Robotic High-Rise Construction of Pagoda Concept: innovative earthquake-proof Design for the Tokyo Sky Tree

Abstract:
More than 2,000 earthquakes or rather 60% of the earthquakes worldwide and 30% of Tsunamis happen in Japan. As it has been proved by the March 2011 earthquake (strength: 9.0) once more, Japan has developed highly advanced earthquake resistance technologies. Although the earthquake caused a devastating Tsunami, there was no damage by the earthquake at the sky tree site. Especially buildings in the Tokyo area have to endure several hundred smaller and larger shakings per annum without letting them cause damage to structure, sub-components and technical infills. With a height of 634 meters, the Tokyo Sky Tree is the world’s second largest man-made structure on earth. However, the tower is one of the safest buildings ever built. Obayashi constructed the Tokyo Sky Tree by using techniques and components of its Automated Building Construction System (ABCS) which they have been developing since the 1980s. Ever since struck by frequent earthquake disasters, tsunamis, typhoons, fires and war destruction, Japan not only overcame those disasters but obviously used them as a reason to develop new technologies and advanced construction systems. Given that facts, it can be assumed that Japan again takes the March 2011 Disaster (earthquake,
tsunami, nuclear incident) as a reason to advance state of the art disaster prevention technologies: In 2-5 years (after intensive R&D; which usually follows disasters in Japan) it is highly possible that Japan will develop new cutting edge disaster prevention technologies.

Stichworte: Robotic Construction, Earthquake Resistance Technology, Innovation Management

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