

# QUIMPER CATHEDRAL

Delicate heritage to protect



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## GOALS

### Rapid, a watchword for the project

The entire pipe network needed to be sustainably replaced at the least possible disruption, especially considering that historic monuments are grounded by archaeological sub-soils which are crucial for its conservation.

Have you ever felt disappointed in finding a church or a museum that you had planned to visit closed for renovation? This is exactly the kind of disappointment the Finistère regional service for architecture and heritage in Quimper wanted to avoid. So the timeframe for the renewal of the heating system was clear ... but narrow: the entire operation needed to take place between September 1st, at the end of the peak holiday season, and December 13th, the famous feast of Saint Corentin, patron saint of Quimper Cathedral.

## PROJECT PROCESS

Today, it is unusual for heating systems in cathedrals or historic monuments to be installed below the ground. But in Quimper Cathedral, a system of under-floor steel pipes had been installed in 1968. But in 2014, the network had clearly reached the end of its lifecycle as it was significantly corroded, giving rise to serious leaks and energy losses, aggravated by the weight of the heavy flagstones. A quick and effective renovation was vital.

### A hand-picked team

Faced with this great challenge, Mr. Pierre Alexandre, curator of Quimper Cathedral, and a French architect split the project into two sections: heating and paving. A.R.T. (Armoricaïne de Restauration et de Travaux) was selected by public tender to carry out the paving work, including the excavation of the floor of the cathedral and the removal of the gigantic dressed stones. For the heating section, it was important to mobilize bright experts for the design of the delicate project and ensure the best possible solution.

The design consultants Bâtiments et Techniques, appointed by the heritage service, recommended a solution based on Flexalen technology. Its ease and speed of installation, minimal use of space – allowed by its flexibility – and durable efficiency proved an ideal match for that challenge. For the installation, Prothermic, a local heating engineer who is well known for their experience in pre-insulated pipeworks, assembled a hand-picked team for the challenging project.

## PROJECT INFORMATION

📍 Quimper, France

- Duration of **3 Months**
- **2,600 m<sup>2</sup>** floor area in the cathedral
- **31,000 m<sup>3</sup>** to heat
- **21 meters** height under the arch of the nave

## APPLICATIONS

- Heating Networks

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## DETAILS

### Conserving patrimonial heritage, flexibly

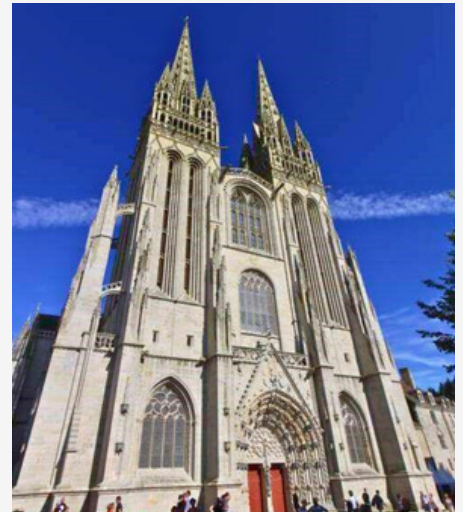
*Bâtiments et Techniques* had already worked with Flexalen in former projects, and were thus already convinced of its advanced flexibility. Indeed, to avoid digging deeper than the original trenches and in order to manage the work in confined spaces, this was an essential asset. Furthermore Prothermic, who carried out the installation works of the heating system, successfully preserved the deeper archaeological remains thanks to the shallower trench required for Flexalen pipes. Prothermic also succeeded in collaborating with the paving business A.R.T.; due to Flexalen's flexibility and ease of welding, less workspace was needed compared to other technical solutions. Prothermic and A.R.T. could therefore establish manholes together where necessary, minimizing the spreading of dust – key to the protection of the cathedral's interior.

### New life in an old building

Digging up the floor of a historic monument is a complicated task. The permissions and precautions necessary are more time-consuming and expensive than in ordinary buildings. The dust produced by the excavation for example, could easily spoil the costly and meticulous renovation. For these reasons, a headache-free distribution system was imperative. The longer the lifetime and performance of the system, the better for the conservation of the building, ensuring minimal financial and environmental cost in the future.

## RESULTS

The realization and implementation of the heating network went exceptional smooth thanks to the optimized network design by Thermaflex and the fast installation by Prothermic. The cathedral is now equipped with a modern and efficient heating system under 170m<sup>2</sup> of 1.2 ton flagstones. The extraordinary cooperation with A.R.T, Prothermic and *Bâtiments et Techniques* kept the project well in the 3,5 month window, while the objectives of the Finistère regional service for architecture and heritage are fully covered. The Quimper Cathedral can now warmly welcome the congregation and visitors for generations to come.



"Great durability and resistance to corrosion phenomena are the two essential technical criteria which led us to recommend that Flexalen should be used."

**Roland Petton**

Fluid Engineer at Design Consultants Bâtiment et Techniques