and Nigeria, as well as agents in more than 30 countries.

For more information please refer to: www.loesche.com

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Work of Africa's top green architect more relevant than ever

Sustainability concerns have made the iconic Eastgate Shopping Mall in Harare, Zimbabwe, designed by Mick Pearce and opened in 1996, more relevant than ever. At the Architectural Association of Kenya Annual Convention 2016 in August, Eastgate's cooling system, said to be the first in the world to take natural cooling technology to a new level of sophistication, was again in the spotlight.



Mick Pearce, designer of Eastgate Centre, specialises in low-cost, low-maintenance and low environmental impact buildings.

Mick Pearce described inspiration behind the design saying: "In 1984, I met Bill Mollison who is considered the father of permaculture, a system that encompasses not only agriculture, horticulture, architecture, and ecology, but also economic and legal systems for businesses and communities.

"It uses social design principles centred on simulating or directly utilising the patterns and features observed in the natural world. I thought we could do with what I called 'perma-architecture' and build a city that acts like a rainforest.

"And I studied a video by British naturalist David Attenborough who once got inside a termite mound and described how cool it was during the hottest part of the day," Pearce explained.

"Eastgate is modelled on the way termites construct their nest to ventilate – cooling and heating it through natural means."

Asked whether it was true he had also learnt a few things from dogs, He replied: "Oh, yes. On a hot day a dog will lie down on a concrete verandah to cool off. When the spot gets hot due to heat transfer, it will move to another spot on the concrete floor. Imagine; a dog knows about thermal mass and heat transfer. So if we find a way of blowing cool air to concrete to cool off a building, then we do away with mechanical air conditioners."

Eastgate Centre's design is a deliberate move away from the 'big glass office block' which is expensive to maintain at a comfortable temperature, needing substantial heating in winter and cooling in summer. Artificial air-conditioning systems are high-maintenance, and in Zimbabwe would have to be imported, squandering foreign exchange reserves.

Mick Pearce, the architect, therefore took an alternative approach. Because of its altitude, Harare has a temperate climate, and the typical daily temperature swing is 10 to 14°C, making a mechanical or passive cooling system a viable alternative to artificial air-conditioning.

Passive cooling works by storing heat in the day and venting it at night as temperatures drop.

- Start of day: the building is cool.
- During day: machines and people generate heat, and the

sun shines. Heat is absorbed by the fabric of the building, which has a high heat capacity, so that the temperature inside increases but not greatly.

- Evening: temperatures outside drop. The warm internal air is vented through chimneys, assisted by fans but also rising naturally because it is less dense, and drawing in denser cool air at the bottom of the building.
- Night: this process continues; cold air flowing through cavities in the floor slabs until the building's fabric has reached the ideal temperature to start the next day.

Passively cooled, Eastgate uses only 10% of the energy needed by a similar conventionally cooled building.

To work well, the building must be carefully designed. After computer simulation and analysis, Ove Arup, gave Pearce a set of rules for design.

No direct sunlight must fall on the external walls and the north façade's window-to-wall area must not exceed 25%. There was to be a balance between artificial and external light to minimise energy consumption and heat gain. All windows must be sealed against noise pollution and unpredictable wind pressures and temperatures, relying on ducted ventilation. Windows must be light filters, controlling glare, noise and security.



The Eastgate Centre's passive cooling system was inspired by the way termite mounds stay cool.

Windows therefore have adjustable blinds, but Pearce also used deep overhangs to keep direct sun off windows and walls. Deep eaves are traditional in Africa, shading the walls from the high summer sun, while allowing the lower winter sun to warm the building.

Passive cooling systems are particularly appropriate for Africa because, long before humans thought of it passive cooling was used by termites. Termite mounds include flues which vent through the top and sides, and the mound itself is designed to catch the breeze. As the wind blows, hot air from the main chambers below ground is drawn out of the structure, helped by termites opening or blocking tunnels to control air flow.

Pearce's practice is in Harare, and he specialises in buildings which are low cost, low maintenance, and have low environmental impact. His projects try to make best use of locally available resources, and include Harare International School Arts Centre, Harare Hindoo Temple and Chinhoyi Provincial Hospital, Zimbabwe. His work has won a number of awards. ■

Sources: <http://goo.gl/FDsa86> / <http://goo.gl/a1fAHg>

Perforated concrete market is like a massive jewel box

A new shopping centre in Addis Ababa takes its cues from Africa's largest open-air market, **Lauren Ro** explains.



A behemoth new concrete market has risen in Addis Ababa, Ethiopia, and it manages to be both imposing and ethereal. Designed by Barcelona-based firm Vilalta Arquitectura and set to open this summer, the Lideta Mercato was originally intended to be a traditional shopping mall. But extensive research showed that the city's climate made existing malls too hot.

Instead, the architects decided to design a multi-storey building inspired by the city's Old Mercato (considered to be Africa's largest open-air market). The result is a structure built from lightweight prefabricated concrete whose 'skin' is perforated with squares taken from Ethiopian fractal patterns found in local fabrics, and small colourful, diamond-like translucent holes.

"A behemoth new concrete market has risen in Addis Ababa, Ethiopia, and it manages to be both imposing and ethereal."

This allows for passive ventilation and sun to flow throughout the space, creating a jewelbox-like effect of light and shadows. A diagonal, carved passageway connecting two entrances on opposite sides of the market, and an 'inclined' atrium with a spiral-like staircase pierces through all the floors of the all-white interior create additional opportunities for air flow and a feeling of openness.

To address the unreliability of power sources in the city, the architects installed solar panel umbrellas on the rooftop, where a rainwater collection system also resides. The water is stored in basement tanks, where it undergoes filtration and is reused for the building's toilets and faucets. ■



All photos by Gonzalo Guajardo via ArchDaily

Source: <http://goo.gl/Vr40hH>

TOTALLY CONCRETE EXPO

Totally Concrete Expo post event review 2016
9 - 11 May 2016 | Gallagher Convention Centre, Johannesburg, South Africa

Where the world meets Africa's concrete and cement industries in 2016

The 4th annual Totally Concrete Expo that took place on 9 - 11 May 2016 in Johannesburg, was an unique gateway into doing construction business across the continent's high growth and high risk markets in 2016 and beyond. The subcontinent requires 40 million tonnes of new cement capacity alone in order to meet rising urbanisation and growth rates with the region's population forecast to grow from 1.1 billion people in 2013 to 2.4 billion by 2050.

Both industry titans and new entrants into the local marketplace found value in the Totally Concrete Expo experience because the platform provided an outlet for construction business development alongside practical insight into managing daily operations in the African context. The event united the world's leading pioneers of concrete, bringing together African and international expertise with more than 80 world-renowned expert speakers across eight co-located events that shared their expertise into new insights and aspects of concrete. Supported by more than 80 industry partners and with participation from more than 180 exhibiting companies, the Totally Concrete Expo is the only all-things cement and concrete event in Africa that provides

the entire industry ecosystem with the tools and solutions to navigate Africa's high growth markets and ensure ROI on projects of all sizes.

The 2017 edition of Totally Concrete Expo is Africa's MEGA cement and concrete show that you cannot afford to miss! ■



Soren Du Preez
Programme Director
Totally Concrete Expo



Totally Concrete Expo is the African MEGA cement and concrete show that you have to be a part of! Don't just take our word for it:

"Well done to you and the Hypencia team on organising such a successful show, and thank you once again for looking after the Concrete Society in such a special way."

John Sheath, CEO, Concrete Society of Southern Africa, South Africa

"I do believe that this exposure for Sephaku will have benefits for us, so thank you for the invite and the opportunity... I do believe that the main focus was both relevant and critical to the South African and African economies at this point in time."

