
RUSSIAN
ORTHODOX
SPIRITUAL &
CULTURAL
CENTRE

RAISING OF THE CENTRAL DOME
MARCH 19, 2016



A PROJECT DEVELOPED ON A LISTED SITE

The land chosen for the Russian Orthodox Spiritual & Cultural Centre project in Paris was originally occupied by the former headquarters of Meteo France. It is close to a number of very popular Parisian tourist attractions and it is adjacent to the banks of the River Seine.

The development adjoins the Palais de l'Alma and is not far from the Eiffel Tower, the Quai Branly museum, the Invalides Esplanade on the left bank, and the Grand Palais and the Museum of Modern Art on the right bank.

A PROJECT THAT RESPECTS THE NEIGHBOURHOOD AND THE ENVIRONMENT

The project is **closely incorporated into the existing urban fabric**, and particular care has been taken to landscaping. The height of the four buildings respects that of other constructions in the neighbourhood, and a lot of thought has been given to transitions between the amenity and public areas. The site is not enclosed, but offers **excellent vistas of the city**.

The construction of the Cultural & Spiritual Centre also includes a **strong commitment to the environment, with the aim of HQE Aménagement certification**: sustainable development has been factored into every aspect under consideration (decompartmentalisation of the project from its surroundings, flexibility of space, comfort of use, etc.).

The operation applies the "clean worksite" protocol, and it will comply with the **City of Paris Climate Plan and Biodiversity Plan**.

A MIXED-USE DEVELOPMENT PROGRAMME ENHANCED TO PROVIDE AN AMENITY THAT WILL FOSTER SOCIAL LINKS

The development consists of four separate entities, each with its own distinctive identity but forming a harmonious ensemble in which buildings resonate with one another and with their immediate environment.

The property development consists of:

- A cultural centre (the Branly building), including a book shop, exhibition spaces and a cafeteria.
- A Russian Orthodox cathedral.
- A parish centre (the Rapp building), including a 200-seat auditorium and foyer, offices of the cultural service of the Russian Federation Embassy in France and furnished apartments.
- A Franco-Russian primary school for 150 children (the Université building), including classrooms and workshops, an infirmary, a canteen and kitchen, six apartments for teachers and indoor and outdoor play areas.



THE DOMES OF AN ORTHODOX CATHEDRAL

Onion domes are characteristic of Russian religious architecture. Although the number can vary, there are generally five of them, as there will be on the future Holy Trinity Cathedral under construction on Quai Branly in Paris. The large central dome and the four smaller ones symbolise Christ and the four evangelists, Matthew, Mark, Luke and John.

A WORLD FIRST

Traditionally, onion domes consist of a timber or metal framework covered with leaves of gilded copper, slate or ceramic.

For the Holy Trinity Cathedral, **architect Jean-Michel Wilmotte wanted to create totally smooth domes, a finish that is difficult to produce using traditional techniques.** The domes of Russian Orthodox cathedrals are generally multi-faceted because they consist of an assembly of hundreds of copper sheets.

In order to give full force to Wilmotte & Associés' architectural project, Bouygues Bâtiment Ile-de-France decided to use composite materials.

Widely used in the aviation and shipbuilding industries, **composite materials are virtually absent from the construction sector.**

The use of this technology to create the cathedral's domes is a world first.

Prototypes produced in partnership avec Multiplast, a company based in Vannes which constructs racing multihulls around the world, immediately convinced Jean-Michel Wilmotte in terms of the technology and the architectural rendering.

Additionally, this technique reduces the weight of the domes. **The central dome would have weighed 42 tonnes using traditional materials, but with the use of composite materials it weighs only 8 tonnes.**

It also shortens construction time, because the domes can be prefabricated as the structural works are being executed.

A 9-MONTH MANUFACTURING PROCESS

The process of producing the five domes began in June 2015. The large central dome consists of 8 lower petals, 4 upper petals and a top cone that supports the cross. Initially, the casts for each of these elements had to be manufactured. To produce a petal, three thicknesses of glass fibre are placed in the cast, then thermoplastic foam 50 mm thick and finally three more thicknesses of glass fibre. The whole thing is placed under vacuum before epoxy resin, which will spread over all the fibres, is injected. The technique is known as infusion. After curing, the cast is struck from the petal, which can then be prepared for gilding.

The petals are assembled in the workshop to check the fit, and then they are gilded.

Once the gilding of all the elements is complete, each dome is dismantled and transported in a special convoy to the Paris construction site, where it is reassembled at ground level.

The large dome will be permanently raised into place on the cathedral by crane on March 19, 2016.

90,000 GOLD LEAVES

The gilding used for the cathedral domes is a gold-platinum alloy called **Moon Gold**. **This alloy produces a matt golden finish, different from the bright gold colour** of the Invalides dome, for instance, or the statues on the Pont Alexandre III.

No fewer than 90,000 gold leaves, each measuring 8 x 8 cm, were needed. In order to work in a protected environment, the gilding was performed at Multiplast's premises. Gohard, a specialised Parisian company, carried out this operation over a period of three months.



TECHNICAL DATA

Address

2 avenue Rapp
1-5 quai Branly and 192 rue de l'Université
75007 Paris

Development

A cultural centre (745 m²)
A Russian Orthodox cathedral (450 m²)
A parish centre and auditorium (1,675 m²)
A bilingual primary school (1,920 m²)

Timeline

Beginning of demolition: February 2014
Start of construction: July 15, 2014
Raising of central dome: March 19, 2016
Length of works: 2 years

Key figures

Land: 4,240 m²
Project: 4,790 m²
Storeys: 4 (incl. ground)
Height of cultural centre, parish centre and primary school buildings: 17.55 m
Height of the central cross of the cathedral: 36.20 m

PARTICIPANTS

Owner

The Russian Federation

Architect

Wilmotte & Associés

Prime contractor, design and construction

Bouygues Bâtiment Ile-de-France

Technical inspections

Bureau Veritas

H&S Coordinator

Comet

General contractor

Bouygues Bâtiment Ile-de-France





NOTES FOR EDITORS

About Bouygues Bâtiment Ile-de-France

BOUYGUES BÂTIMENT ILE-DE-FRANCE, the Bouygues Construction subsidiary in the Paris region, offers comprehensive know-how for new build and renovation projects in four primary areas of expertise: public facilities, private commercial structures, housing and industrial civil engineering. It delivers a comprehensive offering to its customers through the specialities of its operating units and subsidiaries. Specialisation enables Bouygues Bâtiment Ile-de-France to attain the level of expertise required to bring an appropriate response to the expectations of all its customers.

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About Wilmotte & Associés Architectes

Founded by Jean-Michel Wilmotte in 1975, WILMOTTE & ASSOCIÉS ARCHITECTES is an international design practice that provides urban planning, architecture, interior design, museography, and product design services from offices located in France, the United Kingdom, Italy and South Korea. The firm's 220 staff are involved in a wide variety of programmes and projects in 26 countries. In 2005, Jean-Michel Wilmotte created the Wilmotte Foundation to raise young architects' awareness on the problem of the graft of contemporary buildings on patrimonial heritage. www.wilmotte.com

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