

# Press release

Wednesday, 8 October 2014

## BOUYGUES CONSTRUCTION REWARDS ITS EMPLOYEES' INNOVATIONS

On Monday, October 6, the Group's Chairman and Chief Executive Officer, Yves Gabriel, presented the prizes for the 5th Bouygues Construction Innovation Competition. The ceremony, which was held at the Group's head office, Challenger<sup>1</sup>, formed part of Bouygues Construction's Campus Innovation, a major two-day event that brought together employees and more than 400 customers and partners and featured seven round table discussions and more than forty-five stands.

**Yves Gabriel, Chairman and Chief Executive Officer of Bouygues Construction,** commented: "The success of the Innovation Competition demonstrates the commitment of all our employees to our drive for innovation. This commitment is essential if we are to meet the challenges posed by the revolution that is under way in the construction sector, characterised at one and the same time by the rapid development of digital in our business processes and by the need to integrate the changing expectations of the users of our buildings and structures into our approach."



Held every two years, the Innovation Competition rewards the best inventions submitted by Group employees, both in France and in other countries, in all our businesses. The operation has met with growing success: almost 2,000 employees took part in the competition in 2014, double the number that took part in the very first competition back in 2006. A shortlist was compiled by a panel of acknowledged experts from both inside and outside Bouygues Construction, and was submitted by the R&D and Innovation Committee to a jury made up of members of the Group's General Management Committee. Out of a total of approximately 900 entries, 38 won prizes. Some new ideas have already been put into operation on construction sites, and information on all of them will be circulated throughout the whole Group.

The following innovations were among the prizewinning projects:

- **First prize for Technology: hybrid TBM and multi-diameter TBM**

The hybrid tunnel-boring machine (TBM) is a mix between earth pressure and mud pressure types of TBM, which allows it to adapt to a wide variety of ground types along the drilling path. The multi-diameter TBM can dig tunnels whose section varies.

- **First prize for Works – Operations – Services: Bouygues modular construction**

This is a new type of precast module highly suited to certain types of housing (student bedrooms, hotel rooms, etc.), allowing modular construction. It will mean reduced costs and delivery times and increased quality of the finished product, while creating better working conditions on the construction site.

- **First prize for Construction Sites: the all-purpose hammer**

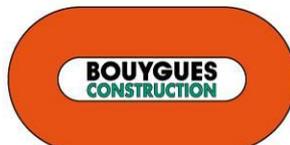
This unusually shaped hammer allows precise working in nooks and crannies that are difficult to reach using a traditional hammer. It is also safer and easier to use.

- **First prize for Sales: geomarketing of local authorities' needs for amenities**

This prize rewarded two geomarketing initiatives enabling the interactive visualisation of a local authority's amenity needs (street lighting, fibre optics, swimming pools, etc.) and generates presentations for the customer.

<sup>1</sup> A renovated positive-energy building, Challenger is the world's first building with triple LEED®, HQE® and BREEAM® certification.

As a global player in construction and services, Bouygues Construction designs, builds and operates buildings and structures which improve the quality of people's living and working environment: public and private buildings, transport infrastructures and energy and communications networks. A leader in sustainable construction, the Group and its 52,200 employees have a long-term commitment to helping their customers shape a better life. In 2013, Bouygues Construction generated sales of 11.1 billion Euros.



Shaping a Better Life

- **First prize for Logistics – Purchasing: Connecting sleeves and tubes in situ**

This connecting sleeve for high-density polyethylene (HDPE) tubes is intended for the world's longest buried 225 kVA power line. It is produced in a mini-plant temporarily installed on the site. In addition to direct benefits in terms of manufacture, transport and implementation, it also reduces the environmental impact of the construction site (CO<sub>2</sub>, pollution).

- **First Prize for Equipment: Pre-magnetised formers and butts, rigid frame formers**

These are two innovative developments for producing formers used in construction. In the first innovation, traditional materials (generally timber) are replaced by aluminium, which is very lightweight and can easily be reused from one site to another. In addition, this new type of former is very ergonomic thanks to integrated pre-fixing which makes it much easier to install in the formwork. The second innovation is intended to resolve the recurrent problems encountered when installing door- and window-frames and pouring concrete onto them.

- **First prize for Management – Accounting – Finance – Legal – Administrative: Logiskey**

This is a system for checking personnel on a construction site based on the use of tablets or smartphones that scan cards with QR codes. The use of "smart glasses" is also being considered.

- **First prize for Human Resources – Communications: Energy Hack**

The aim of this Hackathon (a collaborative computer programming challenge) was to develop prototypes of innovative applications based on controlling energy demands and the uses of energy in apartments, in two days.

In addition, several special awards were presented this year:

- **Special Jury Award: the Bouygues Travaux Publics tunnels initiative**, which made it possible to employ modern and innovative tools to improve the ergonomics and productivity of TBMs.
- **Special Award for Health & Safety: the D'colpano**, a tool for striking formwork on construction sites without using traditional methods, such as crowbars and pry bars. It makes it possible to strike formwork without damaging the concrete or the forms, in complete safety.
- **Special Award for Ergonomics: the B07 decompression box**, which makes it easier to remove rods between formwork and tightening nuts with no great effort, an improvement in terms of productivity and ergonomics.
- **Special Award for Sustainable Development: "21 proposals for the third industrial revolution"**. In the context of the Master Plan for the Third Industrial Revolution, 21 proposals for actions were elaborated and organised according to four main themes: spreading current know-how more widely, launching the third industrial revolution through demonstrators showcasing innovations, combating the urgency of social insecurity and energy poverty, and developing our models in the light of lateral power.
- **Special Award for Partnerships: ECO'nergy digger**, a new system, jointly designed with an equipment supplier, that improves the performance of the mechanical arms of diggers and reduces their energy consumption. The device recovers hydraulic energy released by the lowering of the arm of the digger and then reuses it to lift the arm, thereby relieving the load on the engine.

For several years now, the Group has been committed to a dynamic approach to innovation with a view to inventing the city of tomorrow alongside its partners, seeking to provide all its stakeholders with sustainable solutions, whether societal or technical.

Each year, Bouygues Construction devotes half of its R&D and innovation budget to sustainable construction, to design new uses, improve the performance of materials and equipment, guarantee safety, optimise construction times, and reduce environmental impact.

The Group is in no doubt that digital modelling is the future and that it represents a major source of progress. It has also undertaken a process of modernising its businesses to meet the new challenges of construction, in which BIM (Building Information Modelling) is playing a key part in the shift to more industrial construction methods, allowing us to significantly reduce lead times and costs, which will be in everyone's interest.

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