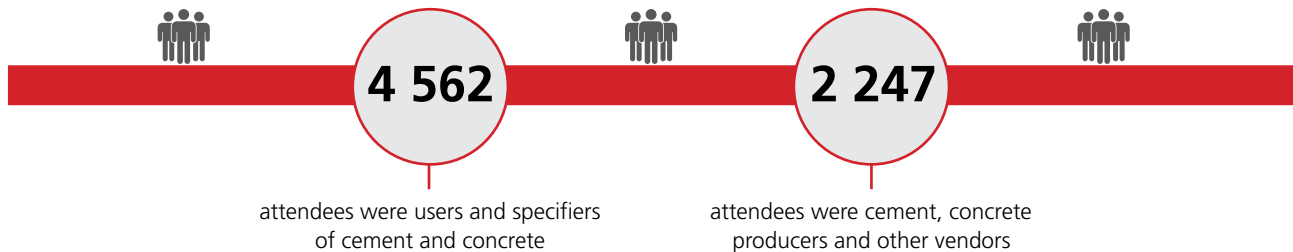
Steve Swanepoel, General Manager: Sales and Technical Support, Sephaku, South Africa



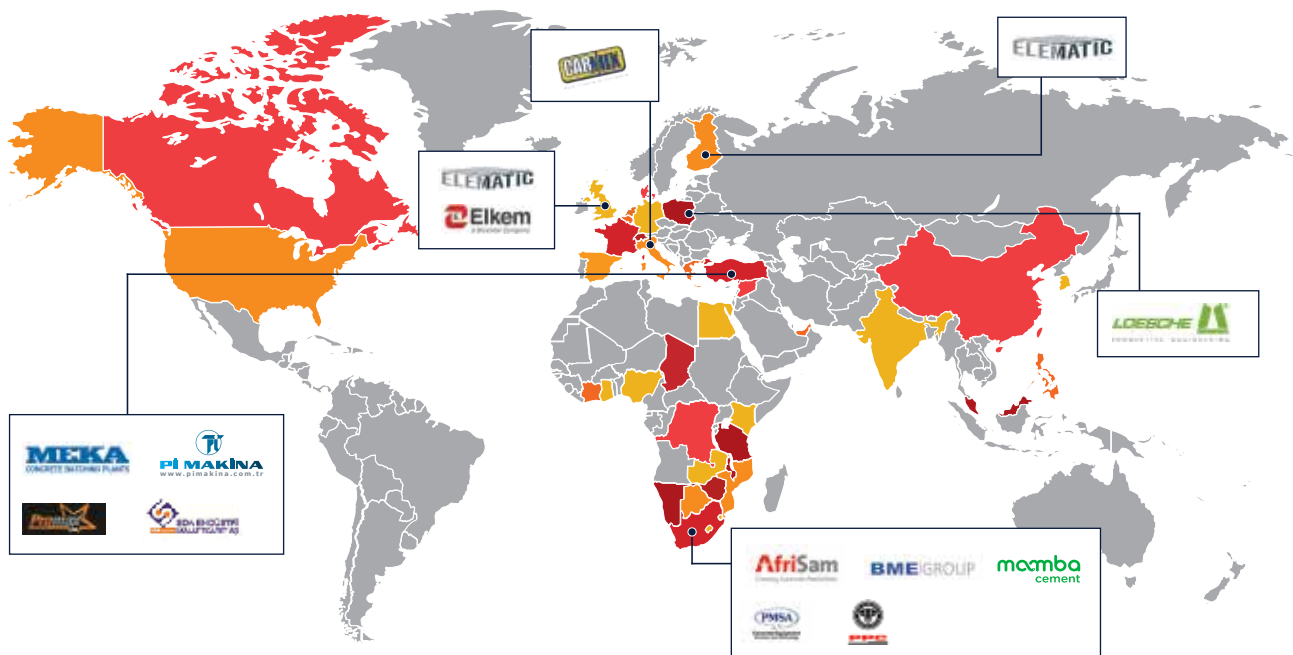
"The expo assists to facilitate deals and tenders that would normally take months to conclude. For example one of my clients, Buyang Doors, was able to sell all of her products she had on display in just two days!"

Rashaad Essop, Sales Portfolio Director, Totally Concrete Expo

The show successfully brought together buyers and sellers **within the concrete and cement ecosystems**



The following countries and companies were represented at the 2016 show



Belgium | Botswana | Canada | Chad | Denmark | DRC | Egypt | Finland | France | Germany | Ghana
Greece | Hongkong | India | Italy | Ivory Coast | Kenya | Lesotho | Malawi | Malaysia | Mozambique | Namibia
Netherlands | Nigeria | Poland | Republic of China | Seychelles | South Africa | Spain | Swaziland | Switzerland
Syria | Taiwan | Tanzania | Turkey | USA | UAE | UK | Zambia | Zimbabwe

Key statistics from the event

6 000+

Pre-registered attendees in total

1 089

Attendees from EPC's

600+

High-level conference delegates

613

Attendees from cement and concrete producing companies

545

Building contractors in attendance

409

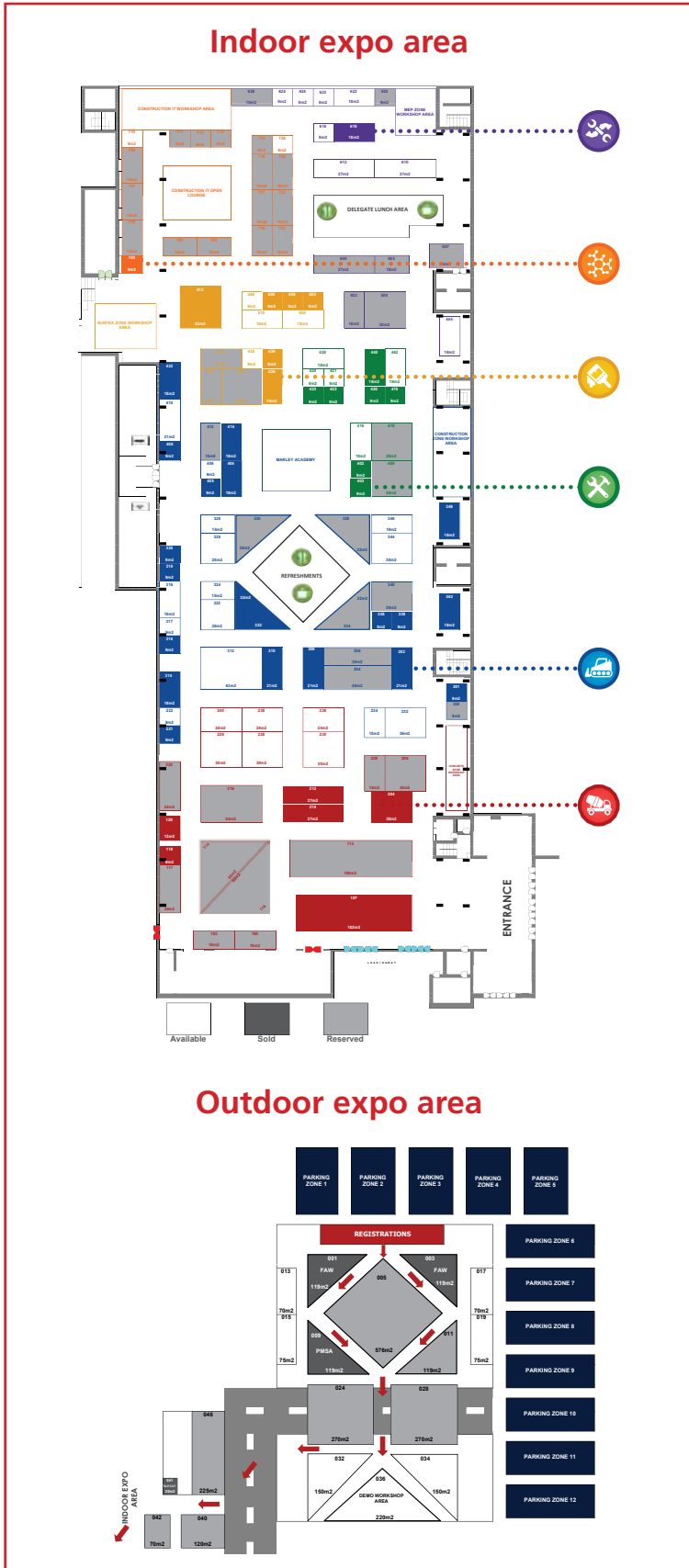
Speciality contractors in attendance



Over 9 000




HANDSHAKES EXCHANGED BETWEEN EXHIBITORS AND EXPO VISITORS

Cement your place at Africa's MEGA concrete show



CONCRETE ZONE



-  Cement Producers
-  Chemicals and Additives
-  Equipment
-  Concrete Solutions
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-  Batching








