



Italcementi Group

A world class local business

Research & Innovation in Italcementi

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L'Innovazione in Italcementi

L'Innovazione in Italcementi è finalizzata a creare un ritorno economico per il Gruppo.

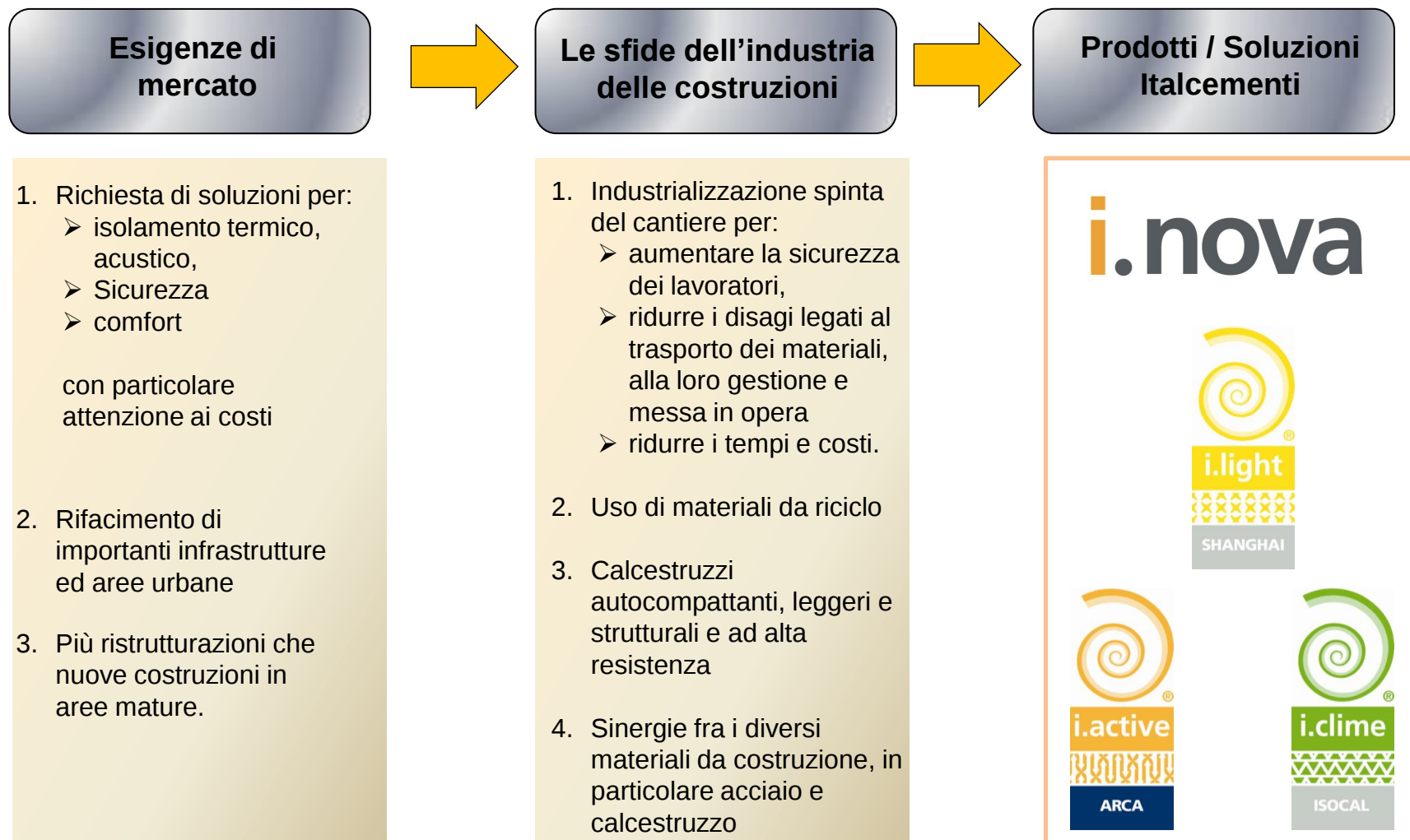
L'Innovazione sviluppa prodotti ed applicazioni per costruire in modo più efficiente e a costi più bassi edifici che siano:

