



IZMIT Bay Suspension Bridge, Erection of Steel Tower

Mitsuhiro YAMANE
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
mitsuhiro_yamane@iis.ihl.co.jp

Mitsuhiro KUDO
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
mitsuhiro_kudo@iis.ihl.co.jp

Naonori ASAI
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
naonori_asai@iis.ihl.co.jp

Takusen MUTAGUCHI
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
takusen_mutaguchi@iis.ihl.co.jp

Masashi KAN'O
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
masashi_kano@iis.ihl.co.jp

Shinjiro SEKI
Bridge Engineer
IHI Infrastructure System
Tokyo, Japan
shinjiro_seki@iis.ihl.co.jp

Summary

The construction of the Izmit Bay Suspension Bridge has started in January 2013 to be completed early 2016. The tower is steel construction reaching over 246.5m above sea level and being constructed with floating cranes for the lower part and self-climbing crane for the upper part to be completed by end of 2014, followed by the cable erection in 2015. The papers describe the construction of the tower of the Izmit Bay Suspension Bridge.

Keywords: suspension bridge; steel tower; floating crane, self-climbing crane

1. Introduction

The Izmit Bay Suspension Bridge will carry the new Gebze-Orhangazi-Izmir motorway across the sea of Marmara at the Bay of Izmit in northern Turkey. The general arrangement of the bridge is shown in Figure 1.

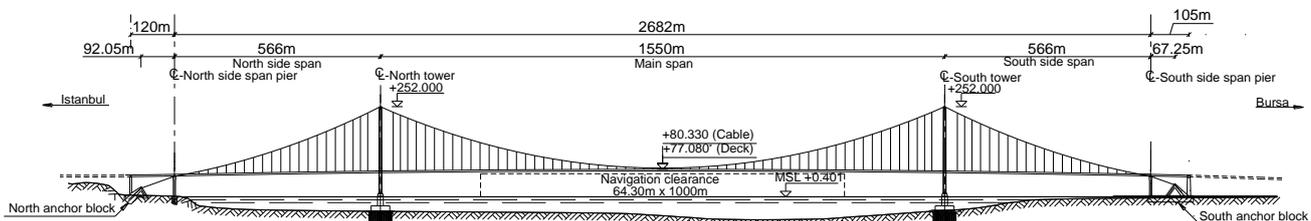


Fig.1 General Arrangement of Bridge

The main span is 1550m and the side span is each 566m. The suspended deck is 2682m long and continuous between two side span piers. The bridge will be the world's forth longest suspension bridge at the completion in 2016.

The tower is 235.425m high steel construction on the concrete foundation, which consists of two tower legs and two cross beams. Two tower legs are separated by 36.200m at the bottom (EL 10.075m) and by 30.100m at the top (EL 245.500m). The general arrangement is shown in Figure 2. The tower leg is 7.0m wide transversely and 8.0m long longitudinally at the bottom (EL 10.075m) and narrowed longitudinally only to 7.0m at the top (EL 245.500m) with the constant corner cuts of 1.3m transversely x 1.0m longitudinally. Two cross beams are 2.9m wide and 6.0m high in constant. The thickness of the perimeter plate varies from 70 mm at the bottom to 25 mm at the bottom and the thickness of the vertical stiffeners is constant to 61 mm on the front and rear panels and to 63 mm to the tapered panels. The steel grade of the perimeter plates and the vertical stiffeners are S460.N for the thickness below 60mm inclusive and S460 NL for the thickness above 60mm. The South tower and the North tower are identical in the geometry and in the details including the steel grade and plate thickness.