CONSTRUCTION ZONE



-  Heavy Equipment
-  Transport Solutions
-  Tools and Machinery
-  Alternative Building and Construction Solutions
-  Formwork and Scaffolding
-  Waterproofing and Construction repair
-  Roofing
-  Light Steel Frame Building

DIGITAL CONSTRUCTION ZONE



-  Estimating and Accounting solutions
-  Building Information Modelling -BIM
-  Cloud technology for Construction
-  Document Management Solutions
-  3D Printing and Visualization
-  Project Management
-  Facilities Management solutions






SURFACES & FINISHES ZONE



-  Paints and Coatings
-  Chemical & Corrosion Solutions
-  Fenestration, Windows & Doors
-  Lighting & Fixtures
-  Flooring & Walling Solutions





MEP SERVICES ZONE



-  Heating, Ventilation & Air Conditioning (HVAC)
-  Plumbing & Water Technology
-  Electrical Systems
-  Security & Fire Protection
-  Solar Energy

TOOLS & EQUIPMENT ZONE



-  Drilling, Cutting & Coring
-  Concrete Mixers
-  Steel & Concrete Equipment
-  General Construction Equipment

Totally Construction Week
presents

TOTALLY CONCRETE^{EXPO}

23 - 24 May 2017
Gallagher Convention Centre, South Africa



NEW IN 2017

- **Dedicated expo floor zones** for concrete, MEP, surfaces, finishes, equipment and tools, construction and construction IT
- **FREE upskilling training workshops**
- More **outdoor expo space** with a workshop auditorium featuring product demos
- **Contractors corner** for cement producers to meet thousands of contractors
- **Women In Construction Awards** gala dinner



120

Hours of teaching time with
over 1 400 construction
professionals in attendance

TOTALLY CONCRETE^{EXPO}

Exclusive Invitation

Concrete Trends readers are invited to apply to be part of the 2017 Totally Concrete Expo advisory board. This is an exclusive opportunity to influence and shape the content of Africa's only concrete and cement show.

Please send your Curriculum vitae and motivation letter to the Programme Director, Soren Du Preez by 31 October 2016.

✉ soren.dupreez@totallyconcrete.co.za



Exclusive Invitation

Concrete Trends readers are invited to apply to be part of the 2017 Women In Construction Awards judging panel. As a member of the judging panel you have the privilege to honour and support women in the male-dominated cement, concrete and construction industries.

Please send your Curriculum Vitae and motivation letter to the Awards Director, Athi Myoli, by 31 October 2016.

✉ athi.myoli@womeninconstruction.co.za

To participate in the expo contact ✉ marcel.dutoit@totallyconcrete.co.za ☎ +27 21 700 4300

As part of:



Lost Roman city of Rhapta discovered off Tanzania's Mafia Island

By Hannah Osborne



An 'ancient sunken city' that was discovered by a diver off Tanzania's Mafia Island in May is believed to be the Roman market town of Rhapta. Archaeologist Felix Chami, from the University of Dar es Salaam, says he believes the ruins are that of Rhapta, as the construction techniques, ceramics and location all fit early descriptions of the city.

Rhapta was a coastal Roman trading outpost located somewhere in Southeast Africa. It became prominent in the 1st century, but details of its exact location are not known. The city was mentioned in the *Periplus of the Erythraean Sea*, written in 50 AD, which says it was the most southerly trading settlement of Azania. Several locations have been suggested, including Msasani, Kisuyu and Mafia Island.

Diver Alan Sutton, from website Seaunseen, came across the supposed ruins while searching for an old Portuguese fort believed to have been washed away to sea a few hundred years ago. Instead, he found the remains of walls stretching around four kilometres with what looked like the foundations of a city. Sutton found oblong blocks up to five metres in length that appeared to be made from cement. These blocks stretched the length of the northern and southern foundations.

He showed photographs of the site to Chami, who then went to visit Mafia Island to examine the remains himself. Speaking to *IBTimes UK*, the archaeologist said that at low tide, the wall and foundations were clearly visible. He said the walls were likely between five and six metres high and appear to be made from cement (used by the Romans). Ceramics and tiles at the site also appear to be of Roman origin.

"It seems like this is really Rhapta. I feel safe that it's not German, British or Portuguese. I didn't see anything that indicates it could be Swahili. Also, this is the place where Rhapta should be. The Romans say Rhapta is at the delta of a large river that is sailable. The only river that is sailable on the coast of East Africa is the same one [the ruins] sit in – in the bay of Mafia," Chami explained.

To confirm their findings, Chami said further investigations are needed, but that they required funding to do a complete archaeological survey. ■

All images Alan Sutton/ Seaunseen

Source: <http://goo.gl/pnDGRw>



Tanzania: moladi technology fast-tracking construction of court buildings

SOUTH African-based company, moladi, has won the contract to build the courthouses for the long-awaited special court to try corruption and economic sabotage suspects. With US\$65 million in funding from the World Bank, 12 courthouses are currently under construction and three have already been completed.

Figures from the High Court of Tanzania show there were 3,963 wards and 139 districts across the country in addition to 960 and 27 court buildings for primary and district courts respectively.

Thus there is a deficit of 3,115 courts across the country. "Court buildings are in bad condition. We have been forced to close many buildings that were previously being used as courts since they don't meet the requirements," the Chief Justice told reporters.

He added that the government has allocated 24 billion/- to improve the courts' infrastructure. "The judiciary is also working with Ardhi University and National Construction Council in a pilot project using moladi technology to fast-track construction of court buildings."

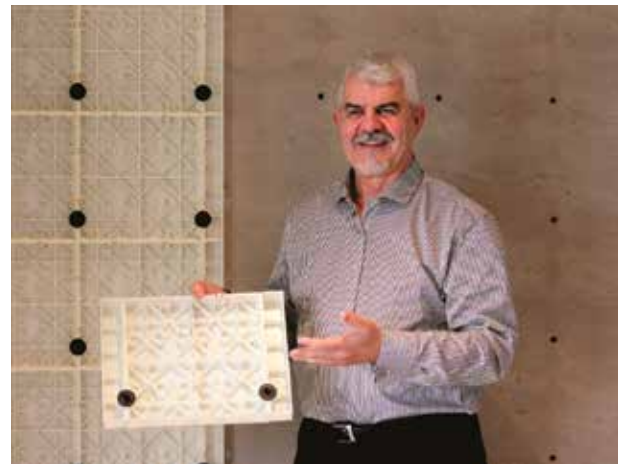
He said the pilot project is now being carried out at Kibaha, Kigamboni, Kawe, Kinyerezi, Mkuranga and Bagamoyo to examine how effective and cost-effective the technology can be for eliminating the backlog of court buildings.

While conventional construction methods take more than 180 days (minimum), moladi technology is projected to take less than 76 days for a structure with a 1,168-m² floor area. The Judiciary's civil engineer explained that when the technology is applied, it has the potential to cut down costs by as much as 50%.

moladi is a unique housing solution that combines a reusable, patented, recyclable, lightweight plastic injection moulded formwork system with a SABS approved lightweight aerated mortar mix which produces a cast in situ, steel-reinforced monolithic structure.

The moladi formwork components are fully interlocking and are assembled into easy to handle panels which are configured into a full-scale mould of the desired structure. The formwork panels are joined to form the external and internal walls cavities and all the steel reinforcing, window and door block-outs, conduits, pipes and other fittings are positioned within the wall cavity to be cast in place when filled with the moladi mortar mix.

The wall cavities are filled simultaneously with an SABS approved mortar mix which contains, cement, water, river sand, and moladiADMIX. The mortar mixture produces a fast curing aerated mortar which flows easily and results in a wall that is waterproof and possesses good thermal and sound insulating properties.



moladi CEO, Hennie Botes.

After the wall cavities have been filled with the mortar, the mortar is left to set overnight and the formwork panels are removed the following morning to be re-erected on the next foundation. The wall has a smooth and flat finish that does not require any plastering, beam filling or chasing.

