

Essay:

The Future is Past – Empire State Building Retrofit

John Gendall

エッセイ:

未来は過去にある——エンパイア・ステート・ビルディングの改修

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From even before the time it was completed, in 1931, the Empire State Building has been caught in a kind of non-linear time, operating on a calendar different from the city around it. Planned, designed and started during an era of vast economic expansion, by the time the construction tape came down, only 410 days after it started, the USA had descended into its Great Depression. The ribbon-cutting ceremony was a remembrance of things in the past: political administrations had been replaced, economic conditions had changed very drastically, and the Art Deco style in which it had been fashioned was about to be challenged by others (MoMA's iconic International Style exhibition was to be staged 1 year later, in 1932).

Yet, at 102 stories, one thing was stable: its status as tallest building in New York, until the World Trade Center topped out in 1970. Once buildings get bumped from "tallest," the demotion is typically permanent, victims of advances in technology and engineering. Not so, tragically, for the Empire State Building, which seemed to defy the march of time by curiously reclaiming its status as New York's tallest on September 11, 2011 (a designation that it will soon lose again, once 1 World Trade Center is completed in 2013).

Now, once again, the building finds itself unhinged from relative time: the old, inefficient architecture becoming a vanguard of energy efficient design. A hulking structure, the Empire State Building, as so many of its contemporaries continue to be, was extravagantly wasteful, the kind of energy-intensive building that stood as a paean to the early 20th century idea of cheap resources and actions without ecological consequences. But in 2009, the Empire State Building Company, the property owner, set out to undergo a 500 million USD retrofit that would render the historic building energy efficient.

As it is well known, in the last decade, architecture, driven by advances in environmental engineering and material science, has become remarkably more efficient, slashing the environmental burdens of construction and occupancy. The existing building stock, however, continues to rely on extensive mechanical systems to counteract inefficiencies. The conundrum: to raze these old structures in favor of new efficient that would represent a monumental environmental cost, significant financial commitment, and, in many cases, an affront to historic preservation. Property owners are now exploring the possibilities presented by retrofitting old buildings to mitigate environmental inefficiencies.

Setting out to provide a model for just how that gets done, the owners of the Empire State Building are embarking on an ambitious initiative to render the historic tower green. At the end of the process, they argue the building will be 38% more energy efficient, and it will be a replicable model for others to

follow. Very nearby, for example, the U.N. Building is already underway on its own 1.9 million USD renovation, which includes an initiative to address efficiency. The curtain wall is iconic, but terribly wasteful. By replacing it with more efficient glass, the U.N. estimates the building will become 40% more energy efficient.

The Empire State Building's retrofit approach is tactical, addressing the most wasteful elements. The main culprit, like the U.N.: windows. The owners have refurbished the building's 6,514 windows with energy efficient alternatives, increasing the insulation value from R2 to R7. They were able to reuse 95% of the windows, adding an insulating film to minimize heat gain/loss. The owners also rebuilt the chiller plants to increase cooling efficiency while cutting operating costs. And by upgrading the Building Management System, tenants and property managers are able to tailor interior environments, which cuts wasteful energy use.

To carry out the retrofit, the property owners teamed with Johnson Controls, a company that specializes in architectural energy efficiency; energy consultancy Rocky Mountain Institute, Clinton Climate Initiative; The New York State Energy Research and Development Authority, and the financial services firm Jones Lang LaSalle.

For the owners, this is not simply an exercise in ethical behavior. With an estimated 4.4 million USD in estimated annual energy savings, the retrofit represents a step toward enhanced profitability. There is, of course, the savings that come with lower energy bills, but there is also the enhanced market attractiveness of green building. The financial incentives are not just recuperated by the owner. Former U.S. president Bill Clinton is convinced that energy represent a salvo against the recession, generally, and job loss, specifically. In an article for *Newsweek* magazine about ways of creating new jobs, Clinton writes, "copy the Empire State Building."

When Modernism set its agenda, at the turn of the 20th century, its utopian projections had one thing in common: a tabula rasa. By beginning with an open field, Modern architects were free to inscribe visions of the future free from context and existing conditions. The contemporary case is different. Now, architects can look to the future by building in the past.

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