

The Delhi Air Traffic Control Tower: Engineering, architecture and design with TMD for the tallest ATCT in India

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Summary

As a part of the Indira Gandhi International Airport 20 year development master plan, a new Air Traffic Control Tower is needed to be built at the airport. The development at the airport is required to service the ever increasing travelling needs of the residents and visitors of New Delhi and India. The proposed 100m tall tower will be one of the tallest Air Traffic Control Tower in the world. Given the height of the tower, the required 24 hour operations and the architectural aspirations of a slender aesthetically pleasing form, it required the design team to solve numerous issues with the building dynamics and controlling the accelerations to ensure the occupancy comfort.

Keywords: *Tower, dynamics, accelerations, architecture, form, tuned mass damper*

1. Introduction

This short paper will discuss the design and structural challenges that were overcome on the Delhi Air Traffic Control Tower project, which will be one of the tallest in the world. As well as providing for the operational requirements of the air traffic controllers for the future, the architectural aspiration is to build a Air Traffic Control Tower that is internationally recognized, contemporary and provides an architectural landmark to Indira Gandhi International Airport, whilst continuing to embody the history and unique regional characteristics of India and be a source of pride for the employees of Delhi International Airport.

With the ever increasing needs of air travel and modern architectural aspirations, Air Traffic Control Tower are getting taller and taller with the result of the inclusion of tuned mass damper's in many of the new Air Traffic Control Tower around the world, Delhi's new Air Traffic Control Tower is no different. The Delhi Air Traffic Control Tower will have a tuned mass damper's positioned near the top of the tower to control the tower accelerations caused by the dynamic wind loading.

The slender and multi-curvature form of the tower led to construction and buildability challenges, hence significant effort was put into considering and assessing various forms of constructions.