POST-TENSIONING INSTITUTE
Strength in Concrete

PROJECT DETAILS

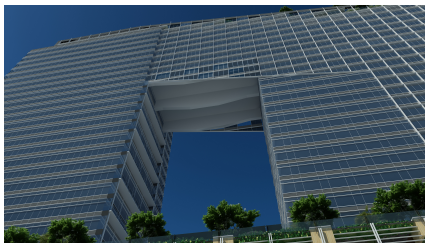
Project Name:	**Wave One**
City:	New Delhi
State:	Uttar Pradesh
Country:	India
Owner:	Not Available
Architect:	Nostri Architects
Engineer:	Not Available
General Contractor:	Leighton-INFRA 13 Joint Venture
Concrete Contractor:	Not Available
PT Supplier:	VSL India Pvt Ltd
Year Completed:	2014

Project Abstract:

The Near Capital Region (NCR) around India's capital, New Delhi, witnessed a decade-long construction boom starting in 2008. Several high-rise apartments were being constructed to cater to the growing need for housing in Noida, which was followed by new office construction in an attempt to lure large corporations out from the urban sprawl of New Delhi.

The project is a 41- story mixed-use building with more than 2 million square feet of floor area located in the heart of Sector 18 in Noida. It includes three levels of retail, two- story cinemas on the fourth floor, seven levels of parking above the cinema, and three levels of underground parking for a total of 2,600 cars. A large amenity deck, tennis courts and health club on Level 15 serve the tenants of the 26- story office building that rises above the podium.

The building has a footprint of 161 m (528 ft) by 69.5 m (228 ft) on the podium levels and is constructed with no expansion joints. The building is characterized by a large 61 m (200 ft) by 31.5 m (103 ft) rectangular aperture extending between Levels 15 and 32 that was designed using the principles of Vastu Shastra, an ancient Indian science of enhancing positive and eliminating negative energies by allowing them to "flow" through the property. This aperture breaks the large office mass into two distinct towers which are reconnected between Levels 32 and 41.

In order to maximize the footprint of the building, the basements are constructed with zero lot lines using a contiguous bored pile wall earth retention system that was tied back using post-tensioned soil anchors until the basement slabs were installed. These piled walls also act as a permanent earth retention system and support the basement slabs along the perimeter.

The project is located in a region of moderately high seismicity requiring special detailing requirements for the concrete elements, including additional checks for deformation compatibility of the slab- column gravity system in combination with the shear wall system provided for lateral force resistance.