All moladi structures have steel reinforced internal and external walls. The reinforcing design is specified by an independent structural engineer, who independently certifies the structure after construction is completed and the final inspections are carried out. The result is a fast track cost effective and transferable construction technology that is amortized over 50 re-uses, which reduces the cost of construction and transportation significantly. This also facilitates the possibility for many in situ moladi structures to be built in just one day.

Because the moladi system follows an optimised and sequential process, it is possible to use unskilled labourers, the number being determined by the size of the house, area of formwork and volume of mortar required.

Local unskilled labourers are trained by a moladi foreman on the client's first unit for a period of 1 – 2 weeks, depending on the size of the unit, and all the procedures and phases of the construction process are followed through and explained thoroughly to ensure full understanding.

The client is supplied with a working document and assembly instructions, which are compiled specifically for the client's project. After training has been completed, the team of unskilled labourers are awarded certificates for the completion of the training programme and are graded accordingly by a moladi foreman. ■

More information at www.moladi.com



Ghanian precaster contributes to two major shopping centres

BessBlock Concrete Products Ltd is a concrete block manufacturer with a modern state-of-the-art, fully-automated factory. The company is the Ghana licensee for South African-based Terraforce and is strongly committed to the highest quality standards so customers are assured that all products supplied will meet their needs and expectations.

BessBlock's concrete products have played an important role in two recent shopping centres – Achimota Retail Centre and West Hills Mall, where they were utilised to build retaining walls as well as being used in the landscaping of the grounds.

Atterbury Property's latest shopping mall development in Ghana – the R800 million (\$60 million) Achimota Retail Centre – is located in north-eastern Accra and was completed at the end of October 2015.

The brand new 15,000-m² retail destination provides top-quality shopping for the first time on this scale under one roof in this part of the Ghanaian capital.

The centre – a single-level mall – is home to 51 front-line stores, offering convenience, retail and fashion brands, as well as a restaurant and food court. It has basement parking for 250 cars and a further 335 open-air parking bays.

Located on a prime four-hectare site in the town Dome and alongside the Accra-Nsawam Highway, Achimota Retail Centre boasts a contemporary design, which includes sustainability features such as grey-water harvesting, environmentally conscious landscaping and a building management system.



BessBlock's Terraforce retaining walls at Achimota Retail Centre, Atterbury Property's latest shopping mall development to be completed in Ghana.



Retaining walls at West Hills Mall – a major shopping centre in Accra West.

Local Ghanaian architecture firm, Multi Card Consult, designed the mall in a joint venture with South Africa's Boogertman and Partners.

Opened in October 2014, West Hills Mall in Ghana is a US\$93million shopping mall which occupies an area of 27,000 m², and houses 67 local and international shops.

The West Hills Mall was constructed by South African real estate contractors, WBHO at Dunkonah near Weija in Accra and is jointly owned by Delico Property Development Limited (from Mauritius) with 60% shares and by Ghana's Social Security and National Insurance Trust (SSNIT) with 40% shares.

On opening, chairman of West Hills Mall, Kofi Sekyere, told journalists the mall was the biggest in West Africa because at the time the biggest was in Nigeria and was only 23,000 m² and Accra Mall is 20,000 m², adding that the initial size of West Hills Mall was 27,000 m², but would be increased to 40,000 m² over time.

He said the project employed five subcontractors in Ghana and one from outside Ghana, with over 300 workers on site. The project had provided jobs for 1,000 Ghanaians.

The mall has two anchor tenants, namely Shoprite and Palace supermarkets, plus 65 front-line shops from Ghana and around the world.

Sekyere said lessons had been learnt from Accra Mall regarding the vehicular traffic jam around the mall and the difficulty of getting in so measures had been put in place to avoid that problem at West Hills Mall.

"We have a specially designed interchange near the mall to ensure smooth vehicular traffic flow and we have also designed a pedestrian underpass for persons entering the mall on foot so they will not compete with vehicles," he said.

Mr. Sekyere said the choice of Accra West for this "luxurious" project was based on research which revealed that the hitherto huge difference in wealth between Accra East and West dwindled largely so there is a clear sign that the future lies in the West.

Daniel King, representing SSNIT on the board of the mall, said SSNIT's investment into the mall was part of a new drive to invest in ventures that promise quick, consistent and long-term returns. ■

**More information from BessBlock,
Tel: +(233) 24 355 4079 / email: betty@bessblock.com**

Advice on concrete pipe production

Concrete pipes are an important part of any country's infrastructure. And for many years, worldwide there will continue to be a demand and need for concrete pipes, manholes and related products.

One major reason is growing urbanisation – and this will increase the demand for infrastructure development like housing, transport systems, and water supply and treatment systems, as well as drainage and sewage systems. Climate change will also play a major role in the future demand for infrastructure development. The precipitation patterns are changing and many existing drainage systems will need to be upgraded and expanded to accommodate these changes.

As concrete is the strongest, the most flexible and most economical building material for infrastructure products, these circumstances will inevitably maintain or increase the need for concrete pipes. This will also result in companies wanting to invest in new production plants for these products to meet the market demand.

Always seek advice

So what should a potential investor in concrete pipe production consider to enable them to meet the demands of the future? A good idea would be to investigate the trends in infrastructure development in other countries – and a good start would be to talk to HawkeyePedershaab, a company which has built concrete pipe plants all over the world. Their experience and know-how can prove invaluable to anyone wanting to invest in pipe production.

Torben Mørch, who is the director of global marketing at HawkeyePedershaab, explains: "In most markets there are existing specifications for concrete pipes in place, and it is relatively easy to configure a pipe plant that will mirror these specifications. But most markets go up and down and you probably would like to have some flexibility in your plant to be able to diversify into other products if the market shifts. This is where we know we can add a lot of value for our customers."

"First, we have the widest range of machines in the industry today, so we have a solution for every customer and every situation. Secondly, from our experience around the world we can bring information about new products and new trends

in the industry to the table, so the pipe producer would have an idea of what direction the market could be going. These two things together give any investor the security for their investment that they are looking for before investing a lot of capital in a new plant," Mørch adds.

Trends in the concrete pipe market

Traditional concrete pipe products include drainage pipes (culvert pipes) and sewage pipes (spigot & socket pipes) together with manhole products. Products increasing in popularity are also jacking pipes or micro-tunnelling pipes for applications where it is not possible to install pipes in open trenches. All these products are circular and have traditionally been made – and are still being made – with spinning technology. In more and more places the spinning technology has been – or is being replaced with vertically dry-cast production technology because this, compared to spinning technology, offers clear advantages such as higher productivity, lower production costs and a safer production environment.

Other products growing in popularity are HDPE or PVC-lined concrete pipes for applications where the environment is more aggressive – and also concrete box culverts which are used for road underpasses for water, electrical installations or even pedestrians. All these products can also be manufactured with the vertically dry-cast production process, but cannot be manufactured using the spinning process.

"It is very important to be aware of current trends in the infrastructure market when one is choosing the production technology for a new plant," Torben Mørch explains. "We have seen markets change many times and we will without any doubt experience it again. Then it is nice to see companies who are able to adapt to the changes using our equipment and put new products on the market. It also makes us proud when our customers are successful."

HawkeyePedershaab operate from their two headquarters in USA and Denmark and provide technical services to customers from five service centres around the world. ■

More information from

www.hawkeyepedershaab.com/contact



A culvert pipe installation.



Vertically cast pipe production.

Smart precast technology meets the needs of affordable housing

Rapid population growth has caused major demands for new infrastructure in many large cities. Africa alone has a housing shortage of several dozen million apartments. People need safer and more comfortable places to live, and the prices need to be reasonable. Precast construction is a cost-efficient, fast and sustainable building technology suited to large, high-quality housing projects.

In rapidly urbanising areas, land has become a scarce commodity. “Many governments aim to improve the situation by investing in infrastructure renewal. In Kenya, for example, the government is committed to ensuring every citizen’s access to affordable housing. Investing in precast technology means long-lasting, secure and comfortable homes for those in need,” says Ismo Kallio, Elematic area sales director, Africa.

