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Raj Pillai,
Executive Director of Sobha Limited

SOBHA

PASSION AT WORK

PRECAST CONCRETE PLANTS

Expert Interview with Raj Pillai:

HIGHLY-LIVELY HOMES FOR TODAYS INDIAN FAMILIES

Bangalore's Sobha Ltd. is among the fastest-growing backward integrated property developers in India with more than 360 construction projects completed. In 2015 Sobha set the next milestone in the company's history with the installation of the largest onsite precast plant in India in Bangalore with German technology by Vollert. The residential construction project Sobha Dream Acres is now the first construction project implemented fully based on prefabricated elements.

Dream Acres is a 7,000 apartment residency located in the heart of Bangalore. It is the first project of Sobha Dream Series which is an outcome of Sobha´s vision to bring world class, highly-lively homes for today's Indian families. 81 acres of land with 80 % open space, 500 exclusive apartments of highest standards as well as first class amenities are creating history in India. Up to 400,000 m² annually of walls, slabs, beams, columns and special precast elements are produced in the new Sobha precast concrete factory for Dream Acres, that is 150 precast elements a day. "Vollert's great know-how as supplier of knowledge and the leading precast plant technology helped us to take this next milestone" explains Raj Pillai, Executive Director of Sobha Limited. We spoke with Raj Pillai about the Dream Acres project and the relevance of precast construction technology for India in the future.

QUESTION:

Sobha Dream Acres project is 20 months ahead of schedule. How is that possible?

RAJ PILLAI:

In India a G+14 building normally takes about 3–4 years to complete. Delayed delivery is one of the main issues the home buyer faces. Precast technology as construction method delivers better building quality and reduces construction costs, but even more important, it shortens construction times significantly. Homes in Sobha Dream Acres are getting completed in less than 300 days, 2 years ahead of time. Homes that were promised by delivery in 2018 will be delivered in 2016.

To give you a feel of construction pace, one floor has 8 apartments, and when they are broken down to elements we will have about 210 to 220 elements. With 150–200 elements capacity of production daily and 150–200 elements lifting capacity at site, we have a floor-cycle time of close to 3 to 5 days – compared to a conventional system with 10 to 15 days.

This is possible by strict timelines and a perfect synchronization of production processes at factory and construction processes at site.

QUESTION:

What were the challenges you faced during the project?

RAJ PILLAI:

Building in precast architecture requires a lot of know-how. Besides the availability of skilled work force and training schemes at the factory, the main issue is the preparation of shop drawings for a CAD/CAM-optimized production of precast walls and slabs, and the implementation of a fully integrated ERP system for coordinating all production and building-up processes. To scale production capacities exactly with the build-up and crane hook times at site is a critical point. Another important issue is the quality of the concrete and the finished elements that have to be consistently high and at the same level. Modern precast construction requires defect-free walls and slabs in terms of parts geometry and dimensions. Therefore this point is decisive.

QUESTION:

What is the main difference between a conventional project and one in precast?

RAJ PILLAI:

In all advanced countries the preference of construction is precast technology. It offers better building quality due to the industrialized production process and construction projects are completed in much shorter time than previously. Now it is time for India to get on this state-of-the-art level of construction.

In the world class facilities at Sobha in Bangalore we produce all elements for the Dream Acres project, realizing successfully the residencies in only 3 to 5 years. This would have not be possible with the normal conventional building methods. In addition Sobha has been able to decrease CO_2 carbon footprint by 25 %, water consumption by 50 % and reduce waste and energy usage. Homes build with precast technology have great thermal behavior, are weather and fire resistant and even earthquake resistant. For the homebuyer side, precast means saving interest on pre-EMI payments, early rental opportunities and entering the dream home sooner that their expectations.

QUESTION:

What would you recommend for one who wants to start using precast in construction?

RAJ PILLAI:

Simply said, the precast construction technology is a smart combination of optimally used raw material, efficient plant technology and time management. To embark on precast architecture one must know his requirements very clearly in concern to the building projects to be realized in future and the construction systems to be used. In addition there is a strong need for knowledge in concrete mixture and quality and for preparing the necessary shop drawings. And you have to invest yourself in the implementation of an efficient ERP software to link production and on-site processes.

