

# BUILT EXPRESSIONS

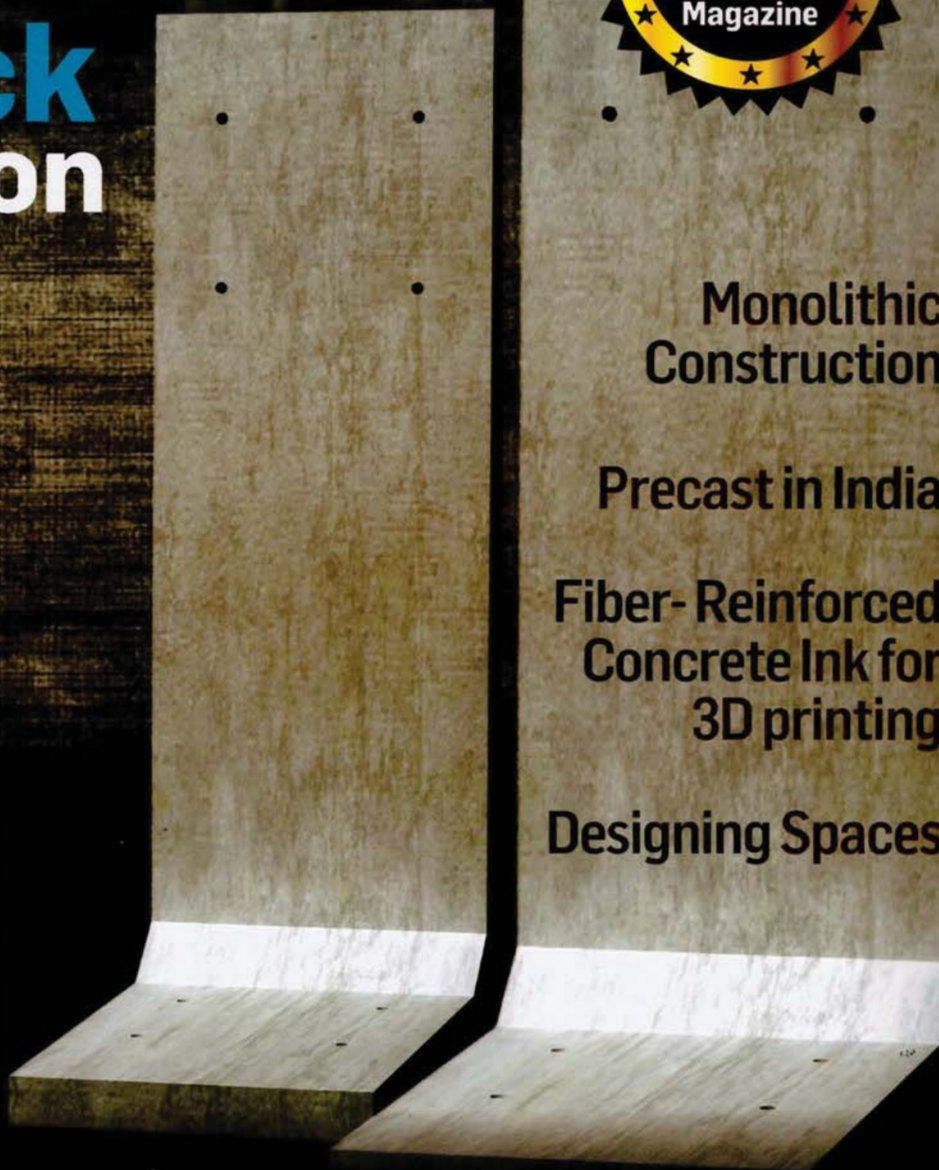
- ARCHITECTURE
- CIVIL ENGINEERING
- INFRASTRUCTURE
- PRODUCTS & TECHNOLOGY
- PROJECT MANAGEMENT

VOLUME 2 ISSUE 6

JUNE 2013

RS 100/-

# F FastTrack Construction



Monolithic  
Construction

Precast in India

Fiber- Reinforced  
Concrete Ink for  
3D printing

Designing Spaces

## EXCLUSIVE

14. THE ASCENT  
Bahrain World Trade Centre

## INTERVIEW

70. INDUSTRY INTERACTION  
R K Arora. CMD, Supertech Limited, Noida

# Expert Speak

## PRECAST DESIGN AND DETAILING SERVICES FROM WBK ENGINEERING

In an exclusive interaction with *Built Expressions*, Mr. Bob van Gils, director, WBK Engineering Services Pvt. Ltd. and Van Boxsel Engineering Pvt. Ltd. opines that precast is the technology to be successfully used for the future building projects in India. Excerpts below;



WBK Engineering Services Pvt. Ltd. India was established in 2009 to meet the rising demand in precast design and detailing services. WBK operates as a precast design and detailing consultant and is providing services to international clients and clients in India. It is a fully owned subsidiary and offshore division of the parent company, Van Boxsel Engineering BV from the Netherlands.