Precast is a **modular and efficient building system** based on ready-made, factory-manufactured components and intelligent connections. “It is an industrialised way to construct cost-efficient buildings fast – and is optimal for large housing projects with a focus on productivity,” says Prakash Shah, head of technical support at Elematic.

Compared to cast-in-situ construction, precast uses less cement, water, steel and labour. Casting takes place in a safe and automated factory, which results in consistently high-quality products and minimises waste.

Savings in concrete and energy: Precast performs well in hot climates thanks to its highly advanced thermal insulation properties. Precast concrete buildings absorb and store surplus heat and slowly release it back to the air. “In countries where energy is in short supply, precast is an optimal solution as it saves energy and makes homes more comfortable. The hollow cores in precast floors can be used to form cooling systems that use

up to 50% less energy than air conditioning,” explains Kallio.

The most common precast products include hollow-core slabs, wall elements, partition walls, building foundations with precast concrete piles, and beams and columns used for structural frames. Hollow-core slabs are prestressed concrete slabs typically used in floors of multi-storey buildings. The longitudinal voids running the length of the slab make the structure light compared with a solid slab floor. “This brings savings in material costs. In the cross section of the slabs, concrete is used only where it is actually needed. Areas where concrete merely serves as ballast are replaced with hollows. In 200-mm hollow-core slabs, 50% of the cross section consists of voids,” Kallio explains.

Sandwich walls are insulated precast concrete wall panels with two layers of concrete and a layer of insulation in between. Their quick installation speeds up the completion of the building. Controlled thermal insulation lowers a building’s operational costs in hot climates.

Design is key to the successful implementation of precast technology. The prestressed precast system adds flexibility to architectural planning. “Hollow-core slabs enable spans of up to 20 m, much longer than the typical 8 to 10 m used in affordable residential buildings,” says Kallio.

Thanks to the longer span, there are fewer load-bearing walls – therefore most rooms in an apartment can be formed by partition walls according to individual needs,” Kallio says. Precast buildings come in any color or finish one can imagine. A precast house can also be made to resemble a traditional brick house by using a sandwich wall with a brick surface pattern.

Speed of construction with precast is unbeatable. Depending on architectural complexity, a precast building can be constructed



A wall panel being cast in an automated factory’s production line.

up to twice as fast as a cast-in-situ. Everything is planned carefully: the structural system, connection details, precast element design, and production. This eliminates cost uncertainty and residents know well in advance when it is possible to move in.

“Modern precast technology is the fastest way to build high-quality affordable housing,” says Kallio. Although precast has long traditions in the Nordic countries, it is a new technology to many rapidly urbanising countries. “For African countries, precast provides a way to design and construct a sufficient number of suitable homes speedily and at a reasonable cost. The buildings suit the environment and the needs of city dwellers.”

Elematic is the leading supplier of precast concrete production technology worldwide. The company works in over 100 countries on six continents and supplies anything from single machines to production lines and complete precast plants. In Africa, Elematic has delivered precast plants to several countries including Angola, Ghana, Nigeria, South Africa, Tunis, Algeria and Morocco. The company has headquarters Akaa, Finland and its production units are in Finland and India. Elematic holds an ISO 9001-certified quality system and the international quality certificate Investor in People for the development of its personnel. ■

More information from Nina Lehtonen,
email: nina.lehtonen@elematic.com / www.elematic.com



PRODUCTS & SERVICES

Flooring from processing to packaging at Acacia Beverages

A acia Beverages specified 5,150 m² of specialist resin floor and wall solutions from Flowcrete Africa in order to create a hygienic, colourful and effective environment within its new bottling plant in Lusaka, Zambia.

The drinks manufacturer knew that it was important to install floors and walls that would be easy to clean and that would retain a seamless finish in the face of the site’s intensive operational activity, which would subject it to impacts, point loading, heavy equipment, frequent cleaning and spillages.

One of the key reasons that Flowcrete Africa was chosen for the project was its ability to provide every required system in a bespoke yellow-green colour.

The floor in the contamination-sensitive process area of the site would face the most demanding conditions, therefore 450 m² of Flowfresh SR Ultra was installed to ensure that the finish would be up to the task at hand. This polyurethane floor screed creates an exceptionally durable surface and it also includes the antimicrobial additive Polygiene®.

The Flowfresh range has been HACCP International certified thanks to its ability to minimise contamination risks within a food and beverage environment.

The walls in the process area were covered with 900 m² of the low-odour epoxy system Flowseal EPW. This coating extended the same seamless, easy-to-clean properties around the sides of Acacia Beverages’ processing room.

Outside the processing area, 1,600 m² of Flowcoat SF41 was applied within the packaging zone and storerooms and 2,200 m² of Flowshield SL was used for Acacia Beverages’ dry processing area thanks to the ability of this self-smoothing epoxy system to withstand high levels of mechanical and chemical stress.



The success of this flooring project convinced Yash Pharmaceuticals to choose a similar fit out for its Zambian warehouse, to create floors throughout its facility that would facilitate a clean, hygienic environment despite prolonged exposure to heavy traffic, point loading, pallets, impacts, wear and use. Yash Pharmaceuticals wanted every system to be a uniform light grey colour.

During both projects Flowcrete Africa had to make sure that the flooring application fitted around the clients’ work programmes. At Acacia Beverages this meant that the floor took six months to complete and at Yash Pharmaceuticals it was ready after three months. ■

More information from Verity King,
Tel: +27(0)31 461 3411 / www.flowcretesa.co.za

CGM 50 years of research and experience

CGM was established in 1962 by Francisco Cavazzuti and, since then, the company has designed and manufactured the machines and moulds for the manufacture of a variety of concrete products.

CGM has always worked closely with its customers and, thanks to continuous research for new and innovative solutions, is now a leader in the dry-cast concrete products industry.

Nowadays CGM offers know-how gained over 50 years of research and experience in more than 40 countries – 14 of those being on the African Continent.

CGM complies with the latest standards and quality requirements, creating state-of-the-art products and providing outstanding service to every client.

CGM believes that economic growth doesn't matter if it does not create population wealth improvement. Strong partnerships with governments and businesses enable the company to create job opportunities and develop education and health programmes.



CGM respects and preserves the environment so that human beings can enjoy better and healthier lives. ■

More information from Tel: +39 0545 35294
<http://www.cgm-srl.com>

SmartFloors Africa

SmartFloors is a growing construction firm located in Kampala. It provides Innovative ways to control the rising cost of construction.

SmartFloors is committed to providing quality products and services through the adoption of innovative engineering approaches, strong work ethics and high standards of excellence. Training is received from the manufacturers of their machines in North America and Asia.

Proudly green

SmartFloor takes pride in having an eco friendly green product and service that promotes Leadership in Energy and Environmental Design (LEED) building standard certification. Machines are all attached to a dust extractor that ensures that the area is kept 99% free of air-borne dust.

Restoring an existing concrete floor is very much more environmentally friendly. As an example, it reduces the environmental impact that a new construction project or demolition would generate.

The concrete polishing process dramatically minimises exposure to any hazardous components and environmental pollution, mechanically and chemically.



The exceptional durability of your concrete floor means no demolition or disposal issues that come with VCT or epoxy membrane floors. Treatment chemicals used are water-based, VOC-free and environmentally safe, making concrete floors more efficient and requiring less maintenance.

Benefits of polished concrete

Functional benefits

- Polished concrete floors are totally fire resistant.
- Resistant to tyre marks from fork lifts and other vehicles.
- Harder and stronger than other floor finishes.
- Slip resistant in wet conditions.
- Flatter and more level surface.
- Increases the ambient light reflection by 30%, enabling reduced lighting and energy savings.
- Easy to add colour to existing floor.
- Can be implemented as other work continues.
- No down time waiting for chemical process to finish.

Economic benefits

- Lower initial costs compared to other floor coverings.
- Cheap to maintain.
- No coatings to chip or be patched.
- Long Life cycle of more than 20 years. Smart Floors Africa gives you a 10-year warranty.

