Tianjin World Financial Center

Facts

Official Name: Tianjin World Financial Center
Other Names: Tianjin Jinta Tower, Global Financial Center
Structure Type: Building
Status: Completed
Country: China
City: Tianjin
Street Address & Map: No. 2 Taku Road North, Heping District
Postal Code: 300000
Building Function: office
Structural Material: composite
  - Core: Steel
  - Columns: Concrete Filled Steel
  - Floor Spanning: Steel

Proposed: 2006
Construction Start: 2007
Completion: 2011

Rankings
- Global Ranking: #65 Tallest in the World
- Regional Ranking: #36 Tallest in Asia
- National Ranking: #29 Tallest in China
- City Ranking: #2 Tallest in Tianjin

About Tianjin World Financial Center

The Tianjin World Financial Center in Tianjin is the iconic marker of the new Central Business District at the periphery of the historic city center. Sited in the prominent Haihe River, the building plan incorporates a riverwalk promenade, emphasizing the importance of the natural resource. Visible from all of Tianjin, the tower serves as the beginning of not only the master plan for the area, but for the modernization of the local economy and city in general.
The form of the tower was parametrically driven through the creation of a pleated paper-like façade, referencing ancient Chinese paper arts. The slightly curving folds of the tower create generous bays in the floor plates, providing a unique interior experience for the offices. In order to support this unique geometry, an innovative structural system had to be devised using steel plate shear walls, utilizing the local knowledge and labor of steel shipbuilding techniques. Hollow steel tubes were designed and filled with high-strength concrete to allow the minimum diameter columns, maintaining open spaces on the interior.

In a departure from the atypical high-rise floor plan, the tower features a slender framework that results in a height-to-width ratio of 1:8. The façade of the building is composed of a perforate series of fabricated steel panels and windows that visually obscure the tower’s otherwise curvilinear form. Like many towers that utilize a tapering profile, each floor houses a slightly different program, providing a diverse selection of office space for prospective tenants.

In a city known for its intense seasonal winds, the narrow form of the building called for careful engineering considerations. After investigating various structural solutions, the design team selected steel plate shear walls (SPSW) as the most efficient and appropriate lateral load resisting system. As opposed to conventional shear walls, this system is composed of large steel plate walls that are welded together and positioned between columns to counteract lateral loads, effectively transferring earthquake and wind forces down to the foundation. This system was preferred not only for its structural soundness, but for the availability of materials, as Tianjin boasts the third largest reserves of iron ore in China. Ultimately, this innovative structural system resulted in a material reduction of 20 to 25 percent over traditional steel systems.

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The building has a height to width ration of 1:8.

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