In the pre-production stage there has to be a close cooperation between the real estate company, the architect and the plant engineering specialist, as we had with Vollert. In this phase the optimum production concept is found in terms of cost and time.

QUESTION:

Many people doubt that using precast in construction pays back. What is your opinion on that?

RAJ PILLAI:

If properly planned and implemented, precast construction is less expensive than conventional construction methods by 15 to 20 %. Even though the investment cost is higher at the beginning at first glance. In the end, the plant productivity and profitability figures are decisive. We will have defect-free walls and slabs in terms of geometry, dimensions and quality, shorter building-up times, no maintenance costs and long building lifetimes of more than 50 years.

QUESTION:

You have not used pre-stressed hollow core panels in your project. Why?

RAJ PILLAI:

The Sobha building system strives for walls and room size slabs with no joints, hence we avoided hollow core panels. However, we are using lattice girder or half slabs instead.

QUESTION:

How do you see the development of precast in the next future in India?

RAJ PILLAI:

The ´Housing for all by 2022´ government's scheme demands fast constructed affordable homes. With RERA in place and to fulfill these goals precast technology is the only way.

Yet, the most important advantage in precast technology is the benefit that it gives to the home owner, because in terms of precast the quality of the building is so well done considering the concrete and the position of the elements. In the conventional construction you have the problem of all kind of leakage etc. in 5 to 10 years of time. In precast that is totally eliminated and the life and durability of your house is more than a decade. And as a consequence the maintenance costs can be kept as minimum as possible also.

DEAR READERS,

I am very pleased to present the latest issue of our customer magazine to you.

Among other things, we report on how modern precast architecture changes the cityscapes in India, while at the same time protecting the environment and resources. Thus, the Sobha Dream Acres residential development project in Balagere near Bangalore is the first construction project on a precast basis that has recently been realized by Sobha Limited as one of the leading and fastest growing developers in India.

Another topic are new material flow and storage systems for the metallurgical, rolling and extrusion industry which were presented at ALUMINUM 2016 in Dusseldorf in November.

Furthermore, in January 2017, we are opening our new headquarter of Vollert India in Sikandrabad with state-of-the-art administration and production facilities. Engineered in Germany, made in India - you can rely on that. We are looking forward to meeting you soon. Maybe already at bauma ConExpo India 2016 from the 12 – 15 December in Delhi. Please visit us!

Yours sincerely

Debashish Roy
Head of Vollert India Pvt Ltd.

CLEAR & BRIEF

PRECAST CONCRETE PLANTS

100-TON BRIDGE GIRDERS FOR AUSTRALIA

Outfitted with a new bridge girder mould supplied by Nuspl, one of the biggest Australian construction groups can now manufacture prestressed bridge girders weighing over 100 tons and measuring up to 48 meters in length and 2.25 meters in height. Twenty hydraulic cylinders move the laterally traversable lifting platforms to facilitate variable land widths of 1 to 1.5 meters. A flexible moulding system was also developed for the customer so that the predefined clamping axis could be used for different cross-sections and heights as well.

To ensure that the bridge girder mould takes on the exact shape intended, an "on top" magnetic formwork system is employed. The reinforcing wire mesh is pretensioned fully automatically, while jogging motors compact the concrete. Following a battery of functional tests, the mould was safely stowed in 9 standard containers and shipped on a freighter from Europe to Australia. The Australian construction group is one of the leading manufacturers of precast concrete elements used in infrastructure projects throughout Australia, which include bridge and tunnel constructions, rail line installations, and solutions for the energy sector.

Twenty hydraulic cylinders

One of the biggest Australian construction groups now manufactures prestressed bridge girders weighing over 100 tons and measuring up to 48 meters

move the laterally traversable lifting platforms to facilitate variable land widths of 1 to 1.5 meters.

