

# SMART HOME

## The Chicago Museum of Science and Industry Exhibits an Eco-sustainable Building

The Chicago Museum of Science and Industry recently opened a new “green” exhibit for guests interested in the latest innovations in reusable resources, smart energy consumption, and clean, healthy living environments in a contemporary setting. Conceived by Michelle Kaufmann Designs, the leading designer of sustainable, green homes in the USA, the “Smart Home: Green + Wired” exhibit celebrates exciting new directions in sustainable living and environmentally friendly technologies for the 21<sup>st</sup> century.

### Building an Eco-sustainable Home

The 230 m<sup>2</sup> mkSolaire home – located on a park on the east side of the museum – was constructed in two parts. The modular three-story house was built in a factory by All-American Homes of Middlebury, Indiana (USA). After the pre-fabricated components were transported to the museum site, Norcon, Inc., the general contractor for the Smart Home, assembled the three levels with the use of a crane and then completed the interior work and exterior green landscaping.

At the request of Daltile Corporation, Mapei was introduced to this project to participate in the donation of a flooring system utilizing the Company’s systems for laying ceramic tiles and wooden floors.

After waterproofing the substrates with MAPELASTIC 315 two-component, flexible cementitious membrane, the tile floors in the bathrooms were installed at the plant in Indiana using the KERABOND+ISOLASTIC mortar system (ISOLASTIC is distributed in the American market with the name of KERALASTIC) and OPTICOLOR improved, water-cleanable, reactive resin grout for grouting the joints. The Blazestone 5 x 5 cm wall tiles in the powder room on the first floor were made entirely from post-industrial and post-consumer glass, as were the Blazestone Subway 9 x 19 cm shower tiles in the master bath. The floor tiles in the master bath – from Terra Green Ceramics – were made with 55% recycled glass content and qualify for LEED certification points. LEED is a certification system aimed at developing high-performance “green” buildings or, in other words, structures designed,



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Photo 1.  
Outside view of the Smart Home.

Photo 2 and 3.

In the bathrooms ceramic tiles were bonded with the KERABOND+ISOLASTIC system (ISOLASTIC is distributed in the American market with the name of KERALASTIC) and the tile joints were grouted with OPTICOLOR.

Photo 4.

Limestone tiles were installed on the flooring throughout the ground level with the KERABOND+ISOLASTIC system (ISOLASTIC is distributed in the American market with the name of KERALASTIC) and the tile joints were grouted with ULTRACOLOR.

built (or restructured) to operate in an eco-sustainable and energy efficient way. The system is officially adopted in Canada and the USA and becoming increasingly popular worldwide. The shower and floor tiles in the second bathroom were handmade from recycled glass, paper and low-carbon cement. The Jurastone Beige limestone tiles used for the flooring



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**Mapei Products:** the products mentioned in this article (**Mapelastc 315, Kerabond/Isolastic** - Isolastic is distributed in the American market with the name of Keralastic - , **Opticolor, Ultracolor, Ultrabond 990**) are manufactured and distributed in the American market by Mapei Corp. (USA). For further information please see the web site [www.mapei.com](http://www.mapei.com).

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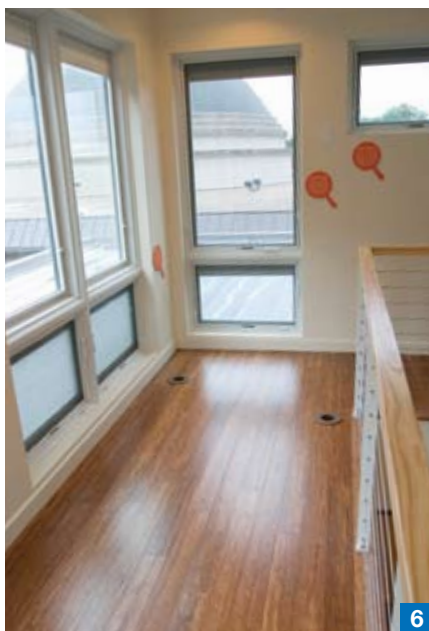
throughout the ground level were set with the KERABOND+ISOLASTIC mortar system to stand up to the heavy traffic from the thousands of visitors who tour the Smart Home. The tiles were grouted with n. 94 Straw ULTRACOLOR grout. On the second and third levels, the wood flooring was set with ULTRABOND 990 solvent-free, one-component urethane wood-flooring adhesive. Synergy prefinished strand bamboo flooring from Teragren was used for the bedroom and hallways because bamboo is a highly renewable material. It grows quickly – about 27 m in just one year. ULTRABOND 990 was chosen for this installation because the bamboo had to be bonded to the steel base of the pre-fabricated modules.

Perhaps motivated by the Smart Home, other museums and organizations around the United States are planning and incorporating “green living” displays into their exhibits; but none have so far created a real, working home complete with green landscaping surrounding the home. The Smart Home includes a green roof, a “lawn” of native plants and perennials with a porous paver system forming the walkways, and a unique vegetable garden that makes use of growing boxes to provide vegetables and herbs during three seasons of the year.

The museum’s curators had originally planned to display the “Smart Home: Green + Wired” exhibit from May 2008 through January 2009, but the immense interest in “Chicago’s greenest home” has inspired them to extend the exhibit for an additional year.

During the 2009 edition of Coverings trade fair, Mapei Corp., the US subsidiary of the Mapei Group, provided attendees with a special folder from the museum, which highlighted this innovative building project.

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Photos 5 and 6. On the second and third levels, the wood and bamboo flooring were bonded using ULTRABOND 990 adhesive.

## TECHNICAL DATA

**Smart Home,** Chicago Museum of Science and Industry, Chicago (USA)

**Designer:** Michelle Kaufmann Designs

**Period of Construction:** 2007-2008

**Intervention by Mapei:** supplying products for laying recycled material tiles, for grouting tile joints, for laying wooden and bamboo floorings

**Client:** Chicago Museum of Science and Industry

**Works Director:** Brandon Rogalski of Norcon, Inc.

**Contractors:** American Homes of Middlebury, Indiana; Norcon Inc.

**Laying Company:** Trostrud Tile & Mosaic Inc.

**Materials Laid:** recycled materials tiles, wooden and bamboo flooring

**Mapei Distributor:** Daltile

**Mapei Co-ordinator:** Steve Cameron, Mapei Corp. (USA)



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