

China Energy Tower

Shenzhen, China 2013

China Energy Tower is a signature high-rise designed to serve as the headquarters of China Energy Storage Company and provide additional premium office space. The site is located on Shennan Boulevard, an important cultural and commercial spine of the city and at the intersection of Keyuan Nan road that leads through prominent office districts to Hong Kong. These significant urban forces are used to forge a unique identity of the tower with incrementally transforming floors, unified into a dynamic form. By its monolithic sculptural form, the tower asserts these urban axes and projects expressions of stability and lightness. The tower three-dimensionally acts as a pivotal urban node.

By its uprising built form, the tower navigates through its surrounding buildings and opens up views of the city, maximizing its inside-out connection. Tower footprint in the south and an annex pavilion in the north articulate a public plaza in-between, shaded all through day and articulating the neighborhood by its barrier-free and open character. Programmatic distribution within the tower is segmented between three social nodes of an entrance lobby, a sky lobby and a roof top observatory and restaurants. Stacked elevator shafts terminate at these nodes, activating them with public functions. Elevator grouping is rationalized to create legibility and orientation. The elevator stacking not only reduces the core area, delivering the usable floor plate, but plays a vital role in structural bracing.

Dynamic form of the tower is structured on a simple and sophisticated system. It consists of a composite system of a central core and concrete filled steel tube exterior columns. The core consists of a central shaft that continues across the entire height of the tower, with elevator shafts plugged-in along the east-west longer axis below the sky lobby and stacked diagonally along the north-south longer axis beyond. Wind and seismic loads are resisted by the core above the sky lobby level and then transferred to the outer columns through an outrigger system below sky lobby. The core thus maximizes structural competence by directly resisting lateral and shear loads, while the vertical load is transferred to the peripheral columns. The geometry of the tower provides an inherent counterbalance in its footprint that diagonally transfers the vertical loads.

The tower design integrates energy efficiency principles in its basic geometry, structural efficiency and layout to achieve lasting value along entire life of the building. In addition to reduced steel and construction materials, modular design to minimize waste and self-shading towards south, the design proposes an integrated photovoltaic curtain wall and under-floor ventilation as well as sophisticated technologies to further lower its carbon footprint. High performance glazing with dark frit print permits plentiful amounts of natural daylight into the building and prevents heat gain. The dark frit-print accentuates the monolithic bold form of the tower to project it as a landmark in Shenzhen.

Floor area:	110 000 sqm.
Type:	Office
Client:	Shenzhen Keliyuan Advanced Energy Storage Ltd.
Collaborations:	Halvorson and Partners
Status:	Proposal

