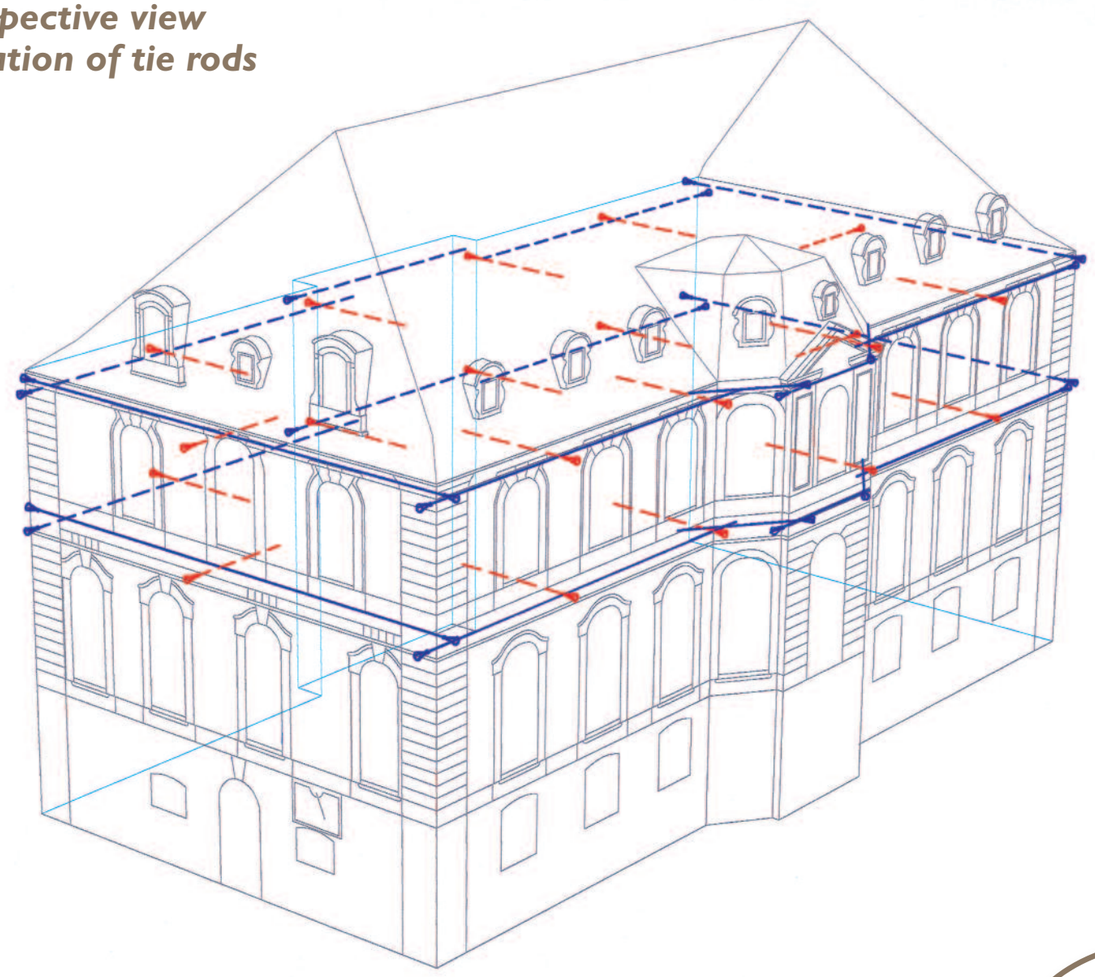
RENOFORS PROCESS CHOSEN FOR ITS DISCRETE EXECUTION

After performing a detailed study aimed at modelling and analyzing the existing structures, RENOFORS proposes a solution to reinforce the masonry using glass fibre rebars sealed in mortar or resin only at the level of the facades and inner walls, thus offering the following advantages:

- Perfect bonding of tie rods with masonry
- Creation of 2 meshes of tie rods, one at the level of the storey's floor area, the other at the level of the cornices, in order to optimize the efficiency of the system
- Nearly no work required indoors
- Reduced cost

