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CURTAIN WALLS

**RECENT DEVELOPMENTS
BY CESAR PELLI & ASSOCIATES**

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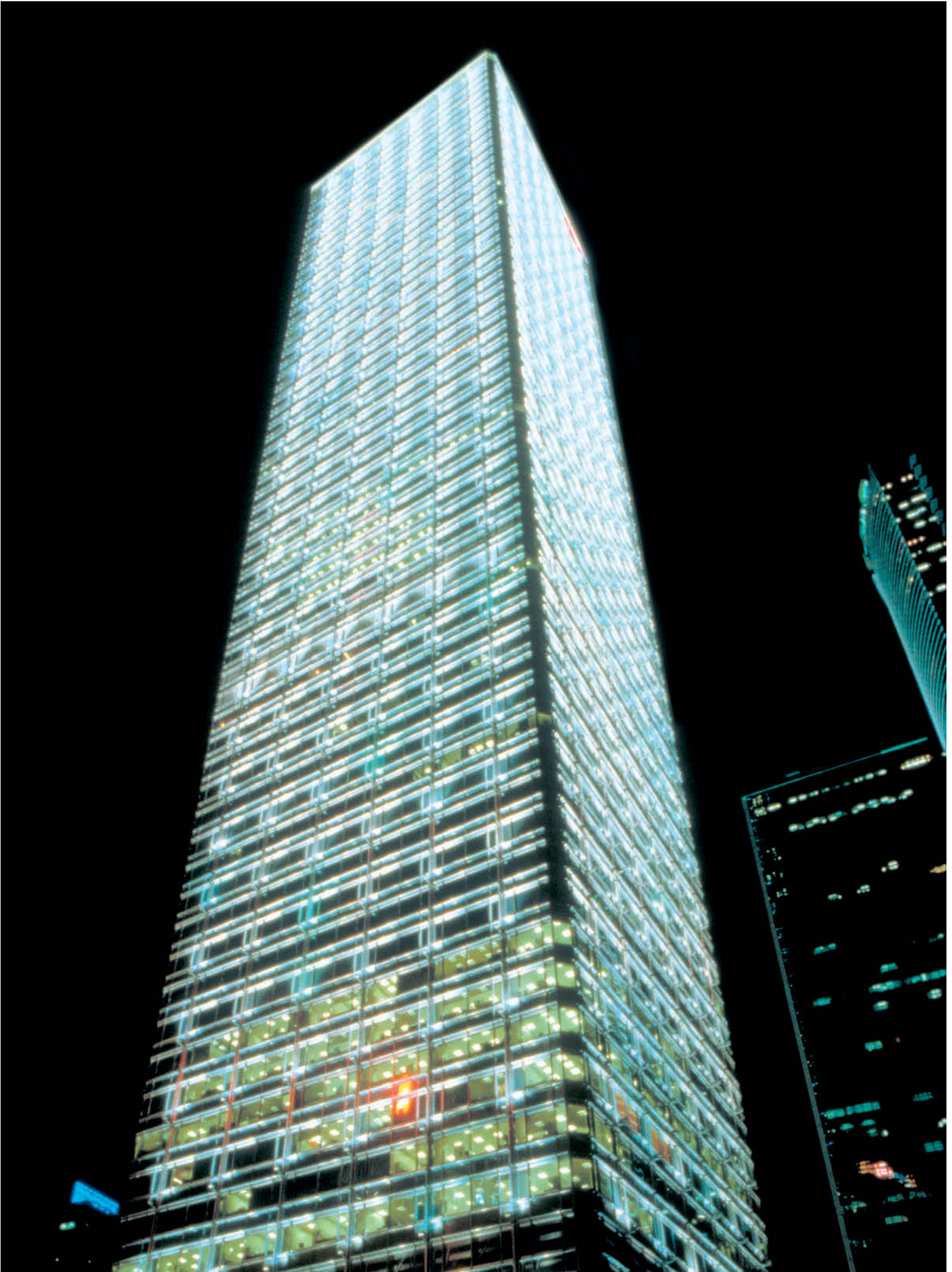
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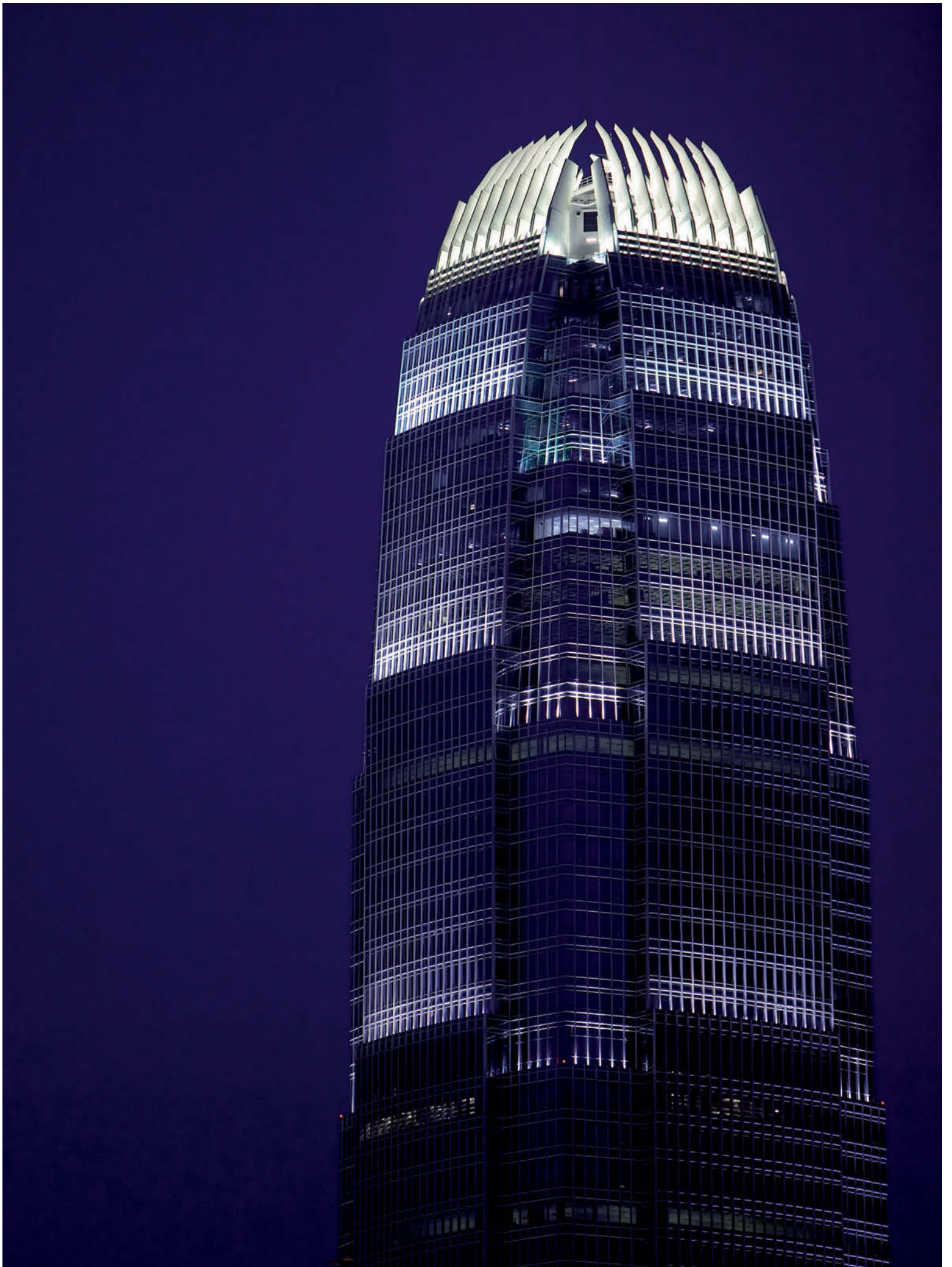




