Since summer 2005, the two German football clubs Bayern München and 1860 München have found their new football home in front of up to 66,000 visitors in the newly constructed Allianz Arena of Munich. The Swiss architects, Herzog and de Meuron, designed a stadium with an energetically striking round form surrounded by a cushion cover that can be lit up in different colours depending on the event. The stadium bowl with its three terraces consists of 96 concrete steel frames, which are located concentrically around the field. The roof construction is composed of 9,000 t of steel, 60 % of which was used for the primary structure. The primary structure consists of lattice frames designed as cantilevers, which are up to 62 m long and 10 m high.

Because of weight reasons and out of aesthetic considerations, the upper and lower chord are designed as caissons with an infill in hollow sections. The connector construction is horizontally stiffened with 12 joints each. The 48 main cantilever connectors were delivered in single parts from the workshops and welded together on a moulding within the stadium. Two cantilever connectors with the secondary beams and the lattice stiffeners (weight up to 106 t) were lifted to their final height by a 450 t lattice boom crawler.

Dillinger Hütte GTS supplied 2,000 t of heavy plates of S355J2G3 and S355K2G3 in the thickness range of up to 100 mm for this steel construction. The shoulder area of the construction is carried out in steel composite construction. The secondary structure consisting of rectangular tubes was assembled onto the primary structure. These tubes serve as brackets for the 2,800 membrane pillows filled with air that form the roof and front wrapping and give the stadium an distinctive appearance.

With this stadium, the capital of Bavaria can call another very special attraction its own.
The “Spyridon Louis” Olympic Stadium in Athens

In 1896 Athens was already host for the first Olympic Games of the modern age. In 2004 the city of the world turned again to Greece’s capital when the XVII Olympic Games took place.

An architectural masterpiece made of steel

At the centre of the games was the stadium which had already been built previously for the application for the 1996 Olympic Games and was redesigned for the 2004 Games. The arena’s roof is itself “ready made”, an architectural masterpiece made of steel weighing in total approximately 17,000 t to be the world’s largest stadium. It is not only considered the multi-talent’s roof construction is composed of two 189 m long lattice girders with an impressive weight of almost 1,691 t and a height of up to 16 m.

After processing the girders in the workshop and de-furring each of them in 100 parts (among these were also parts up to 40 m long which were transported by water), the assembly was carried out on site. Within four days, such a main girder was lifted onto the stand construction in a height of 10 m. Then main girders, which are 40 m wide and 201 m wide roof of the arena.

Thus the stadium’s roof became the landmark of the Olympic Games in Athens and an impressive new work of art well worth seeing in addition to its traditional sights.

In the centre of the Rhine-Ruhr region a modern multi-functional arena was released for usage in January 2001. Thanks to the clever aiming and roofing concept up to 31,000 visitors can sit down simultaneously and enjoy in unique culture in the rectangular arena with unmatchable functional design. The heart of this multi-talent’s roof construction is the composite roof of the LTU Arena, holding 74,000 spectators. The impressive, 21,000 m² roof is itself “ready made” an architectural masterpiece made of steel weighing in total approximately 1,691 t and a height of up to 16 m.

As a result of the variety of events, be it sports or cultural events, visitors can witness and enjoy during sporting events or cultural events a roof covering concept up to 51,000 m². Thanks to the clever aiming and roofing concept up to 31,000 visitors can sit down simultaneously and enjoy an impressive new work of art well worth seeing in addition to its traditional sights.

The arena not only sets new standards in the field of materials, but also in its functionality, as it goes beyond in setting new standards for events taking place in the arena.

A roof made of steel from Dillinger

The two main arches, welded together from 300 sections, with each having a span of 394 m, are masterpieces of architectural metal work. It is unique in its own way worldwide, especially with regard to the complexity of the technical solutions used, the manner of assembly and the total size of the two steel arches. The construction weight in total approximately 17,000 t and covers a total area of 23,000 m².

Dillinger Hütte GTS supplied 6,181 t of heavy plates, with each being 5 m long, span to a maximum height of 89 m. These central arches consist of two sandblasted, main system points. The whole roof construction only reaches the ground on four points, at the ends of the two arches.

Thus the stadium’s roof became the landmark of the Olympic Games in Athens and an impressive new work of art well worth seeing in addition to its traditional sights.

The arena’s roof is itself “ready made”, an architectural masterpiece made of steel weighing in total approximately 17,000 t. Between the main girders, the 110 m long and 30 t heavy compound girders were erected, before the remaining girders and carrying the roof sheeting were installed.

LITU-Arena Dusseldorf

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In the centre of the Rhine-Ruhr region a modern multi-functional arena was released for usage in January 2001. Thanks to the clever aiming and roofing concept up to 31,000 visitors can sit down simultaneously and enjoy in unique culture in the rectangular arena with unmatchable functional design. The heart of this multi-talent’s roof construction is the composite roof of the LTU Arena, holding 74,000 spectators. The impressive, 21,000 m² roof is itself “ready made” an architectural masterpiece made of steel weighing in total approximately 17,000 t. Between the main girders, the 110 m long and 30 t heavy compound girders were erected, before the remaining girders and carrying the roof sheeting were installed.

Snack with excellent reliability

The main girder of the construction is composed of a lower chord of a D250 steel and an upper chord of a D550 steel. 6,000 t of heavy plates, with each being 5 m long, span to a maximum height of 89 m. These central arches consist of two sandblasted, main system points. The whole roof construction only reaches the ground on four points, at the ends of the two arches.

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