- ❑ **Sostenibili:** che consumino meno energia, siano meglio isolati termicamente e meglio insonorizzati
- ❑ **Sicuri:** antisismici, resistenti al fuoco, alle radiazioni, ad eventi imprevedibili
- ❑ **Confortevoli e belli**

con una particolare attenzione al territorio, usando sempre meno materie prime e preservando l'ambiente

Prodotti e soluzioni innovative

I prodotti e le soluzioni innovative di Italcementi rispondono ad esigenze di mercato e a sfide dell'industria delle costruzioni sempre più orientate alla sostenibilità ambientale



i.lab and innovation



Network

Italcementi
market/client

- **100 researchers** - engineers, chemists, physicists, geologists
- **7500 m²** dedicated to laboratories
- **Over 100** patents filed since 1992
- **Over 225 mEuro** annual sales thanks to innovative products
- **Time-to-market** halved since 2001

Partners

Suppliers

From 2005 innovation rate more than tripled (from 1.5% to 5.3%)

Classic
products

Innovative products

Special
products

From commodity to specialty for the building community



A high-tech green product



ALIPRE® is Italcementi Group brand for its products family **based on calcium sulfoaluminate technology**.

ALIPRE® is a new range of high-tech, eco-compatible clinker-based products, an ideal base for formulating a wide range of premixed products.



ALIPRE® is an example of high technology resulting from a **production process with a low environmental impact**: energy consumption and CO₂ emission are positively less than in OPC manufacturing, which has been possible also thanks to a modern industrial system and the adoption of advanced methods of process parameter control.

ALIPRE® based products are obtained by mixing calcium sulfoaluminate clinker with calcium sulfate and Portland cement. Proper blends of the three components allow to satisfy a wide range of needs like:

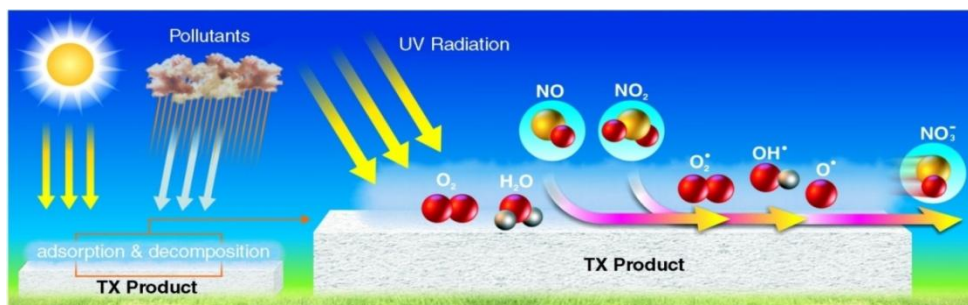
- ☐ highly adjustable setting time
- ☐ rapid early strength development
- ☐ progressive strength increase, exceeding top-performing Portland cements
- ☐ low shrinkage values
- ☐ low alkali content



An eco-friendly solution



TX Active® is the innovative active photocatalytic principle for cementitious materials able to transfer its **anti-polluting** and **self-cleaning** proprieties to the entire range of Italcementi Group products.



Thanks to photocatalysis, that works as an accelerator of an oxidation process already existing in nature, products containing TX Active® reduce the harmful substances present in the air and preserve the aesthetic quality of buildings over time.

