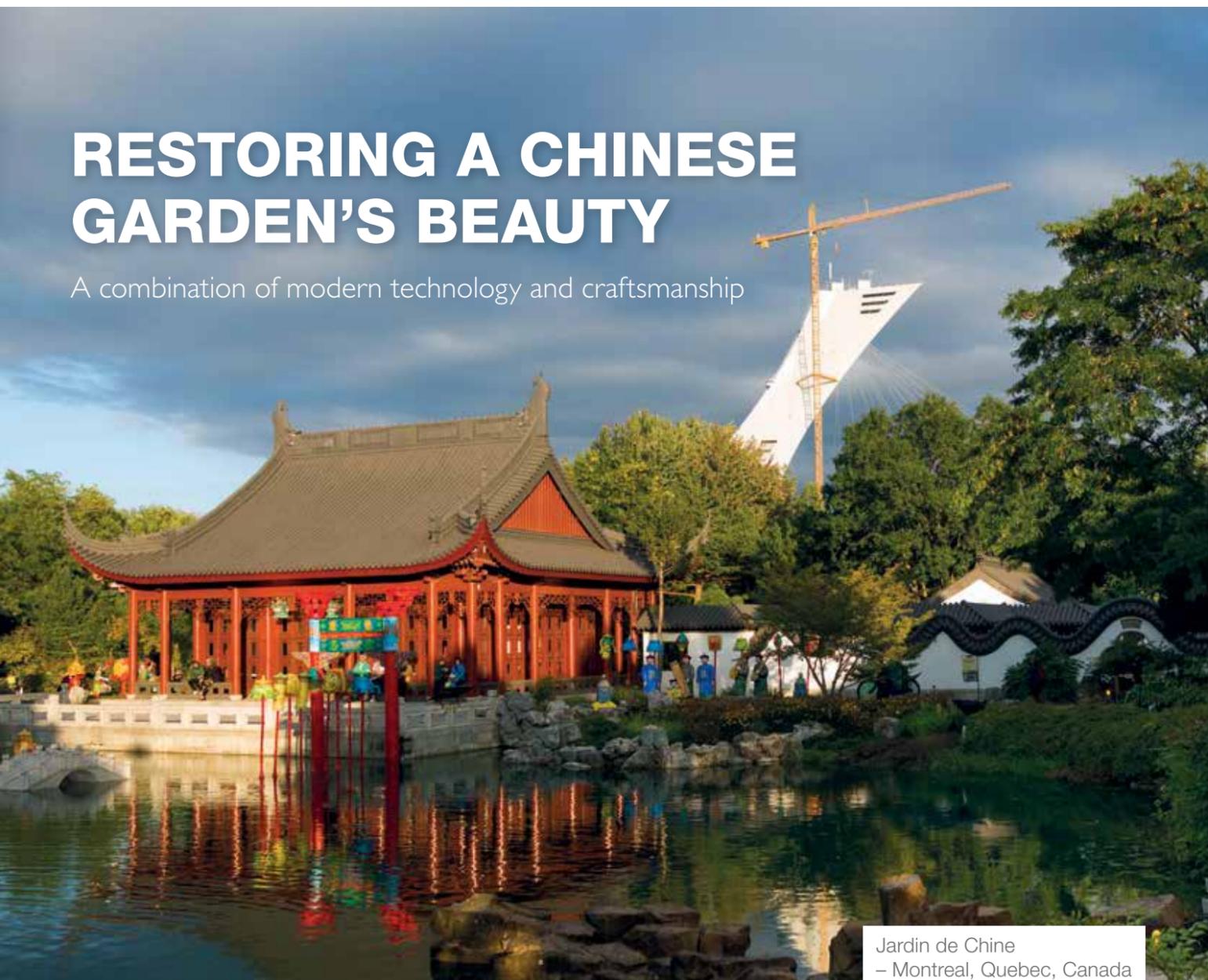


RESTORING A CHINESE GARDEN'S BEAUTY

A combination of modern technology and craftsmanship



Jardin de Chine
– Montreal, Quebec, Canada

Overview: MAPEI products and technical support helped restore the roof of the main building and the decorative walls throughout the Jardin de Chine, which is the Chinese garden situated within the Montreal Botanical Garden. *Planitop® 12 SR* and *Mapecem® 202* played key roles in restoring the garden's structures, and *Elastocolor®* products provided protective coatings.

The Jardin botanique de Montréal (Montreal Botanical Garden) is considered to be one of the most important botanical gardens in the world, thanks to its collection of more than 20,000 different types of plants and cultivars, 10 greenhouses and 30 thematic gardens open to the general public. The garden extends over an area of 185.3 acres (75 hectares) and, in 2008, was officially designated a National Historic Site of Canada.

