

# HEARST ICEFALL

Lobby Water Feature Shines On

In a building as large and complex as the 46-story, 856,000-square-foot Hearst Tower in New York City, one would be within their rights to think that of the myriad details that need to be addressed during the design and construction process, the least complex, and certainly the least time-consuming, should be a lobby water feature. But in the case of the Icefall at Hearst Tower, nothing could be further from the truth. It took more than a year of planning, the collaboration of at least six different consultants, and the construction of several large-scale mockups to bring the Icefall—the two-story glass-and-steel installation that enlivens the diagrid tower's lobby—to life. The designers and contractors involved went to such great effort because the client wanted more than just a pleasing aesthetic from their water feature; the installation had to represent the highest level of design and craftsmanship possible in this era. "It was very important for the Hearst Corporation to have a statement that really draws you in when you enter from 8th Avenue," says Brian Schwagerl, vice president of real estate for client the Hearst Corporation. "We felt the Icefall itself really gave that iconic presence that you expect from a landmark building in 2007."

A first encounter with the Icefall is an arresting experience. Water flows down the 27-foot-high stair-stepped wall of cast glass and stainless steel in a perfect and hypnotic choreography, as though guided by invisible hands. The Icefall consists of 595 glass planks, each weighing 120 to 130 pounds, and 173 10-pound glass blocks. Three escalators on a

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**PREVIOUS** The Icefall assists in spanning the old and new elements of the Hearst Tower.

**ABOVE** The glass planks and blocks are clipped to a stainless steel substructure.

**OPPOSITE** Ornamental ironworkers hand lift a 125-pound glass plank into place.



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bias bisect the field and remain mechanically isolated from the nearly 2 tons of water wending its way down the textured glass planks, thanks to a two-fold waterproofing system. A “skirt” of 1/8-inch-thick 316 stainless steel with a number 6 long-grain finish surrounds the entire Icefall and the pool at its base. Troughs of the same material can be found on either side of the escalator bank. The trough above the diagonal-running machines is perforated to accept water and siphon it away, while the other is solid to prevent splashes into the delicate wiring. This solid trough also hides a system that reintroduces water to the area cut off from the main source by the escalators themselves. These troughs were carefully detailed so as to appear seamless. “The challenge is not always the typical details,” says Michael Wurzel, partner and project architect at the building architect Foster and Partners, “but the edge conditions. We really wanted it to look simple, as though to achieve it was effortless.” Each glass plank that makes up the Icefall is held in place individually by a custom set of stainless steel brackets, and the entire 3,300-square-foot expanse is supported by a series of horizontal beams and extra substructure built into the tower’s structural steel system. But perhaps the biggest challenge of the Icefall was designing the water feature in such a way that it did not become a maintenance nuisance.



The Icefall's glass components play a key roll in guiding the water and keeping it away from elements in the installation that are prone to corrosion. New York City-based James Carpenter Design Associates, which specializes in sculptural and artistic architectural elements, designed the Icefall's glass blocks. The blocks were individually cast from a specially constructed set of graphite molds that determined the size and the surface texture of each plank. Subcontractor Fluidity designed the glass' surface texture, which features a system of shallow grooves and rough spots that controls the speed and flow of water, keeping it moving down the slope at a specific rate and via a specific route. "If there was any block that had any opposing slopes to the whole, the water would not have run over them properly," says Mike Pulsfort, vice president of operations for contractor Turner Construction. The blocks were created out of a particular type of clean sand from Oklahoma that has a low iron content, resulting in a very clear glass with little or no green tint.