▶ **Bob van Gils**  
Director, WBK Engineering Services Pvt. Ltd.

**BE: Being one of the leaders in Precast Industry. Brief us about the changing technological trend witnessed in the precast industry?**

**BvG:** At the moment there is no changing trend witnessed in the precast industry in India. In the last 2 years several companies have executed their first precast projects and currently there are several more companies who are setting up their precast operations. Some of these companies have decided to setup a permanent plant and some have decided to go for a site based plant. In our view the coming 2 to 3 years will be important for these companies to prove that the technology can be successfully used for building projects in India. After that it is expected that many more real estate developers and builders will adopt this technology to save time, improve the quality and reduce the required manpower for their projects.

**BE: Can you briefly explain your expertise in designing and detailing**

**of precast building structures?**

**BvG:** The background of our company is from the Netherlands which is a relatively small country in Europe with around 16 million people. In such a small country there are more than 100 precast factories operational and they are using very advanced precast technologies. Our parent company in the Netherlands has been involved in the design and detailing of precast buildings for more than 40 years. Since we opened our office in Gurgaon in 2005 we have mainly been involved in providing design and detailing services related to precast. At the moment we are working for clients in several countries like USA, New Zealand and of course the Netherlands and India. We are able to support Indian clients with performing feasibility studies on precast concrete construction for their projects. When precast seems feasible we can design the precast plant which we are currently doing for one of our clients in Ghaziabad. Furthermore we perform structural analysis, design and detailing of the precast concrete, rcc and steel building structures.

In our Netherlands office we are already working with Tekla Structures software for 3D modeling of precast buildings. Our strategy for this year is to fully implement 3D BIM software also in our India office.

**BE: Which are the signature projects in India that you are currently involved with? With reference to India, what standard practice you adopt?**

**BvG:** We have been closely involved in the design of the precast plant of Supertech Limited in Greater Noida which is the most advanced precast plant in North India. The plant is having equipment from Ebawe and Echo to produce precast wall panels and precast prestressed hollow core slabs. This plant is now fully operational and the first precast building projects coming out of this plant have been designed by us.

Another signature project is the Bharat City Township for BCC Infrastructures in Ghaziabad. For this client we are designing the precast plant which will be having equipment from Weckenmann

to manufacture precast wall panels and precast half slabs. And also we are designing the precast residential towers for them with a total built up area of around 2 million square feet. In this project we are getting full advantage to optimize the apartment layouts and make them suitable for precast construction. As design practice we follow the relevant Indian Standard Codes and if Indian codes do not make any provision, the designs shall be based on other relevant codes and standards from other countries.

We are also exploring the possibility of constructing fully precast high rise structures in India of more than 30 floors. Several of these kinds of buildings have been successfully constructed in the Netherlands in the last 15 years and we believe that it should also be possible in India.

**BE: What are the advantages of Precast concrete building structures over other conventional structures?**

**BvG:** Major advantages of precast concrete:

- High Quality
- Fast construction
- Reduction in manpower
- Less wastage
- Good health and safety standards

- Durable construction material
- Large floor spans possible

**BE: What kind of turnkey solutions do you provide?**

**BvG:** We provide a total design solution to our clients which can involve the following aspects:

- Feasibility study on the use of precast concrete
- Assistance and guidance in setting up the precast plant
- Cost estimation of precast structures
- Structural analysis using FEM software
- Structural design and detailing of precast concrete building structures
- Preparation of precast shop drawings
- Preparation of precast erection drawings
- Proof checking of precast concrete design calculations and drawings
- Site inspections

**BE: What are the factors to be considered when deciding to implement precast concrete construction?**

- BvG:** Major factors:
- Reduction of construction time – time vs money
  - Availability of labor

- Required quality and finishing – quality vs money
- Availability of specialized design engineers
- Wastage of materials
- Mechanization – mass production of similar elements
- Requirement for prestressed concrete for large floor spans
- Sandwich panels with insulation for green buildings
- Size of the construction site
- Health and safety standards
- Ease of construction and project management
- Size of the project and long term strategy

**BE: What are the major disadvantages of Precast Concrete?**

**BvG:** Major disadvantages of precast concrete:

- Large initial investment required
- Heavy lifting equipment required
- Longer preparation time required
- Transportation of precast elements
- Taxation
- Limited flexibility. ■