PRECAST CONCRETE PLANTS

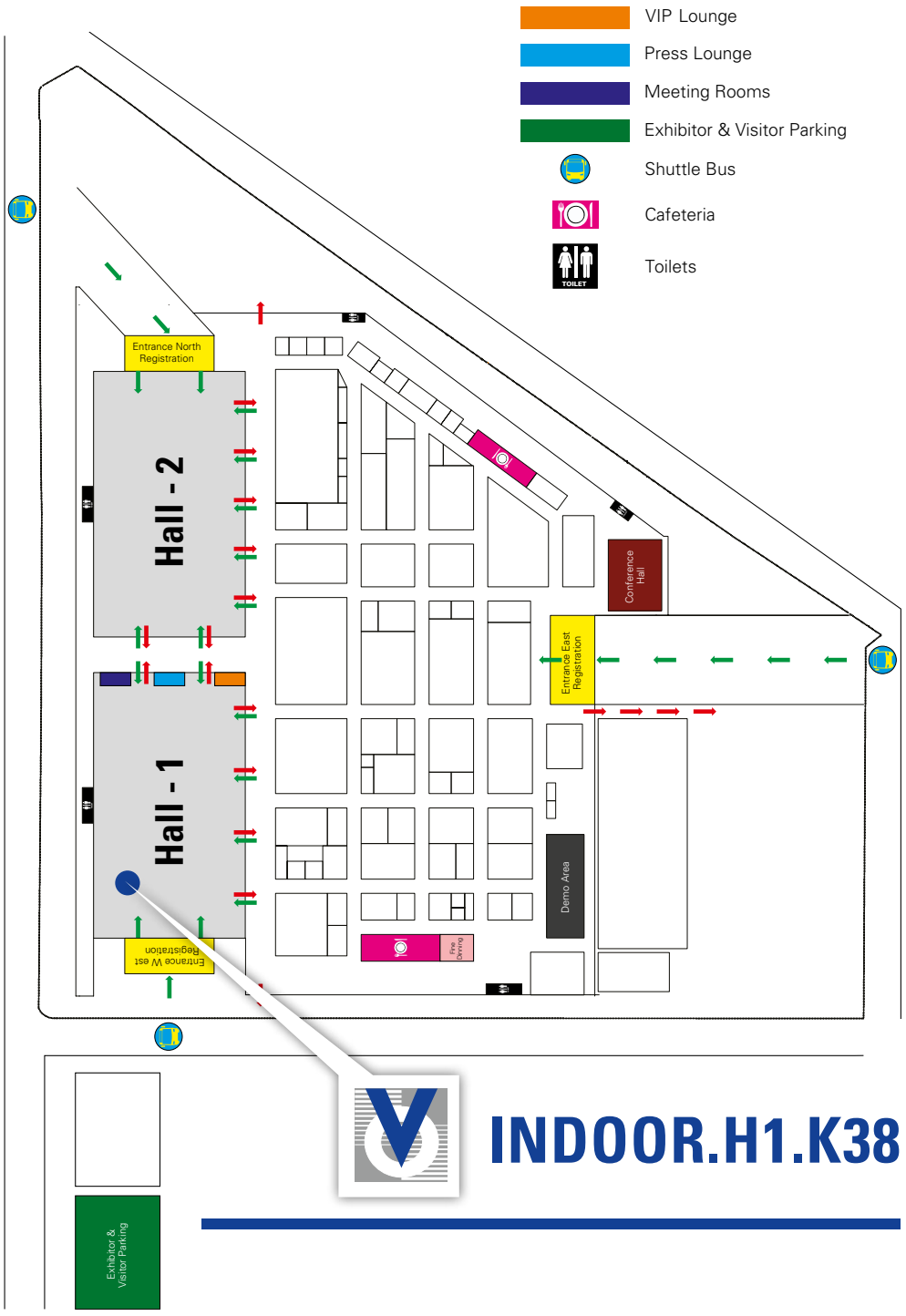
ALL IN PRECAST – BAUMA CONEXPO INDIA 2016

At bauma ConExpo India 2016 from the 12 – 15 December in Delhi, Vollert will present the latest machine concepts in modern precast concrete production at the German Pavilion. *Under the topic 'All in Precast', we will advise you on current precast building systems and inform you about the latest plant and formwork technology.*