After 10 years of research **Italcementi was the first industrial group to patent photocatalytic cementitious materials and to offer an industrialized solution to the problem of pollution in cities.**



Photocatalytic coatings

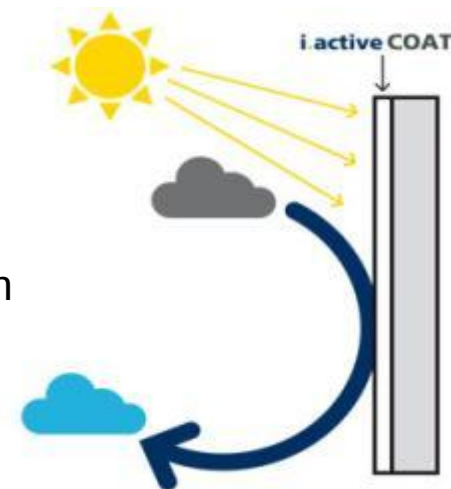
i.active COAT

i.active COAT is a new generation of cement-based coatings for both indoor and outdoor use featuring surprising performance thanks to TX Active, the innovative photocatalytic principle patented by Italcementi



1,000 m² of i.active COAT correspond to:

- planting 100 evergreen trees
- removing 13 times more pollution than an evergreen leaf area of 1,000 m²
- eliminating the pollution caused by 30 gasoline vehicles or 10 diesel vehicles



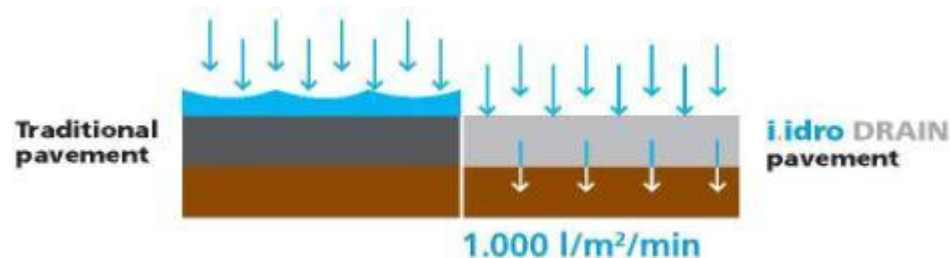
- Enhanced aesthetics
- Forever white
- Smog-eating
- Always active
- Easy to apply



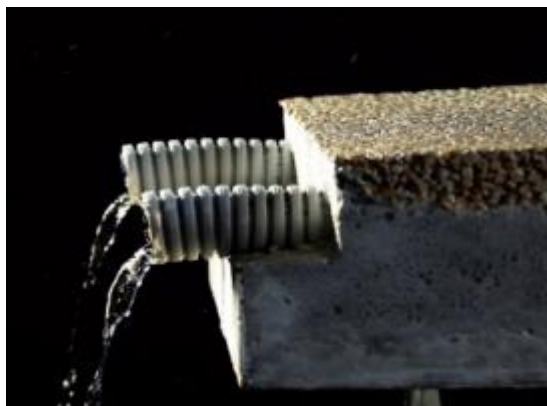
Draining solutions

i.idro DRAIN

i.idro DRAIN is an innovative concrete formulation **capable of draining water**. Thanks to a specially formulated mix, it combines the strength of a concrete pavement with a drainage capacity being 100 times greater than that of natural soil.



- ❑ More nature, less pollution
- ❑ Better micro-climate, greater comfort
- ❑ Less risk, more safety
- ❑ Less cost, longer life



Ultra strong pavings

i.tech CARGO

i.tech CARGO is an innovative self-percolating cementitious grout ideal for making semi-flexible pavements designed for heavy loads.

It considerably improves the physical and mechanical properties of highly-porous bitumen pavements.