Perspective view
Location of tie rods



RENOFORS PROCESS APPRECIATED FOR ITS PRECISE EXECUTION

The success of this construction site was indeed related to the constant observance of a high level of precision in its execution and to the thorough supervision of each action taken, hence:

- Execution of drillings over great lengths (at only 200 mm from the outside bare surface) guided by laser sight (1 & 2)
- Quality inspection of drillings using endoscopy and video recordings (3 & 4)
- Positioning of glass fibre rebars at diameters defined by calculation
- Use of resins of appropriate viscosity with injection equipment having an automatic usage ratio to prevent the risk of leakages through cracks
- Verification of reinforcements through calculations


1


2


3


4

MESSAGE FROM THE OWNER

Vendeuvre is one of the rare castles in France passed down from father to son and that is still inhabited by the same family since the time it was built.

Today, this fortunate continuity enables this beautiful family residence to present a set of original decors and furniture.

Built between 1750 and 1752 according to the drawings of the architect Jacques-François Blondel, who also carried out the decoration, this "country house" of a regional style with an averred provincial character represents a priceless and very complete account of life in the 18th century.

Classified among the French Historical Monuments both indoors and outdoors, the Vendeuvre castle today continues to pursue an ambitious renovation and maintenance plan. The recent consolidation work performed perfectly met my expectations both in terms of its architectural concept and of the high technology used.

The Count of Vendeuvre

MESSAGE FROM THE ARCHITECT

The facades of the Vendeuvre castle were exhibiting cracks due to the settlement of the bearing soil. After performing studies and analyses of the existing structures and of the ground, it turned out that the foundations of the building appeared stabilized. However, the deformed, cleaved or cracked superstructures had become fragile to the point of requiring the reinforcement of the masonry and particularly of the facades and gables, so as to make them homogenous for a better transfer of the loads to the ground. The underpinning work will only be considered if the settlement process of the subsoil were to be felt again.

The configuration of the premises, the fact that all of the castle's rooms are occupied, the state and sumptuousness of the interior decoration required turning to a specific technical solution to reinforce the structures without any intervention inside the building.

The RENOFORS STONE reinforcement process was able to efficiently and discretely meet the requirements of this tricky technical, architectural, and archaeological problem.

The strengthening and wall tie elements were entirely executed from outside the building and are perfectly invisible. All interior decors have been preserved.

This building project was subject to a call for performance-based tender combining new wall tie technologies, traditional facade renovation work and the intervention of a specialized engineering and design firm. This mix of methods made it possible on the one hand to meet the goals of the project with utmost care for the structures and decors and on the other hand to substantially reduce the cost of the work.

Daniel Lefèvre
Head Architect at the French Historic Monuments department

Identification sheet

Client:
DRAC - CRMH
de Basse-Normandie - CAEN

Architect:
Daniel LEFEVRE - ACMH

Structure Engineering and Design: UBC Ingénierie

Cost of RENOFORS intervention:
94,500 €

Completion time:
4 months - 1999

MESSAGE FROM THE CLIENT

Since this was a highly complex building project from a technical point of view and a particularly sensitive one, especially in terms of the nuisances that the use of traditional reinforcement methods could bring to the living conditions and inhabitants, the client searched for the best match between technology, architectural constraints, administrative procedures, and cost.

The client turned to a call for performance-based tenders thus being able to best meet the requirements of the problem at hand. The choice therefore went for a group of construction firms comprising a firm specialized in the restoration of historic monuments, a high technology firm, and an engineering and design firm.

Jacques Mazeirat
Regional Conservator of French Historic Monuments

RENOFORS
Surgery for construction

183, boulevard Jean-Mermoz - 94550 Chevilly-Larue
Tel.: + 33 (0)1 49 73 20 07 - Fax.: + 33 (0)1 49 73 21 57
E-mail: renofors@renofors.fr
Web: www.renofors.com