



## i.lab, the heart of Italcementi Research and Innovation



**i.lab** is Italcementi's new Research and Innovation Center. Designed by American architect **Richard Meier**, the building – which is currently under construction in the **KilometroRosso Science and Technology Park** near Bergamo and covers a surface area of 11,000 m<sup>2</sup> with 7,500 m<sup>2</sup> exclusively

dedicated to research activities – aims to meet the strictest requirements for energy saving and innovative quality design. In May 2010 the European Commission assigned **i.lab** the **European GreenBuilding Award** for best energy efficient project in Italy in the “Best New Building” category. The center will be able to cut energy consumption levels by up to 60 percent over the requirements of current legislation. The building is designed and built in accordance with the requirements of *LEED – Leadership in Energy and Environmental Design*, the most important and rigorous energy and environmental certification program in the world. Work is expected to be completed by the end of 2011, with Italcementi's researchers moving to the center.

### THE ARCHITECT

#### **Richard Meier**

Richard Meier is one of the great masters of contemporary architecture. Among his best-known projects are the High Museum in Atlanta (1983), the Museum of Contemporary Art in Barcelona (1997), the Getty Center in Los Angeles (1997) and the Dives in Misericordia church in Rome, for which Italcementi served as technical partner. *“The new Italcementi Research Center will not only be an iconic building expressing the Group's reputation for technical expertise; it will be a benchmark for sustainable design in Europe,”* says Richard Meier.

## **INNOVATIVE MATERIALS**

### **TX Active® for i.lab**

The **i.lab** building is covered with cement containing **TX Active®**, the photocatalytic “smog-eating” active principle that has already been used by architect Richard Meier on the Dives in Misericordia church project in Rome. **i.lab**’s structural elements made of white concrete – columns and roofing shells – required development of a high-strength white concrete capable of complying with stringent technical, durability and unalterability specifications. The TX Active®-based cement has proven capable of meeting all such structural and aesthetic requirements in addition to eliminating pollution with its photocatalytic action. Using TX Active® on a project contributes one credit in LEED’s “Innovation in Design” category.

### **i.light® “transparent” cement**

Some walls in the **i.lab** building are made of **i.light®**, the new “transparent” cement developed by Italcementi laboratories and used for the first time on the Italian Pavilion at Expo 2010 in Shanghai. **i.light®** lets light filter through the walls thanks to an innovative cement-admixtures mix design. The excellent flow properties of the mix allow plastic resin matrix to bond into the concrete panel. Plastic resins guarantee higher transparency performance than fiber optics (experimentally used in this field so far) with the extra benefit of costing less, thus permitting larger-scale applications.

### **Innovative concretes**

**i.lab** is built out of both prefabricated and cast-in-place high fluidity white and gray concrete. The most valuable structures – those of the laboratories – have been built with high performance cast-in-place gray concrete. The round columns, with diameters of 650 and 800 millimeters, have been poured into metal frame formwork, adequately foamed at the base, to prevent material from spilling. All types of concrete used in the project feature innovative high strength properties and have been developed and tested in Italcementi’s laboratories.

### **Alternative materials**

Alternative materials have been used to build **i.lab** as specified under the LEED certification system, which envisages the development of an efficient plan for the usage of products coming from recycled materials and/or produced locally. Concrete containing recycled aggregates from construction & demolition or blast furnace slag, recovered within 800 km of the project site, was used to build the floor screeds, the foundations and the outer walls. Other portions of the building were constructed with recycled slag-containing cement as well as other materials obtained entirely from industrial process waste.

### **The geothermal energy system**

**i.lab** is equipped with a geothermal energy system ensuring effective winter warming and summer cooling for the building. Fifty-one wells serving the building were dug as far down as 100 m from road level to guarantee thermal exchange with the subsoil. The system consists of three loops and three heat pumps and contributes to winter heating and summer cooling, with energy savings of up to 50% and 25% respectively, thus reducing overall CO2 emissions into the atmosphere.

## **ENVIRONMENTAL CERTIFICATIONS AND AWARDS**

### **LEED Leadership in Energy and Environmental Design**

**i.lab** is designed and built to conform to LEED standards, the most authoritative and widely used rating system for assessing the environmental sustainability of buildings. The system specifies the requirements for designing, constructing and managing buildings in an optimal and eco-compatible manner.

The final rating is assigned based on a definite set of pre-requisites and “credits” such as sustainable site; indoor environmental quality; innovation in design; water, energy, materials and resource management; regional priority.

**i.lab** aims to achieve LEED Platinum certification, the highest rating available.

### **i.lab: an award-winning center**

The Italcementi's Research and Innovation Center has already earned important international recognition. In 2009, it was honored with the *Green Good Design Award* from the Chicago Athenaeum and the European Centre for Architecture Art Design and Urban Studies. In May 2010, the European Commission awarded **i.lab** the *European GreenBuilding Award* as the best new building in Italy for energy efficiency in the "Best New Building" category. The structure will be capable of saving 60% more energy than required by current legislation thanks to the construction methods and materials used in the building's cladding and use of renewable energy sources.

## **THE LOCATION**

### **i.lab at KilometroRosso**

**i.lab** is currently under construction in the KilometroRosso Science and Technology Park on the outskirts of Bergamo. The Park site already hosts renowned research centers and the laboratories of prominent high-tech enterprises and scientific institutes. Around 3,000 people will play an active role in this place of aggregation, fulfilling its mission of fostering cooperative projects and synergies in support of research and technological innovation.

**i.lab** will host engineers, technicians and researchers developing technological, functional and stylistic innovations for new construction materials.