The Sobha Group produces up to 400,000 m² of wall and slab elements each in a variety of geometries and dimensions for the Dream Acres residential building project in Balagere. But, in addition, also complex special concrete elements, precast staircases, facade elements as well as structural reinforced concrete parts such as beams and columns have been manufactured near Bangalore since July 2015. "Precast concrete parts will reduce construction costs by 15–20% in India. It is the only answer to the growing demand for low-cost office and residential space", Raj Pillai, Executive Director of Sobha Limited, remarks. "This will be an important conversation topic at the bauma ConExpo", says Debashish Roy, Head of Vollert India.

Another important topic are innovations in machine technology. Automated concrete distributors and state-of-the-art loading and transport solutions revolutionize the processes in precast concrete divisions. Additionally, new special formwork systems e.g. for columns, beams or precast staircases become more important. Significant increases in capacity as well as cost reductions are the result. For more information, please contact our experts at bauma ConExpo India 2016. We look forward to seeing you there.

bauma CONEXPO INDIA 2016



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PRECAST CONCRETE PLANTS

TEEMAGE PRECAST TRUSTS ON GERMAN ENGINEERING

For the stationary production of precast elements for modern residential and industrial buildings or infrastructure projects India´s leading construction specialists rely on state-of-the-art formwork technology by German Nuspl – 100 % produced in India.

Teemage Precast as part of The Chennai Silks group is one of the big players in the construction industry in India with more than 50 lakh sq.ft. of commercial and industrial buildings realized in and around Tamil Nadu. The precast manufacturing facility is situated in Kangeyam 70 kms from Coimbatore with over 22 acres of land. Hollow-core slabs of varying thicknesses, prestressed beams, columns, wall panels, slabs, stairs and various other products required for commercial, institutional, industrial and residential projects are being produced to continue setting new trends in building architecture in India.

Hydraulic tilting tables for the production of load bearing walls

"Teemage Precast is continually investing in the latest plant technology", explains Debashish Roy, Head of Vollert India. "Their capacity is now being further expanded to produce high-quality load-bearing walls for a current IT G+8-building at Gurgaon on modern hydraulic tilting tables from the German formwork specialist Nuspl, since 2012 part of the Vollert group." These are of extremely robust construction, consisting of welded structural steel profiles. Equipped with a formwork area of 48 m² and a surface load of 750 kg/m², they have a height-adjustable side rail from 100 to 300 mm to produce different thicknesses of concrete parts. During the formwork removal process, the side rail is simply folded down. The formwork surface consists of 8 mm-thick steel plates with ground flat surfaces for top-quality exposed concrete surfaces. Hydraulic tilting joints integrated with the tilting frame allow the formwork surface to be positioned at an angle of up to 83°. The hydraulic tilting process ensures that lifting takes place without chipping the sides of the concrete.

GERMAN TECHNOLOGY – 100 % MADE IN INDIA

"The extremely notable thing about this projects is that the installed formwork technology was produced to German quality standards in India" outlines Debashish Roy. "As the engineering Partner, Nuspl brought its years of experience, took on the construction part, and also monitored the formwork construction and assembly work." During this process, only materials and steel components produced 100 % in India were used. "The situation is certainly unique. In this way we are able to significantly reduce manufacturing costs with a similar quality level" adds the Indian MD. "This gives our customers a major 'leg-up' over other Indian precast concrete suppliers."

Equipped with a formwork area of 48 m² and a surface load of 750 kg/m², the tilting tables have a height-adjustable side rail from 100 to 300 mm to produce different thicknesses of concrete parts

INTRALOGISTICS SYSTEMS

INNOVATIVE TECHNOLOGIES FOR ANODE AND ALUMINIUM SHEET PRODUCTION

At the ALUMINIUM 2016 show in Dusseldorf, Germany, the worldwide largest trade fair for the aluminium industry, Vollert presented innovative material handling and storage systems for metallurgical, rolling and extrusion plants

On the new third automotive line at Hydro in Grevenbroich, a fully automated intralogistics solution from Vollert ensures optimal processes

A pioneering new process for cooling green anodes at the Hamburg factory of TRIMET Aluminium SE is akin to a mini revolution: The pilot plant reduces resource usage and completely dispenses with active cooling. It is the first of its kind in the world, using natural ambient air for cooling instead of cooling water or sprayed water. With the support of Swiss firm R&D Carbon, TRIMET carried out a feasibility study on the idea that was developed in Hamburg. It showed that air cooling is clearly superior to all other systems in terms of investment and operating costs.