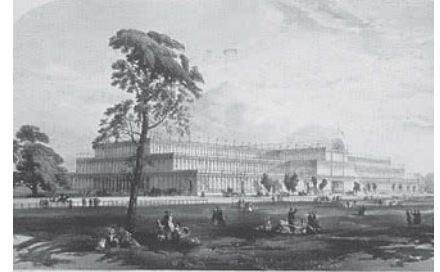








THE ART AND CRAFT OF CESAR PELLI'S CURTAIN WALLS



Crystal Palace, Joseph Paxton, London, 1851

In the architecture of Cesar Pelli, there is no part of the building that has been the subject of more critical attention than simply “the wall.” The veil that separates interior from exterior, demarcating where the building begins, is for Pelli and his collaborators its most expressive element – an epidermis through which architectural ideas are communicated. Indeed, Pelli’s very surname, in Spanish, means “skins.”

Over Pelli’s 50-year career, during which he has practiced with Eero Saarinen, Victor Gruen, and the firm Daniel Mann Johnson and Mendenhall (in addition to heading his own practice for the past 28 years), Pelli’s designs for exterior curtain walls weave like filaments that glow with the heat of intellectual curiosity and the light of architectural experimentation.

Recognizing the major shift in building construction that started with Joseph Paxton’s Crystal Palace of 1851 (of which Pelli has written extensively) and accelerated after World War II (when enclosing walls became more independent of the structure) Pelli has focused on expressing this new reality. He brilliantly conceived of a new architectonic paradigm for the modern building: the traditional tropical hut made of a light-weight frame of cane and covered with a thin skin of grass. His curtain wall explorations are guided by this belief: that architecture as an art and a craft can advance only when new ideas are tested against the possibilities of contemporary construction.

Nature of the Curtain Wall

Born in the firmament of the Industrial Revolution, and the offspring of Paxton’s shimmering glass sheath, the curtain wall is one of the best examples of modern architecture’s quest for the incredible lightness of buildings. Over architecture’s long history, buildings have become progressively less earth-bound, their enclosures more shear and ethereal. The development of the curtain wall in the late 1800s separated the building’s enclosure from its structure, making the two essentially

independent. In a curtain wall the exterior enclosure hangs, akin to a curtain, from a structural frame of steel or concrete (the Statue of Liberty, constructed in 1884 with an iron frame supporting a light-weight cladding of thin copper, is one of the earliest examples of a curtain wall in the U.S.).