Ecological benefits

- Dust-Proof with proper maintenance. The polished concrete will not produce dust.
- No slurry.
- No coatings, waxes or topical coatings applied. ■

More information from Tel: +256 312 263 756
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www.smartfloorsafrika.com

1976-2016: 40 years of Carmix self-loading cement mixers

Carmix is the number one off-road self-loading cement mixer in the world. The machine is easy to use and ideal for producing and distributing concrete in the most difficult worksites, in the most congested traffic areas and on the most remote islands. Carmix's history began over 40 years ago, in Venice, and has been focusing on great innovative solutions since the end of the 60s.

In 1969, Carman, a company that designed and produced the first dumper and mixer trucks by assembling the parts and components of military and agricultural vehicles, was founded. This is how the career of Rino Liborio Galante began; he acquired the skills and expertise needed to become Carman's export manager and to later found Metalgalante in 1976. The objective was clear from the beginning: offering machines that produce high-quality concrete on any worksite, even under extreme work conditions. This is how the first Carmix design was created in 1980, a machine that has become an icon for worksites all over the world.

Carmix was already strongly oriented towards the export industry since its foundation. From the very start, as well as for the following twenty years, the company exported about 70% of its production to Spain since this country was regarded as a real national market. A serious crisis hit the country and quickly changed the scenario, leading Carmix to search for great opportunities in other countries. The markets opened their doors on all continents, especially in South America, Africa and the Republics of the former Soviet Union, thus achieving 55% of sales in Latin America, 40% equally distributed between Africa and Asia and 5% in Europe in 2016.

After 'acquiring' Cambodia in 2016, the company now exports to 154 countries. The continuous growth seriously increased between the early 2000s and today: in fact, the turnover has tripled over the decade. These numbers are the proof of a technological and business success based on the company's winning philosophy: innovating in the world of self-loading cement mixers. A sound knowledge of the market,



of the foreign countries and of the macroeconomic variables has enabled the company to establish distribution agreements with very effective partners. The most recent one with the CAT Rental store, in 2015, strengthened the presence of the Italian company in Peru, Colombia, Guatemala, Nicaragua, Honduras, Costa Rica and Mexico.

With a production of over 400 units a year, the company plans on continuing to export its machines by consolidating its presence in key countries, such as Latin America, and by investing in an Eastern expansion. In fact, the Asian and Caucasian countries are part of the company's strategic plan because they offer a very fertile market and great growth potential. Besides these objectives, new technologies connected to the world of concrete will continue to be developed.

At Bauma 2016, the new Carmix 3500 TC has the most innovative devices – Promix, Concrete-Mate, App – developed by the company to facilitate work on jobsites worldwide, together with the very new concrete pump TrailerPump15. The strategy is thus to continue designing and offering technological tools that can optimise the production of concrete, while ensuring the excellent quality Carmix has been implementing since 1976. ■

More information at www.carmix.com

Kumkang Kind: first for aluminium formwork

Established in 1978 in the Republic of Korea, Kumkang Kind Co., Ltd is the largest aluminium formwork system manufacturer in the world, having supplied over 2,000,000 m² of aluminium formwork since 2009 to Malaysia, Singapore, Vietnam, India, Kenya, Algeria and many other countries.

With its seven factories in Korea and one in Malaysia, Kumkang Kind manufactures aluminium formwork, steel gang-forms, civil engineering formwork, auto-climbing and self-climbing systems. The company also produces steel pipe, scaffolding products and modular building systems.

Kumkang Kind's Chairman, Jang Yeol, Jeon, says the company does not just manufacture and sell products, but has at all times the goal of serving its customers and meeting their requirements. For all construction projects, Kumkang



Kind will always be there to offer safe, efficient, technically advanced and economical products. ■

More information from <http://www.kumkangkind.com>

Crown Paints: Kenya's no.1 paint manufacturer

Established in 1958, Crown has grown into a company with an annual turnover of 6.2 Billion Kenya Shillings.

Having established the Kenyan home market with depots and showrooms in Nairobi, Mombasa, Kisumu and Nakuru, focus has expanded into East Africa. This includes a factory in Uganda, branded Regal Paints and currently the number two paint brand in Uganda. Depots have been opened in Tanzania, namely in Dar es Salaam, Arusha and Mwanza. Plans are in place for Ethiopia and Southern Sudan.

Crown does not only supply decorative paints as automotive paints are in the portfolio under international and regional leading brands via PPG – Nexa Autocolour and Plascon South Africa. The Crown Automotive division also manufactures under the brand Duco.

To bring rapid technology improvements, Crown has sought and obtained international brand partnerships for product lines that provide solutions e.g Flooring, Flowcrete UK. With eyes on the future, oil and gas will be the key to a dramatic envisaged development. To this end Crown has a supply agreement with the world's number two paint supplier to Oil, Gas and Marine specialist coatings, Hempel.

Crown Paints has also recently launched a range of Zero VOC paints in line with its commitment to offer innovative products of the highest international standards in East Africa. VOCs (Volatile Organic Compounds) are air pollutants found in paints that could have a damaging effect on the environment as well as human health. New research globally has developed alternatives to VOCs that offer the same paint quality without the harmful chemical components. Crown Paints is the first company in the region to manufacture and offer these Zero VOC paints in Kenya in its abc ranges of emulsion paints.

Kenya will remain the hub for the region with a second factory in Western Kenya. Quality will remain the key, and innovation the forward drive. Crown aims to win customers and retain them by manufacturing products of a consistently high quality.

Crown's heritage and quality has been the key to the company's consistent performance and growth, supported by its 450 loyal employees, partners and dealers. ■

More information from Tel: +254 206 533 604

email: info@crownpaints.co.ke / www.crownpaints.co.ke

In Doors East Africa for interior and exterior wall finishes

In Doors East Africa Ltd was established in 2004, starting off as specialists in interior décor and interior wall finishes. The company expanded in 2010 to include exterior finishes.

We are a young ambitious team who thrive on building the business with the core values of service, competitiveness and quality. With this in mind, we have now partnered with International Brands that have the same vision. One of these brands is CONMIX – manufacturers of construction chemicals and premix plaster products.

CONMIX Ltd. is a most reputable manufacturer of pre-mix plaster, construction chemicals and water treatment systems. Established in 1975, CONMIX is headquartered in Sharjah, U.A.E. and also has other manufacturing facilities located internationally.



All the company's products comply with the relevant international standards and are exported to various countries across the Middle East, Asia and Africa. Our products are marketed in over 20 countries in Africa. Many prestigious projects in various sectors such as commercial, residential, oil & gas, industrial, infrastructure, transportation, government, landscaping, leisure/recreation, heritage/culture, education, hospitality etc. are included in the project portfolio of CONMIX.

In 2011, In Doors East Africa Ltd was appointed authorised distributors for CONMIX In Kenya. We have gone through an extensive training program in the use and application of these products. We will not only recommend the right product to be used but also provide all technical support to assist you in application of our products and can also offer you a supply & apply solution if necessary. Some of our projects include:

- Fuel resistant sealant application at Jomo Kenyatta International Airport
- Epoxy flooring on the car park at the World Bank building in Upper Hill, Nairobi
- Waterproofing works at Transfleet Warehouses in Embakasi
- Waterproofing works at British American Tobacco in Industrial Area, Nairobi. ■

More information from Tel: +254 772 445 873

sales@indoors-ea.com / www.indoors-ea.com

Rhombus Concrete: your partner for success

Rhombus Concrete was founded in 2014 and is now one of the leading manufacturers of premixed concrete in Nairobi, Kenya. With the full range of premixed concrete products, technical resources, consistently high environmental performance and a wealth of practical experience within the building industry, it truly is a company that is prospering.

The company is focused on creating sustainable value by providing industry-leading products and solutions to satisfy the construction needs of its customers around Nairobi and its environs. They strive to make the future better for their customers, shareholders, and communities by becoming Kenya's most efficient and innovative ready-mix company.

Why Rhombus Concrete?

Rhombus Concrete can produce mixes to cover any application using its highly computerised 120-m³/hour batching plant. The company also operates a fleet of 12 concrete truck mixers, two fixed pumps, two boom pumps and one cement bulker. With all these resources, service is second to none and Rhombus Concrete prides itself on being the best.

As one of the most modern and innovative suppliers of concrete in Nairobi and its environs, the pricing policy is always very competitive, with quotations handled promptly and efficiently. A very professional and efficient sales team is available by telephone and representatives on the road are happy to visit your site and discuss your requirements.



