

zoom

On Asnières

ALL KINDS OF PROCESSES FOR REPAIR
AND REINFORCEMENT OF EXISTING STRUCTURES



Foreword

The engineering department of the city of Asnières had a twofold problem to solve to ensure the stability of the structures of the town ice rink. The roof frame had been built 28 years ago and was showing worrisome signs of weakness. This new site enabled RENOFORS to successfully implement its new “GLUED-LAMINATED” TIMBER reinforcement process and to innovate in its application.

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Reinforcement of roof frame and replacement of outdoor arch bases at Asnières ice rink

HISTORY

The Asnières ice rink, built in 1969, comprises a roof frame made of glued-laminated timber whose structure consists of 12 elliptical arches resting on concrete abutments located on the outside of the building. Moreover, metal

“ If I were to sum up this heavy renovation operation, impressive and efficient are the two most appropriate adjectives ”

service platforms are hanging from these frames. The 12 arches are spaced at intervals of 5.60 m and have a 51.80 m span. Their thickness is 21 cm x 110 cm decreasing to

21 cm x 90 cm at exterior supports. Each truss shoe supports a horizontal thrust of 24 tons and a vertical load of 31 tons.

 **RENOFORS**

— Surgery for construction —

MESSAGE FROM THE CODE INSPECTOR

On this construction site, SOCOTEC was in charge of inspecting all of the construction work from structural design notes to execution.

Since the addition of suspended platforms meant that the allowable stress figures were exceeded due to the increased load, the 12 glued-laminated arches with a 52 m span in this ice rink required reinforcement.

The RENOFORS process made it possible to carry out this work by adding preformed glued-laminated elements to the soffit, joined to the existing structure by reliable and invisible connections.

However, as far as I'm concerned, the repairs made to the bases of these arches were the most impressive.

Located outdoors, these bases were in fact highly deteriorated by rot.

RENOFORS replaced them with glued-laminated prostheses processed in an autoclave and connected to the existing structure using resin-sealed armatures.

But what is equally remarkable is that the shoring operations were designed and carried out so as to prevent any deformation or displacement of the structure during the removal of one of these arch bases, despite a span of 52 m.

Moreover, this construction work left no trace of any intervention; the aesthetics of the facilities suffered no alteration.

Gilbert Vidon
Engineer E.S. Bois



MESSAGE FROM THE CLIENT

Impressive and efficient

If I were to sum up this heavy renovation operation, these are the two most appropriate adjectives. The shoring towers were impressive in supporting the overall weight of the arches, roof frame and roof covering, while the exterior ends of the arches were replaced.

The process that allowed bringing the structure of the building back into compliance during the mere summer closing was efficient.

Philippe Hiance
Head of the Building Department

Identification sheet:

Client:
Town of Asnières

Architect:
J-P. PENIN

Structure Engineering and Design:
UBC Ingénierie

Code inspector:
SOCOTEC

Cost of intervention:
211,000 €

Completion time:
3 months - 1997

MESSAGE FROM THE ARCHITECT

The twofold intervention to reinforce the structures of this ice rink was for me the opportunity to combine abstraction and reality.

As much as the operation consisting in the reinforcement of the arches' intrados already was very spectacular and entered into a technical process to which I could subscribe to immediately, the consolidation of the arch bearings was an entirely new experience to me and rather disturbing at first.

This second intervention required a significant amount of reflection on my part, not to say self-convincing: simply put, I just did not believe in it! Despite the planned shoring and strutting according to the engineering and design firm, it was really difficult for me to accept the operation that consisted in "amputating" all the arches and substituting the removed parts with prostheses. I really had a hard time to get used to the idea.

This is where the competence and confidence of the entire RENOFORS team largely contributed to my decision-making. This company was involved as a subcontractor and yet showed its experience in taking on a predominant role as consultant, which finally removed all doubt from my mind.

From then on, I got hooked. I adhered entirely to this somewhat unreal gamble and thus was able to devote myself serenely to the role that was mine.

Well done and thanks again to the RENOFORS team.

J-P. Penin



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