Designed in 1931 by the landscape architects Henry Teuscher and Frederick Gage Todd, the Montreal Botanical Garden receives around 2 million visitors every year. Included within the garden is an arboretum, a rose garden, a Japanese garden, an insectarium,

the Frédéric Back Tree Pavilion and a Chinese garden (Jardin de Chine). The Jardin de Chine was created in 1990 by 50 artisans who were brought over from the Shanghai Institute of Landscape Design and Architecture in Shanghai, China.

The Jardin de Chine covers about 6.17 acres (2,5 hectares). Its plantings were created along the lines of a traditional garden of the Ming dynasty. (The art of gardening in China was first established during the Ming and Qing dynasties, when the emperors and the noblest families invested enormous amounts of money and effort to create the most refined gardens.) The garden has several paths running through it, as well as an artificial mountain and a Chinese-style residential building that houses a collection of Japanese and Chinese bonsai donated by the Government of the People's Republic of China.

The project to build the garden required 120 container ships full of plants and construction materials imported from Shanghai, including 500 metric tons (500 000 kg) of stone from Lake Tai in the Province of Jiangsu.



MAPEI products on the jobsite

More than 20 years after it was first created, the Jardin de Chine needed to be restored, starting with the roofs of the buildings in the garden. MAPEI's Technical Services was contacted to work alongside engineer Jean Bouvrette and project manager Richard Robillard from the City of Montreal. The same artisans who created the original garden in the 1990s returned from China to help with the restoration work.

The schedule for the restoration work had to be strictly adhered to, so a great deal of importance was given to choosing the products used. Fast-setting properties, ease of application and the ability to withstand Quebec's harsh winter weather conditions were key selection criteria.

MAPEI products were used to address a number of repair issues during the restoration of the Jardin de Chine. As each challenge arose, the restorers turned to their MAPEI representatives, who provided solutions for reconstructing areas of the roofs and garden walls, repairing and setting terracotta tiles on the roofs and providing a protective coating with *Elastocolor Coat*.

To begin the restoration, the roofs of the buildings were rebuilt by applying a 1" (2,5 cm) coat of *Planitop 12 SR* fiber-reinforced mortar – which is resistant to tensile loads and abrasion – directly on the metal sheeting of each roof. The terracotta tiles imported directly from China were installed over the surface made from *Planitop 12 SR* using *Mapecem 202* rapid-setting cementitious mortar.

Mapecem 202 was the ideal solution due to the thickness needed to secure the curved tiles in place. The jutting gutters around the roofs, typical of Chinese architecture, were installed in some of the roof areas with *Mapecem 202*, while in other areas the *Granirapid® System* was the mortar system of choice. Every border tile was installed with the *Granirapid System* in order to accelerate the installation of the adjacent roof tiles. The artisans needed a product that would provide a firm bond with a quick-set capability, and the *Granirapid System* was the best solution.

The roof tiles needed to be repainted because quite a number of them were damaged in transit from China. MAPEI's Technical Services proposed using *Elastocolor Coat*, a high-yield acrylic coating product used to decorate and protect surfaces. This product is available in a vast range of standard colors and a limitless number of tailor-made colors. It forms a waterproof film that provides excellent resistance to environmental conditions over the years. The use of *Elastocolor Coat* as the finish for the roofs received the seal of approval from Montreal Botanical Garden representatives and the Chinese artisans.

The walls surrounding buildings, temples and cities are very important features of typical Chinese landscapes because they offer protection and cover from the outside. The walls surrounding the Jardin de Chine needed to be restored and protected against the elements. To restore the walls to their original white color, the pastel tint base of *Elastocolor Paint* – an acrylic-based paint that is water-resistant and impermeable to aggressive agents present in the surrounding air – was recommended.

The surface of each wall and its decorative oval features are similar to what is seen on the Great Wall of China. For this part of the restoration, the damaged areas were removed and then repaired with *Planitop XS* fiber-reinforced mortar (which is resistant to compressive and flexural loads), while the decorative features were bonded to the surface using *Mapecem 202*.

The City of Montreal and the Chinese artisans who carried out the work were highly satisfied with the end result and praised the quality and reliability of the recommended MAPEI products.





TECHNICAL DATA

The Jardin de Chine (at the Montreal Botanical Garden)

— Montreal, Quebec (Canada)

Year of construction: 1931

Year of MAPEI involvement: 2016

Where MAPEI products were used: MAPEI products were used to restore building roofs and perimeter walls, bond decorative features, provide protective coatings and finish surfaces.

Project owner: City of Montreal

Architects: Menaud Lapointe; Beaupré Michaud et Associés, Architectes

Engineer: Jean Bouvrette

Project manager: Richard Robillard

MAPEI distributor: Geroquip

MAPEI coordinator: Domenic Romano

MAPEI Products

Repairing roofs and walls: *Granirapid System, Mapecem 202, Planitop 12 SR, Planitop XS*

Protection and finish: *Elastocolor Coat, Elastocolor Paint*