Rhombus Concrete's values define the character of the company: they express who they are, how they behave, and also what they believe in, just as much as the products and services that bear the Rhombus Concrete brand.

Ensure Safety: safety is a personal responsibility and everyone is accountable for acting and behaving with safety in mind. The health and safety of its people, contractors and the community are of paramount importance.

Focus on Customers: The close customer relationships formed set Rhombus apart from its competitors. Customers are listened to so that their challenges are understood and solutions can be provided to meet their needs.

Pursue Excellence: Being passionate about the work they do drives the Rhombus to exceed expectations, to constantly improve and to never settle for 'good enough.'

Work as one: Leveraging global knowledge to benefit local markets is the company's competitive advantage; they share ideas within industry and with stakeholders to maximise their contributions.

Act with Integrity: The Rhombus team acts with honesty and transparency in all its interactions because they care for people, for communities and for the environment. ■

More information on mobile: +254 702 700 700

email: info@rhombusconcrete.com

<http://rhombusconcrete.com>

Ngao Roofing Systems: pioneering stone-coated metal tiles

Ngao Roofing Systems Limited is a Kenyan registered company with its headquarters in Nairobi, Kenya. The factory and international marketing office is based in the Jinhu Industry Zone in Linyi City, Shandong, China. This is where the research and development centre for the company is located.

The company specialises in manufacturing and distributing the best stone-coated metal roofing tiles and accessories. The exquisite tiles are coated with natural stone chips and offer ultimate durability, safety and style.

As leaders in the roofing industry, all Ngao Roofing's products are environmentally friendly and are designed for the equatorial and tropical weather conditions that typify the African continent and beyond.

The company aims to provide all residential and commercial clients with premium products, exceptional customer service and value for money, without compromising on quality.

Joseph Mburu Muigai the founder of Ngao Roofing Systems Limited attributes his journey with roofing tiles to a trip he took to South Africa back in 1993, where he came across metal stone-coated roofing tiles. He took a tile sample home and



Joseph Mburu Muigai the founder of Ngao Roofing Systems Limited

eventually developed his own product after doing intensive research on the raw materials.

He acquired an OEM agreement with Linyi Jinhu, a Chinese company that has since been manufacturing his product. He prides himself with being the first person to introduce the technology to Kenya out of South-Africa. His Thatch Profile tile is a substitute for the traditional Makuti (thatch) roof with a modern touch. Being the pioneer, Muigai was involved in establishing the KEBS Standard for metal stone-coated roofing tiles in Kenya. A lot of personalities in the industry have gone through his hands.

Ngao products have been tested and meet the SGS import requirement as required by KEBS. His past clients include the American Embassy's residential houses, the International School of Kenya, the Nakumatt Nyali Mombasa, Diani Reef Beach Hotel and Travellers Beach Hotel among many other commercial and residential properties. ■

More information from Tel: +254 724301177

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BIM for terrified contractors

With recent technological advancements over the past decade, especially regarding Building Information Modelling (BIM), many companies globally have acknowledged this trend and have joined the radical paradigm shift of adopting BIM.

For the contractor, BIM presents huge challenges and opportunities, particularly in the area of estimating and quantity take-off. We have already observed the many capabilities of BIM tools automatically generating quantity take-offs and measurements directly from a digital drawing of a building, a process that, traditionally, is very time consuming for contractors and is often referred to as the 'brain drain' in measuring. Even so, there are still many contractors out there who are unaware of what BIM really is and what it has to offer the industry.

I am of the opinion that much of the automated quantification effort is worthless if the third-party data on the working project is inadequate. Day-to-day monitoring of quantities and costs is useless without the actual knowledge of what is important at a given moment. This is often the fundamental responsibility of a quantity surveyor in a contractor's environment who needs hands-on knowledge of how the forecasted quantities were achieved in order to have an accurate anticipation of actual versus allowable quantities.

A number of key challenges globally in BIM estimating have been identified with the Standard Method of Measurement (SMM) and when applying the New Rules of Measurement (NRM) when preparing cost estimates. Even though NRM1 was developed as the standard measurement rule to guide the quantification of building works for preparation of order of cost estimates and elemental cost plans (BCIS, 2009; RICS, 2012), it does not specify a standard pricing format when extracting quantities from a digital plan.

From my recent research on BIM in South Africa, it was interesting to learn that Group Five Engineering and Construction is one of the contractors which has started to invest heavily in BIM tools and processes available on the market. But what has happened to the rest? Can we point fingers at the software vendors in South Africa who are not implementing BIM tools or are contractors too busy to research BIM and understand new ways of working? Personally I think it is the latter and all too often hear from contractors, "Why fix something that's not broken?"

"Group Five Engineering and Construction is one of the contractors which has started to invest heavily in BIM tools and processes available on the market. But what has happened to the rest?"

For all the noise and mandates on BIM around the world, nobody is going to force a person or company to adopt Building Information Modelling (BIM) locally – not yet anyway. If they want to, they can just carry on as usual and tune out from all the jargon. But what will happen if BIM is not embraced and how will processes affect contractors who are not staying ahead of their game?

When others around the workplace start to talk about or adopt BIM in certain ways, only then will those slow to adopt sit up and take note. Much like the smartphone market today, while everybody talks about downloading new apps

and using extended smartphone features, one might feel comfortable in being part of that discourse, even though one does not own a smartphone, because one feels sufficiently abreast of technology by being able to make calls and send text messages. But this is a comfortable illusion. The same will happen with BIM; competitors will start producing notably better tenders, doing faster take-offs, more accurate tenders and managing information more quickly and efficiently.

Many contractor employees tend to be shielded or controlled by the organisations they work for and often the software they use is outdated or is not BIM compliant. Unfortunately, the consequences of failing to embrace BIM could well be more dire for the organisation than for the individual.

Construction estimating software is designed to help estimators and quantity surveyors to engineer bills of quantities and to manage and track the costs related to a project regardless of BIM being used or not. All too often we tend to find contractors operating on different estimating software packages to professional quantity surveyors' firms, which sometimes makes it difficult to compare apples with apples. Data is all too often then shared among various parties on the project using either Excel spreadsheets or formats such as .csv or XML files. Typically, all estimating applications focus on helping create accurate bills of quantities and tender proposals, but also help users track the actual monthly valuation quantities and costs associated with resources used on the projects, i.e. materials, labour, overheads and sub-contractors. Some systems go even further by assisting in managing other aspects of the job, like bar chart scheduling, cash flow, budget forecasting and materials breakdown.

"All too often we tend to find contractor firms operating on different estimating software packages to professional quantity surveyors' firms, which sometimes makes it difficult to compare apples with apples"

The transition for most companies to adopt BIM processes or even to attempt to select the correct software solutions is a difficult task, especially when many companies are not aware of the various industry systems available on the market today. All too often the choice of software for the company is made either by executives only interested in the reporting side or by influential individuals who are ardent fans of a particular software tool and who may fear losing control by advancing onto new and improved technology. These individuals are often responsible for a lack of progress towards adopting new processes like BIM.

The option for deployment of new alternative software systems can also be due to the substantial increase in software and hardware costs. Companies have also refrained from looking at new and improved digital solutions during the downturn in the economy. ■

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Today, companies are using sophisticated business software to fuel their growth but many are still struggling to keep up with their growth and manage costs effectively because of a hodge-podge of disconnected functional systems causing process bottlenecks and employee productivity issues. Integrated business software suites are transforming how companies run, and enabling them to transcend growing pains that previously were holding them back from taking their business to the next level of profitable growth.

Partners

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Canada BIM Council

An architect's perspective

Vaughan Harris of the BIM Institute interviews **Shawn B Hopkins**, Professional Architect and BIM Curator at Large Architecture cc Group, about the impact of BIM on architecture and its current state in the local context.



VH: How has BIM impacted and/or influenced architecture since the former's inception?

SBH: Not many people know that the concept of BIM has been around since 1987. Graphisoft introduced the 'Virtual Building Concept' through ArchiCAD, which has become regarded as the first iteration of BIM processes in the AEC industry. Having being recognised as the first CAD product to connect 2D and 3D, it has been offering architects the simple efficiencies of what I like to refer to as connected workflow.

