

The Hearst Tower in New York

A Pioneer in Environmental Sustainability

Description of Building

- A 46-story glass-and-steel skyscraper establishing a number of design & environmental milestones:
 - HEARST TOWER OFFICIALLY CERTIFIED AS NEW YORK CITY'S FIRST OCCUPIED "GREEN" OFFICE TOWER
 - Featuring large open floor plates, the building has a total gross area of 865,000 sq. ft (80 000 square meter), Typical Floor to Floor Height: 13'-6" (4 m)
- Soaring three-story atrium filled with the sound of cascading of water
- Exterior honeycomb of steel keeping the interior work areas uncluttered by pillars & walls
- Radically angled panels of glass that make Hearst Tower look like a faceted jewel

Concept of the Building

- Existing Building:
 - Six-story structure completed in 1928
 - The building's façade is made of cast stone with eight allegorical statues incorporated into the fluted columns
- Idea of the Tower:
 - Foster thought of the historic cast-concrete exterior of the Hearst Building as the facade of a town square.
 - Not enough height between the original floors to create the kind of offices that he thought were needed for a company to function effectively today.
 - Using the original building would give Hearst "very poky offices," he said, "with very low ceilings".
 - Decided to move the office space up into the tower.
 - Gut the original interior to create a soaring lobby with a waterfall, a restaurant for the company's 2,000 employees and communal areas for meetings and receptions.
- Architect Lord Norman Foster created an exciting interplay between the historic base & the new tower while maintaining the integrity of both buildings.

Design & Construction Process

- Innovative geodesic design called the “diagrid” (diagonal grid)
 - structural system that creates a series of four-story triangles on the façade, Distinctive and modern look from the four-story frames of steel and glass
 - Featuring triangular steel bracing from the 10th floor up
- No vertical steel beams on the building’s exterior, around the perimeter, affording corner views, not possible in typical buildings
- Inherent lateral stiffness and strength of the diagrid provides a significant advantage for the general stability requirement for the tower under gravity, wind, and seismic loading
- → Highly efficient structural system consuming 20% less steel material (approximately 2000 tons of steel) in comparison to conventional moment frame structures
- An innovative type of glass wraps around the exterior of the building. The glass has a special “low-E” coating that allows for internal spaces to be flooded with natural light while keeping out the invisible solar radiation that causes heat.

"Y nodes" installed as The Hearst Tower project reaches an early milestone.

First stainless steel section installed on the southeast corner of the tenth floor

Major Environmental Features

- From design through construction, committed to produce the most “green” office tower in New York City.
 - Expected to be the first NY office building to receive a GOLD rating under LEED rating system
 - Recognized by the USGBC for high environmental performance both on its exterior (core and shell) and interior fit-out and systems.
- **“GREEN” ATTRIBUTES:**
 - About **90 percent of the original structure were separated and recycled for future use.**
 - 90% of the Tower’s structural steel contains recycled materials
 - 26% less energy is used than in a building constructed to standard building code
 - Carbon dioxide reduction associated with the reduction in energy uses is 1074 tons (=215 cars taken out off the road)
 - The roof collects rainwater, reducing the amount of water dumped into the city’s sewer system by 25% during rainfall
 - Light sensors installed to control the amount of artificial light based on the amount of natural light available at any given time.
 - Senses activity level:
 - Lights and computers will turned off when a room is vacant.
 - High efficiency heating and air-conditioning equipment used that will utilize outside air for cooling and ventilation for 75 percent of the year, as well as Energy Star appliances.

Additional Features

- As few internal walls as possible in order to maximize natural light.
- the walls that do exist are coated with low-vapor paints.
- Workstations and offices are furnished with desks, chairs and other furniture that is formaldehyde-free.
- Concrete surfaces are furnished with low-toxicity sealants.
- The floors beneath and the ceiling tiles above were manufactured with recycled content.
- the wood is harvested from sustainable forests.

Economic Consideration

- U.S.-built project **Hearst Tower interior workspace.**
 - Foreign-sourced materials account for less than 10% of the total cost of construction
- The new, 597 ft (183 m) tall tower of New York City has been estimated to cost \$500 million

- Despite the high cost of installing environmental attributes, the Hearst tower will be able to decrease energy costs and decrease its environmental impact.
- The city allowed the company to add six more floors to the structure than the air rights allowed, which netted another 120,000 sq ft (11,000 m²) in exchange for improvements to the Columbus Circle subway station.
 - The improvements, which include building a new entrance and three new elevators, repositioning turnstiles, and adding or moving stairwells, will substantially improve circulation and accessibility, especially for riders with disabilities.
- **"Five years ago if you used the term 'green premium,' it meant the building would cost more. Now, it means you will earn more," real estate consultant Lockwood notes.**

References

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