Both to preserve the clarity of the glass and avoid discoloring reactions, the engineers at Allied Bronze, the architectural metals subcontractor for the project, relied on more-corrosion-resistant 316 stainless steel as opposed to 304 stainless steel to create the clips that hold the glass blocks in place. These clips are part of an assembly designed to not only keep the planks in place, but also bear the load. General contractor Turner Construction added extra structural steel under the area for the Icefall in order to help support the nearly 60-ton structure. On top of that, Allied Bronze laid its own steel to help support each individual row of glass planks. Connected to that steel is a series of stainless steel hat-channel assemblies running in 8-foot segments that support another, smaller beam, this one made out of solid 1/4-inch stainless steel. It is to these stainless beams that the stainless clips were bolted in place, two to each plank. "It's a multilevel structure," says Larry Platman, senior project manager for Allied Bronze on the Icefall project. The securing clips are also manufactured out of 1/4-inch stainless, and they fit snugly into a hole created in an epoxy solid acrylic lip at the ends of the glass planks, two clips per plank, one at each end. The entire assembly had to be very carefully leveled, to insure that as few adjustments as possible would be necessary once the glass planks were set in place. Allied

Bronze installed each plank individually with two people carrying and resting the piece in place and then tightening the assembly.

This laborious assembly process begs the question, how does one handle maintenance? It is a simple fact that after the wear and tear of the water passing over day after day, these clips will eventually have to be tightened, and maybe a plank will even have to be replaced, although that seems less likely. "These planks are so strong, you could drive an SUV up there and still not break the glass," says Platman. To this end, there is a mechanical room situated behind the Icefall from which all the hardware of the assembly can be reached. But one other signature feature of that room is the perforated stainless steel "veil," a thin sheet of stainless that rests behind the glass planks, at the same angle as the cant of the glass surface, which helps to reflect the light back through the glass blocks to create the stirring natural light effects that such a large water feature displays to the lobby users. "A lot of the design was working with optics: how the daylight coming through the clerestory overhead reflects into the glass and back through it," says James Carpenter of James Carpenter Design Associates. "The final optical effect captured a lot of their [Foster and Partners'] early hopes that the upper space, which is so much about light, could be brought into the lobby."

And it has a heady effect indeed, not just in terms of the light play through glass, metal, and water. The Icefall is just about as visually arresting as a lobby water feature can be. The incongruous image of escalators moving up through a continuous two-and-a-half-story wall of water is something that is not easily ignored, and its impact on the lobby space is more than just visual. The Icefall uses rainwater gathered in a 30,000-gallon tank on top of the Hearst Tower, so it is completely off the city's water grid. During the summer, that water is chilled, which helps to naturally cool the cavernous lobby space, and during the winter, the water is at room temperature but helps to humidify the space, giving users respite from the dry heat normally pumped through office buildings during cold winter months. The result of a long and remarkably congenial collaboration between so many individuals and teams, the Icefall is as useful as it is beautiful and certainly adds the level of sophistication to the lobby space that the clients at the Hearst Corporation were looking to achieve. ■

## HEARST ICEFALL

Owner **Hearst Corp.** *New York, NY*  
 Developer **Tishman Speyer** *New York, NY*  
 Architect **Foster and Partners** *London, UK*  
 Associate Architect **Adamson Associates** *New York, NY*  
 Architectural Design Consultant **James Carpenter Design Associates** *New York, NY*  
 Structural Engineer **WSP Cantor Seinuk** *New York, NY*  
 General Contractor **Turner Construction** *New York, NY*  
 Structural Steel Fabricator **Cives Steel Company** *Gouvernor, NY*  
 Structural Steel Erector **Cornell and Company** *Westfield, NJ*  
 Miscellaneous Steel Fabricator and Erector **Empire City Iron Works** *Long Island City, NY*  
 Ornamental Metal Fabricator and Erector **Allied Bronze LLC** *Long Island City, NY*  
 Curtain Wall Fabricator **Permasteelisa Cladding Technologies LTD** *Windsor, CT*  
 Curtain Wall Erector **Tower Installation LLC** *Windsor, CT*

**OPPOSITE** Collected on the roof, the Icefall's water helps cool the lobby's air in the summer and humidify it in winter.

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