Thus, BIM in the architectural world is nothing new. It simply takes the basic communication formats which form the core of architectural delivery and connects them. This means 'fewer instances of the same decision', offering more control, accuracy and efficiency.

VH: What are the benefits of BIM in design and construction as it stands today?

SBH: Accuracy is the main benefit. Through the ability to efficiently collaborate, built environment assets can now be designed and delivered through accurately authoring and curating BIM models that offer a virtual replica of the real build, a process I like to refer to as 'build it virtually and assemble it in reality'.

This approach means that any errors or clashes can be communicated in the virtual world of BIM, offering professional teams and clients the ability to reduce variations during construction, along with many other communication benefits and savings. It is a simple case of leveraging off the authored and curated data.

VH: Who are the main beneficiaries of BIM in design and construction and how do they benefit?

SBH: Asset holders of the built environment are the key beneficiaries of the BIM process. Importantly, this process shouldn't cost a client any additional funds. The only action required is to simply mandate OpenBIM as a delivery format, and the professional teams must comply. The irony, however, is that all professionals will become more efficient through adopting BIM, whether voluntarily, or through a mandate.

VH: What are your thoughts on the current state of BIM in SA today, vs. globally?

SBH: BIM adoption is ramping up dramatically in South Africa. There are, however, many concerns with the uninformed decisions professionals and clients are making. BIM.SA has been established to offer professionals advice on selecting a BIM authoring tool that suits their profession and required processes and outputs (www.bimsa.co.za).

With that said, the BIM authoring software war is my greatest concern with regards to the state of BIM locally, as

well as globally. Many people and organisations seem to be focusing on only promoting BIM via a single software house's formats and processes, which I believe could have dire effects on the architectural profession.

The essence of BIM is about connections, which include the ability to strongly collaborate, meaning that, as an architect, I should be free to select a BIM authoring tool that best suits my workflow. With many organisations in South Africa mandating a specific software's proprietary format as the project set terms of delivery, I wonder who would be excluded from working on a project. I strongly support BIM.SA's vision for BIM in South Africa, which subscribes to the www.buildingsmart.org vision of OpenBIM. This vision will ensure an inclusive environment for all professionals. More importantly, it will ensure professionals do not relinquish the future of the architectural profession to any software house.

VH: What can be done, and by whom, to elevate the standards and grow the uptake of BIM in the local context?

SBH: Architects need to get involved in the BIM space. The profession has a lot to gain from these workflows, but if we do not engage in OpenBIM as a profession, we have a lot to lose. Organisations such as the BIM Institute, BIM.SA, AutoSpec, BimLocal.co, BimSpec™ and BimBakery.co are engaging heavily with professionals to ensure that common and inclusive standards are authored and adopted. While the software distributors have a large role to play in the support of the local standard curation, I believe that it is imperative that the standards are assembled by neutral parties, from the professions.

VH: What exciting developments in BIM can architects, quantity surveyors and facility managers look forward to in the near future?

SBH: AutoSpec's engagement with the local South African BIM market is an exciting milestone. Having access to their experience and insight into the harvesting and management of local manufacturer data will add huge value to BIM users' workflows.

Their collaboration with BimBakery.co means that this local data will soon be connected into the leading BIM authoring solutions in our market.

VH: One piece of advice to users working with BIM solutions?

SBH: Ask data ownership questions of your software providers. The only truly open and inclusive format available globally, is IFC. Explore it. Promote it. Join www.bimsa.co.za. ■

"The only goal of the OpenBIM movement is to promote open collaboration workflows for better-coordinated projects" – <http://bit.ly/2aqSFZM>



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Tribute to an Icon in the Nigerian concrete industry

By *Olonade Kolawole Adisa (Engr, PhD)*
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The 20th of July, 2016 was a day of mourning for all those who have ever had contact with Engr. Musibau Ajibade Salau. That day, we lost an astute researcher, an icon in the concrete industry, a teacher par excellence, a mentor to the core, an eminent scholar and a reputable intellectual.

I can hardly believe that he is no longer accessible to me. As his doctoral student, I had such unequalled mentorship that, when I got admission abroad, I didn't accept it because Professor Salau could not be surpassed as a mentor. Now, I never regret being his student. It was indeed a source of pride to have been supervised by him.

Engr. Musibau Ajibade Salau was a distinguished professor of Civil Engineering with particular interest in structures and structural materials. 'Prof' (as many of us called him), made an indelible mark in research into local materials for construction sustainability in Nigeria and abroad. The title of his inaugural lecture "Abundant Local Materials without Structures" speaks of his contribution to the development of local construction materials for sustainable infrastructural development.

Professor Salau attended Odessa Civil Engineering Institute, in Odessa, Ukraine, where he obtained MSc. in Civil Engineering with first class honours as well as a PhD in Civil Engineering (Structures). While in Odessa, he was named the Best Foreign Post-graduate Student in 1983.

His career as an academic at the University of Lagos was characterised by arrays of achievements, which he made within a short period. He joined the Department of Civil and Environmental Engineering of the university in 1984 and rose to the peak of his career as a full professor in 2001. He was Acting Head of the Department between 2002 and 2004; and Head of Department (HOD) between 2005 and 2008. His tenure as HOD witnessed many monumental developments, both infrastructural and human. He facilitated the upgrade of all the laboratories and importantly, acquired a Universal Testing Machine from Imperial College using his connections. On completion of his term as HOD, the faculty members demonstrated their trust in him by voting him Dean of the Faculty of Engineering in 2008. During his two-term tenure as the Dean, he secured the N60-million sponsorship of the Engineering Design Laboratory from L.G. Electronics. He also facilitated the establishment of the Petroleum and Gas Laboratory (building and equipment) in the Department of Chemical Engineering worth N500 million in 2010, sponsored by PTDF. He ensured prompt and regular publication of the journal of the faculty.

Professor Salau was an erudite scholar. He published academic articles profusely in local and international journals

as well as in peer-reviewed conference proceedings. He was an external examiner for many Federal Universities in Nigeria and for post-graduate candidates at the University of Cranfield, in the United Kingdom. He was very productive, producing a very substantial number of Masters and PhD graduates.

Nevertheless, he was a professional engineer. He served at different times, as Consultant Structural Engineer to various projects in the University of Lagos. He was Consultant Structural Engineer to notable organisations such as the Nigerian Ports Authority, Nigerian National Petroleum Corporation and Shell Petroleum DC to mention a few.

Prof. Salau was a Registered Engineer, a Fellow of the Nigerian Academy of Engineering, the Nigerian Society of Engineers (NSE) as well as the Nigerian Institute of Structural Engineers (NIStructE). He was a Council Member, Council for the Regulation of Engineering in Nigeria (1999 – 2006); Council Member, Nigeria Society of Engineers (1987 – 1998), (2000 – 2003) and (2011 – 2012), and Chairman, Nigeria Society of Engineers (Lagos Branch) (2001 – 2003). He was Chairman, Technical Committee of the NSE (1992 – 2009) and ensured the quarterly publication of the Society's technical journal during his tenure.

In his comment about the demise of this distinguished professor, Engr. B. A. T. Odunlami has this to say: "Prof. was a down-to-earth individual who would say his mind no matter whose horse is gored. He was a 'no-nonsense' guy feared by many. He suffered no fools and didn't tolerate any examination shenanigans". He continues, "...in all these seriousnesses and studiousnesses, it is heartwarming to

know that Prof Salau was as witty and humorous as ever." The Vice President of the Nigerian Academy of Engineering, Prof. Fola Lasisi, said: "We have lost a most active and engaging colleague to many of us."

Prof, we don't mourn you; rather, we celebrate you because you've been a real gift and talent to the world; and indeed an icon in Nigerian concrete industry. You shall continue to live in our memory! ■



"Prof, we don't mourn you; rather, we celebrate you because you've been a real gift and talent to the world; and indeed an icon in Nigerian concrete industry. You shall continue to live in our memory!"

***Engr. Dr. Kolawole Adisa
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 Engineering (Materials and
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 of Lagos, Nigeria.***



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