

Levelling of deck structure - Ninian Central Platform

Client: Chevron

Main Contractor: Howard-Doris



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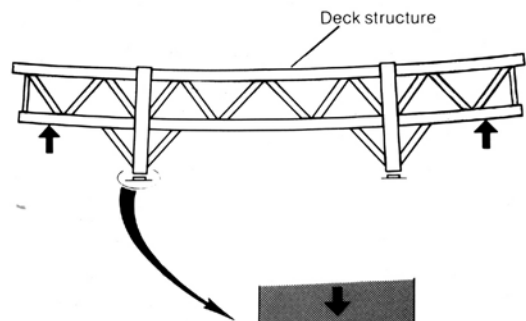
OFFSHORE 04

The steel deck structure for this platform is supported on eight columns which rest on the concrete breakwater wall. A flexible 3,000 tonnes capacity bearing is installed at the foot of each column to allow the deck to expand and contract with changes in temperature. Because of the manner in which the deck was installed on the platform, it was necessary to make provision to realign all the bearings after deck installation and to jack the design load into the columns. To meet this requirement, each large circular laminated neoprene bearing was mounted on a system of circular Flat Jacks and stacks of rectangular steel shims.

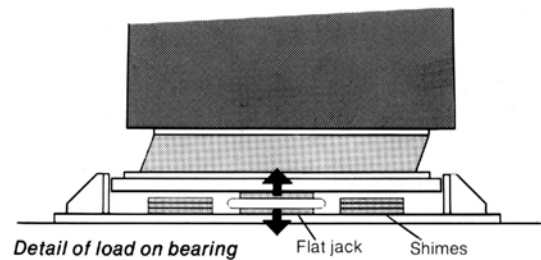
The Flat Jacks were inflated to lift each bearing in turn clear of the stacks of shims, which were then removed. The load was then released from each bearing in turn which was carefully centralised under the column.

The jacks were re-inflated to the correct design load for the column and the shims inserted to fill the gap and support the load.

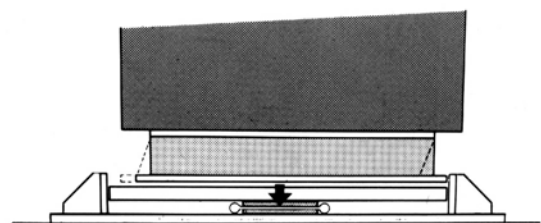
Finally, the jacks were themselves filled with cement grout and the space around them packed with a special concrete. As a major manufacturer of structural bearings, Fagioli PSC was given the order to manufacture these assemblies. Each large circular neoprene bearing was made in segments, assembled and bonded to a steel base plate, using an epoxy resin adhesive. The joints between the segments were filled with a polystyrene and the top was levelled using a specially formulated self levelling epoxy before the top plate was assembled. The base plate, on which the flat jacks and shims were housed, was assembled and the completed bearing sub assembly lowered into position. The completed assembly was transported to site and set on a preformed plinth. The hydraulic circuit was installed and the whole of the jacking operation supervised by Fagioli PSC engineers and carried out by Fagioli PSC operatives.



Deck installation



Detail of load on bearing



Re-aligned bearing