HOT AIR INSTEAD OF COOLING WATER

Having previously designed several active air cooling systems for the cooling of coils in high-bay warehouses, Vollert has the corresponding process expertise. For TRIMET, the intralogistics specialists designed and built the high-bay warehouse for storing hot anodes, including the conveyor technology, control system and ventilation system. The cooling system is based on natural heat convection, and is controlled via openings in the roof. Active ventilation systems are not required, and a cost-intensive cooling water circuit is eliminated. In addition, automated conveyor technology prevents transportation damage and reduces green anode wastage. The high-bay warehouse in Hamburg contains a total of 336 anodes, which are automatically placed into and removed from storage – around 35 anodes per hour. TRIMET's annual production in Hamburg is around 130,000 t.

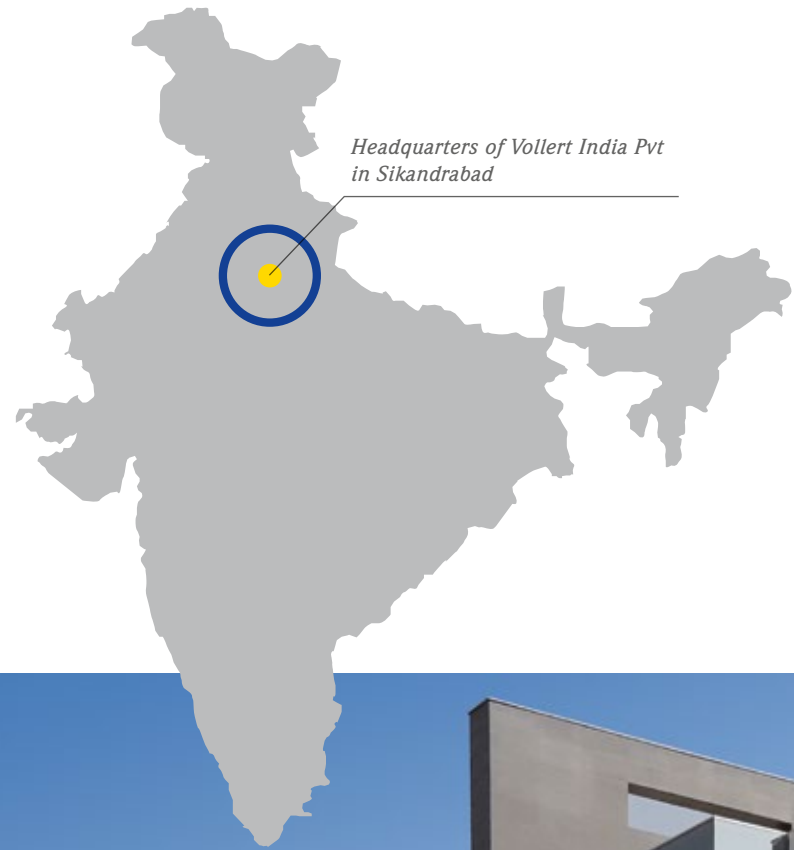
FULLY AUTOMATED INTRALOGISTICS SOLUTION AT HYDRO IN GREVENBROICH

"Consistent, fast and reliable," is how Lars Strobel, Sales Manager at Vollert, describes the new fully automated intralogistics system at Hydro Rolled Products GmbH. At Grevenbroich, Hydro has set up a completely new third production line specifically for automotive products. The concept provides for end-to-end automated processes for aluminium coils weighing up to 15 metric tons – from truck unloading, to storage and transport to production, to shipping and the return of waste materials. The central axis consists of a 36 m high, 100 m long Vollert high-bay warehouse for 800 coils. When raw coils from a Hydro sister factory are delivered, a fully automated manipulator unloads the coils from the truck. Via the high-bay warehouse and two coil manipulators, they are then provided as needed for further processing, heat treatment and surface treatment. "The fully automated systems allow high speeds, and they interact to yield a perfect production process" explains Lars Strobel. Since the beginning of October 2016, automotive line 3 has been producing the first strips for customers.

