

THE HISTORIC OLYMPIC STADIUM IN HELSINKI OF 1938. DEVELOPMENT OF HIGHLY DYNAMICALLY LOADED UPLIFT BEARINGS FOR THE NEW MODERN STAND ROOFS INTEGRATE INCONSPICUOUS IN THE MONUMENTAL PROTECTED FACADE

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SUMMARY

The historic Olympic stadium in Helsinki of 1938, venue of the Olympic Games in 1952, is elaborately modernized at present. The individual impression as a historic building, particularly the distinctive facade, is preserved in detail. Observing the severe restrictions of monumental protection, the now 80 years old building is complemented, among other things, by the construction of a warm-up running racetrack hall and a mall with shops as well as new stand roofs for both stands. In this context, MAURER develops special structural uplift bearings for the new roof construction. The distinctive feature is transferring primarily occurring tensile loads (secondary alternating pressure loads) kinematically precise to the substructure while balancing relative movements and relative torsion. The architecture requires smallest structures that meet highest safety requirements.

Keywords: *Olympic Stadium Helsinki, Monumental Protected Facade, Uplift Spherical Bearing, Structural Bearing, Bearing, Serviceability.*

1. INTRODUCTION

1.1. History and importance of the building

Athletics have always held quite a particular importance in Finland and in the minds of the Finns. The first sports associations were founded as long ago as the end of last century, and from the beginning of the twentieth century, the Finnish nation has been animated by a great zeal for sports. Finland participated in the international Olympic movement even before the country gained independence in 1917. The Finns' excellent results in the Olympic Games of the 1920s fostered the dream that one day it would be possible to hold the Games in Helsinki.

The stadium foundation, established in 1927, started to implement that dream, and their first and foremost task was to get a stadium built, which would permit Helsinki to host the Summer Olympics. Building began on February 12, 1934, and the stadium was inaugurated on June 12, 1938. Since its completion, the stadium has undergone eight important stages of development. The most important one was the total modernization 1990–1994. At its maximum, in 1952, the stadium accommodated 70,000 spectators. Today, the number of spectator places, all of them seats, is 39,000.

The stadium arena, which has been described as the most beautiful in the world, is the product of an architectural competition. Architects Mr. Yrjö Lindegren and Mr. Toivo Jäntti won the competition with their clearly lined functionalistic style design. The most important events in the life of the Helsinki Olympic Stadium were the XV Olympic Games, July 19–August 3, 1952. In the opening of the Olympic Games, the spectator record of the stadium was reached with 70,435 spectators, and the Olympic year is still an event which has collected most spectators. Whole year 1952: altogether 850,000 spectators [1].