Asphalt pavement

i.tech CARGO pavement

- ☐ Up to 4 times stronger
- ☐ Easy and quick to place
- ☐ Less maintenance
- ☐ Sustainable
- ☐ Greater safety
- ☐ High heat resistance



Transparent cement

i.light

i.light® is the new transparent cement especially developed by Italcementi Group to build the **Italian Pavilion at the 2010 World Expo in Shanghai.**



i.light is a precast concrete panel that **can transmit light**

- ❑ It is obtained by bonding special resins in an innovative mortar
- ❑ These resins have higher transparency performance than the optical fibres experimentally used in this field
- ❑ The resins cost much less than the optical fibres allowing for their application on a large scale

i.light not only lets natural and artificial light in, but also allows seeing images or objects placed behind the panel thus creating a surprisingly transparent effect

i.light is:

- ❑ clear and bright
- ❑ durable
- ❑ sustainable
- ❑ cost efficient



EXPO 2015: Palazzo Italia – Outer Skin

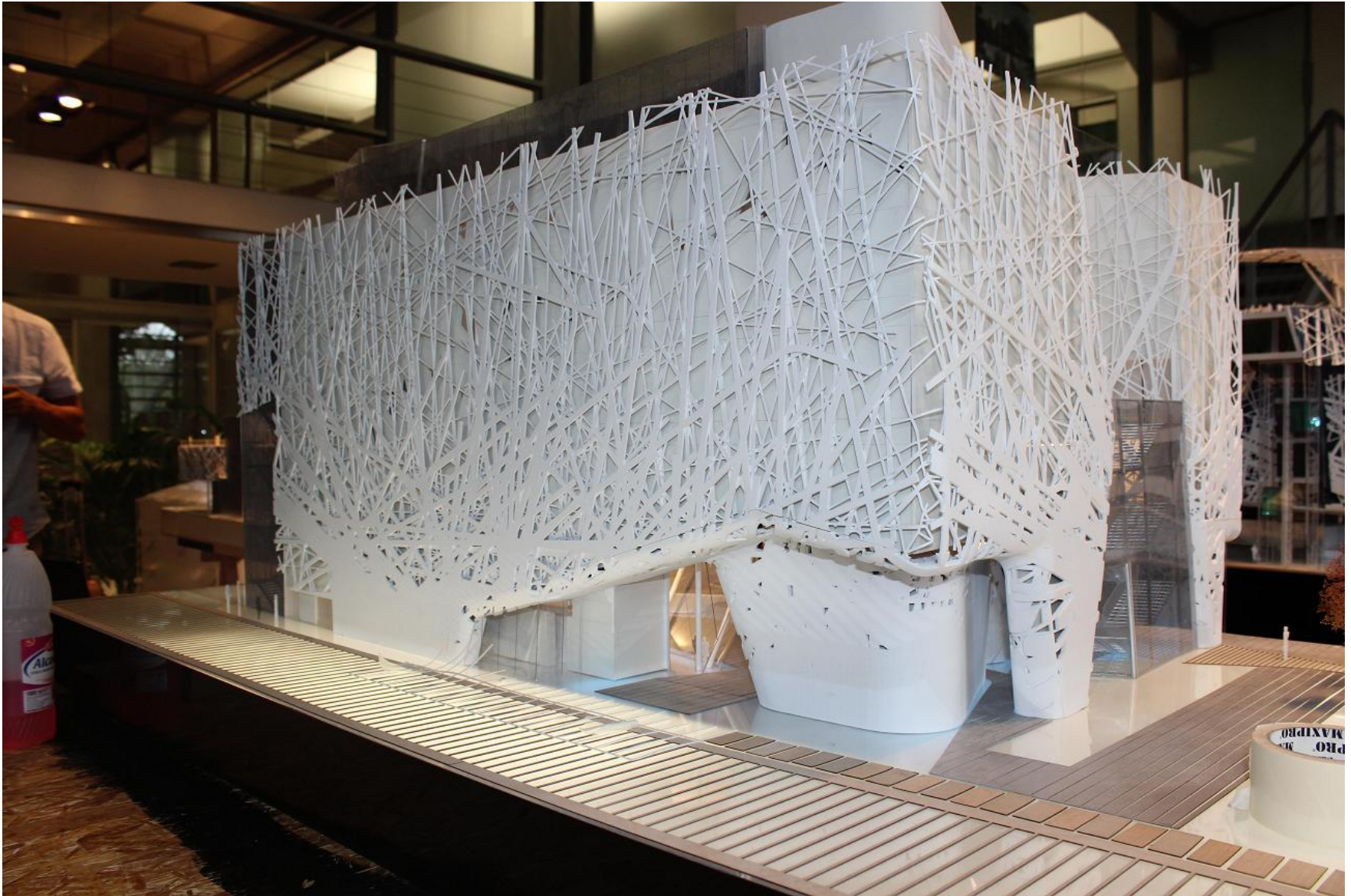


The packaging material is a high-performance mortar manufactured for artifacts with high quality surface (i.active BIODYNAMIC®), made of hydraulic cement binders with photocatalytic capacity based on the TX Active® principle.

The use of this material returns naturalness to the project. Due to its “organic” material of which the lifeless composition is specifically designed to return a warm and vibrant materiality to the building.



