



Construction of the Las Vegas High Roller Observation Wheel

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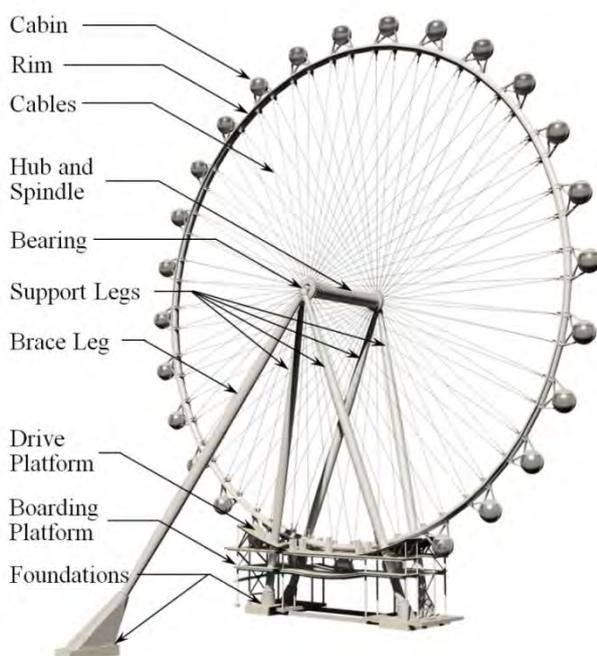
Summary

The Vegas High Roller is the world's tallest observation wheel, with a maximum height above ground of 167.6m. It also is the largest, based upon passenger numbers, being able to carry 28 cabins of 40 people – 1120 in total. The paper describes the design considerations for transportation and a detailed discussion of the erection procedure. The paper should be read with the companion papers [1] and [2]

Keywords: Cable Structure, Steel Forgings, Spherical Roller Bearings, Tubular Steel Structure, Observation Wheel, Las Vegas, American Bridge Company, Arup

1. Introduction

At 167,6m in height, the Las Vegas High Roller is now the tallest observation wheel in the world taking over that spot from the Singapore Flyer. The High Roller is a steel structure consisting of



four support legs, one brace leg, a stationary spindle, a rotating hub, twenty eight rim sections and 112 cables. The rim is connected to the hub by the 112 cable spokes made from 75mm diameter locked coil cables. The tension in these cables forces the rim to maintain its shape and keep the rim in compression. The rim and hub rotate about a fixed spindle on two main wheel bearings. The spindle is at elevation 87m above the ground and each end is mounted to a pair of support legs. The east end of the spindle is also supported by a brace leg which stiffens the structure in the transverse direction.

The owner of the project is Caesar's Entertainment, who appointed Arup, as Engineer of Record. While erection of the wheel was performed by American Bridge Company, there were a number of other contractors, either independently appointed, or sub contracted to AB.

The erection of the wheel required a massive amount of construction engineering and procedure

Figure 1 – wheel rendering