

Inspection and diagnosis of the condition of the barge on dry dock "Forme 10" - Port of Marseille



Client:

Grand Port Maritime de Marseille (GPMM)

Project manager:

GPMM (Grand Port Maritime de Marseille)

Contractors:

Not applicable

Years:

2012

Principal features:

Barge for one of Europe's largest dry docks:
Length: 90 m
Width: 15 m
Height: 13 m

Background

The prestressed concrete barge on the "Forme 10" dry dock of the autonomous port of Marseille was built in 1973. Its principal dimensions are:

- ✓ Height: 13 m
- ✓ Width: 15 m
- ✓ Length: 90 m

The structure is divided into 28 open caissons placed sideways along two lines. The caissons ballast the gate to enable the opening and shutting of Forme 10.

Perspective du bateau porte

The purpose of the diagnosis was to determine if the barge, which had been out of use for several years, was capable of closing Forme 10 during the renovation works of the dry dock and the construction of a new barge.

DIADES' task

In collaboration with Setec TPI and Lerm, DIADES was tasked with carrying out the diagnosis of the Forme 10 barge.

Diadès led the diagnosis with the help of LERM's assessment of the materials and the structural assessment carried out by SETEC TPI.

Diadès' task consisted of:

- ✓ Analysing the structure's file, including previously carried out investigations and inspections,
- ✓ Optimising and defining the gammagraphy program (defining number and location),
- ✓ Optimising and defining the program of investigations using the "crossbow" method,
- ✓ Detailed inspection of the barge (including the inside of all the caissons),
- ✓ Organisation and management of the different activities in agreement with the health and safety coordinator appointed by the Grand Port Maritime de Marseille,
- ✓ Drafting the assumptions report which summarises the various investigations carried out,
- ✓ Outside inspection of the structural analysis,
- ✓ The concrete and prestressing investigations carried out by LERM and the complex calculations carried out by SETEC TPI, enabled the structure's degraded mode of operation to be defined as well as the time to build the new structure, based on the structural diagnosis carried out by Diadès.

Diagnosis of a prestressed concrete structure

Definition of the program of investigations

As the purpose of the diagnosis was to determine whether the Forme 10 barge was capable of being reused in its current condition, it was necessary to optimise the structural investigations in order to ensure an accurate understanding of the structure and to determine the various properties of the materials and residual values of the prestressed concrete.

diadès

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