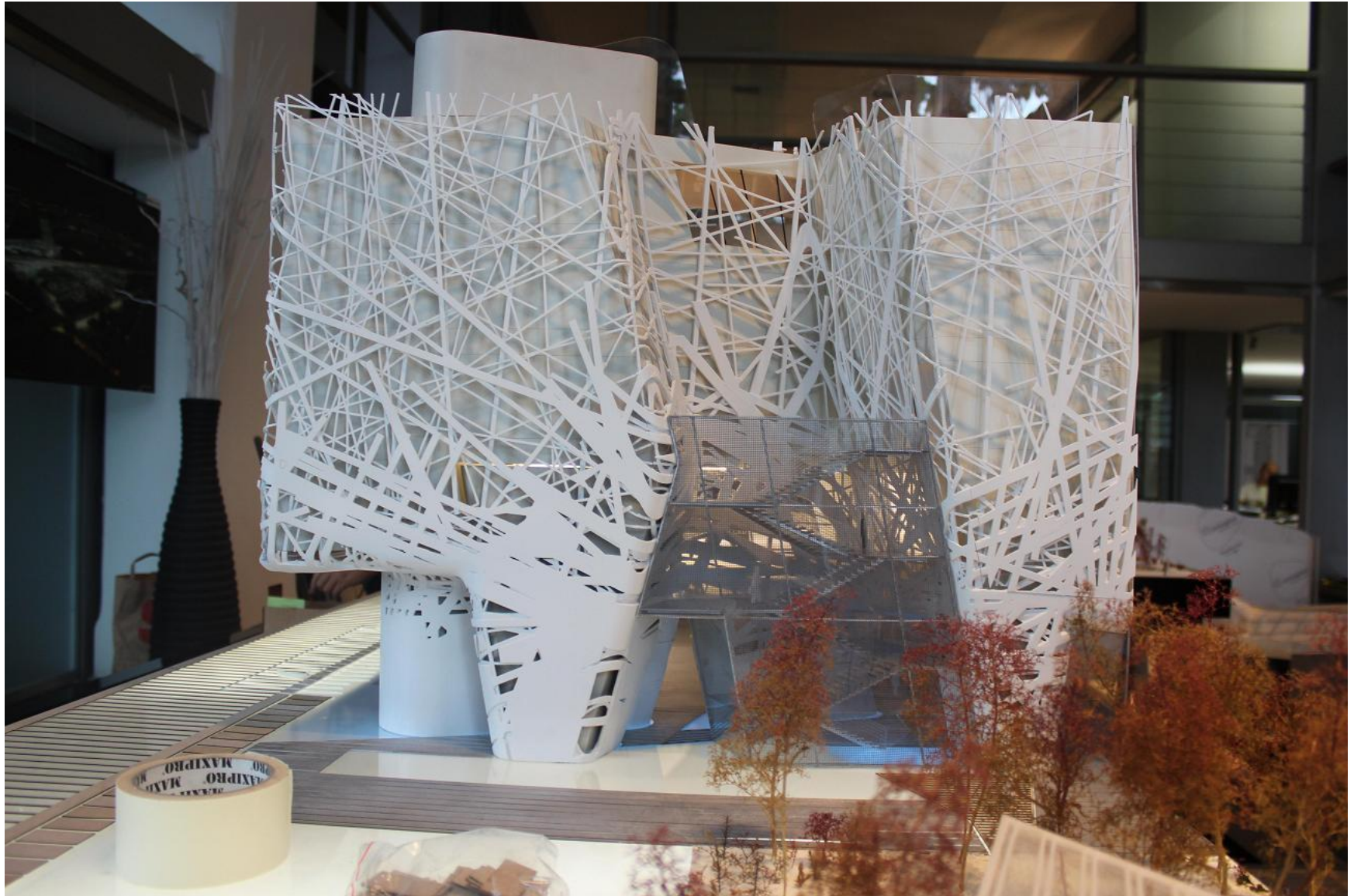
EXPO 2015: Palazzo Italia Outer Skin



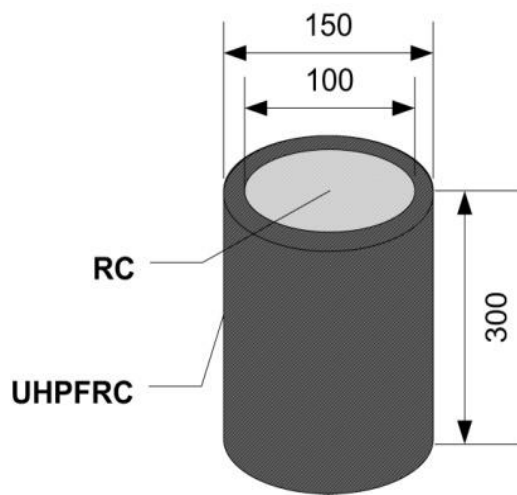
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UHPFRC una possibile alternativa...



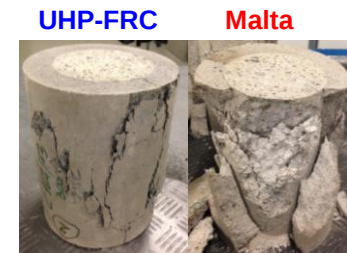
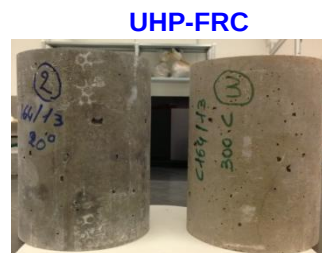
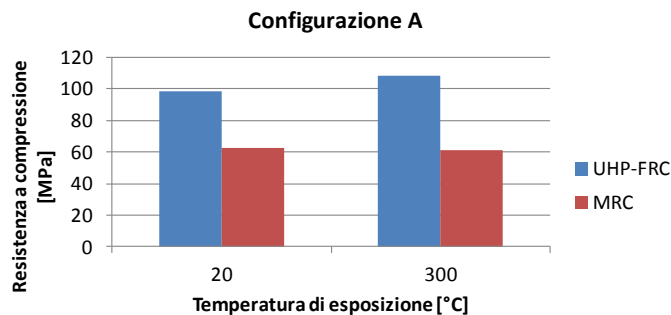
Proprietà Meccaniche		
Provino RC	MPa	41,5
con incamiciatura UHPFRC	MPa	99,0
con incamiciatura FRP	MPa	52,0



FRP

UHPFRC – Alte Temperature

Sistemi bistrato rinforzati (cilindri dopo trattamento termico)



Sistemi bistrato rinforzati (aderenza su sistemi prismatici)

Proprietà		UHP-FRC	Malta Ripristino
Adesione 20°C (>56 giorni)	[MPa]	1,36	1,85
Adesione 300°C (>56 giorni)	[MPa]	1,12	2,02



UHP-FRC

Malta Ripristino