After World War II, technical advances in the performance of glazing, sheet metal, and gaskets allowed the walls to become thinner and more energy-efficient. Today curtain walls are prefabricated, consisting of panels mounted into a metal frame attached to the building’s structure. Opaque curtain wall “spandrel panels” can be finished in virtually any material, but metal and stone are the most common. The “vision panels” are made of insulated, multi-pane glass, with a variety of coatings for appearance and performance.

Older style “stick systems,” where the curtain wall is composed of individual elements (glass, mullions, gaskets, spandrel panels, metal caps) assembled on-site, have given way to prefabricated “unitized systems” that arrive at the construction site virtually preassembled, ready to be lifted into place and fastened to the building’s structure. While unitized systems now dominate curtain wall technology, stick style systems continue to be used in some parts of the world.

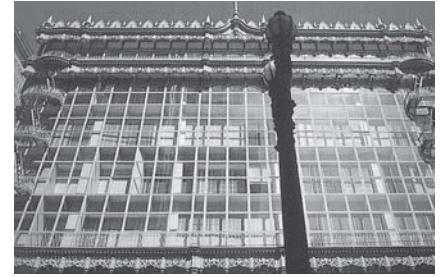
Most curtain wall buildings are made with “off-the-shelf” systems designed by curtain wall manufacturers, and they are pretty prosaic and uninspired. The design challenge for architects such as Cesar Pelli & Associates is to take the elements of contemporary curtain wall systems and interpret them in new ways, expressing the architectonic character of the wall as central to the building’s architectural presence. Pelli achieves this through custom-designed and fabricated curtain walls that are special to the place, function, and architectural aspirations of the building.



Seagram Building, Ludwig Mies van der Rohe,
New York, 1958



Carson, Pirie, Scott and Company Building,
Louis Sullivan, Chicago, 1899



Hallidie Building, Willis Polk,
San Francisco, 1918

Curtain Walls of Invention

Cesar Pelli and his curtain wall design collaborators – Fred Clarke (a firm principal who helped Pelli found the practice in 1977), Gregg Jones, Lawrence Ng, and (more recently) Rafael Pelli – tint their architectonic investigations of the wall with the realities of every project they work on. Of all the elements that appear to influence Pelli's design of a curtain wall, the most important is context. While contextual response in the design of tall buildings was evident in the work of the early skyscraper architects (such as Louis Sullivan) by the post-war period it became all but lost. Architects vacillated between two extremes: the more talented (such as Mies van der Rohe) applied what they considered “universal” design solutions to every design problem they faced, replicating them without concern for local architectural character. Mies' less-talented followers populated the skylines with cheap knock-offs that were alien behemoths. Every place became nowhere in particular.

Pelli revived the tradition of the contextually responsive tall building, and it has become stronger in the firm's work over the years. Cesar Pelli & Associates marries the tall building to its place in the city, creating a unity between the two. As Pelli himself expresses it: “The curtain wall, like the rest of the building's design, needs to adjust itself to the unique conditions of each place, the urban responsibility of the building, and the uniqueness of its functions.”

The building's form, materials, and details all work to reinforce the connection of the building with its role in the city. For Pelli the first responsibility of any building is to support the civic life of the city and its cultural identity. All of Pelli's curtain wall designs flow from this system of values and priorities.

According to CP&A's Lawrence Ng, the Pelli team believes that the job of the architect is “to give the client's aspirations for the project artistic rendition.” Often clients cannot verbalize

what their architectural aspirations are and they describe them in non-architectural terms: They want their building to be “solid,” or “lasting,” or a “beacon.” These visions then direct Pelli's search for an expression – how the curtain wall can help achieve these formal goals. Ideas are cultivated, multiple options are developed for clients to respond to, and a design emerges from this give and take. Says Ng: “Architecture is a collaborative art. For us, it is very much an interactive process with the client.”

The Function of Form

What drives the design of a curtain wall? According to Pelli and Clarke, the building's form is the genesis of the architecture. Generally, curtain walls are designed to serve the building's architectural form, particularly towers that will take a prominent place on the skyline. Every decision about the curtain wall's design is driven by its service to the large ideas concerning architectural form and its expression. “The form is the greatest expression of a tall building,” says Pelli. “That is the first level, and the design of the curtain wall supports that role. That is the hierarchy.”

Pelli often chooses to clad his buildings in materials that forge connections with the local context or recall the indigenous culture, such as native Kasota stone for a curtain wall in Minnesota, or ceramic tile for a Japanese high rise. Pelli believes that the design of the curtain wall must be respectful of the regional character, reflecting its symbolism and local color. This was literally true in the case of the JP Morgan Chase high rise in San Francisco, completed in 2002, whose green color is an homage to the city's first modern curtain wall structure, the Hallidie Building, built in 1918.

Another way to describe Pelli's architecture is as either “form active” or “form passive.” Form active buildings, primarily towers, convey a strong formal presence on the skyline – they