ON OUR OWN BEHALF

A STRONG COMMITMENT TO INDIA

Since 2011, Vollert India Pvt. Ltd. and Debashish Roy as Managing Director stand for a lot of know-how around the precast concrete production. With the investment in a new production and administration building in Sikandrabad, the German plant specialist Vollert is now setting up a strong long-term commitment to India.



At the new headquarters on the outskirts of New Delhi, beam and columns moulds as well as special formwork are going to be produced in addition to stationary casting and tilting tables already manufactured in India

Hans-Jörg Vollert, CEO Vollert Anlagenbau GmbH and Debashish Roy, Head of Vollert India

"With our new headquarters of Vollert India Pvt in Sikandrabad, we would like to strengthen our commitment to India and make it even more sustainable", says Hans-Jörg Vollert, CEO of the German plant specialist. The Indian construction industry has changed considerably in the last 5–10 years and is increasingly based on precast construction architecture. As a technology leader in plant engineering for precast concrete production, Vollert is one of the innovation drivers in the fields of building systems and production processes. "Since 2011, we have already been represented in New Delhi with a separate subsidiary and have successfully implemented numerous successful plant projects such as for Precast India, Teemage Precast or Sobha Ltd.", says Debashish Roy, Head of Vollert India.

At the new headquarters on the outskirts of New Delhi, in addition to stationary casting and tilting tables that are already manufactured in India, beam and column moulds as well as special formwork are going to be produced. "Equipped with a sufficient space, crane installations and its own quality assurance, we rely on 'Engineered in Germany, made in India'. This allows us to offer a completely different price/performance ratio compared to imported goods. At the same time, high custom duties and long delays are a thing of the past", says Hans-Jörg Vollert. "We will also have a comprehensive after-sales service." The spacious office and administrative areas offer not only consultancy talks but also for customer training. This will further strengthen the direct personal contact with customers.

"The Indian construction industry will grow strongly in the next few years and will continue to evolve rapidly", Hans-Jörg Vollert remarks. "We will use all our experience to ensure that our customers are at the forefront of the market."

ON OUR OWN BEHALF

CLOSER TO OUR CUSTOMERS

"Direct contact with our customers is very important to us. In close dialogue we develop tailor-made plant concepts for precast concrete production" explains ***Debashish Roy***, Head of Vollert India. A well-trained team of engineers and building specialists are set up.

In addition to ***Debashish Roy,*** now ***Sachin Nagar and Prateek Mody*** will be available for all questions concerning precast construction technology. "Precasting is the future of the construction industry. The fact that elements can be prepared in factory-like conditions provides dramatic improvement to the weather and labour independency and the overall quality, finish and timeline of the structure" explains ***Sales Manager Mody.***

Prateek Mody, Sales Manager

"I have worked at a precast yard, studying the manufacturing of pre-stressed hollow core slabs for City Capital Mall in Hyderabad, soon to be one of the biggest malls in India. My desire to know more about precast led me to the States where I did my Masters' in Structural Engineering from the University of Southern California, and I worked on multi-billion dollar structures in Los Angeles, Hong Kong and Macau. I came back to India this March, to use my expertise at Vollert to promote the growth of precast structures by providing cost-effective machinery and plants solutions to clients with various levels of investment to realize their precast goals."

Sachin Nagar, Sales Manager

Sachin Nagar also has high expectations of building development in India. "I strive for bringing the most modern construction technologies in compliance with the highest quality building standards to India." ***Nagar*** has been studying in Australia and accomplished his M.B.A. at the Central Queensland University in Sydney. He also has extensive know-how in the real estate sector and in the construction industry.

IMPRINT

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