

Contextual fields: Design methods in the construction of Lever House

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ABSTRACT: Focusing on corporate architecture completed in New York City between 1950-1960, the following case study presents multiple influences that contributed to the final constructed building. In the United States, the post World War II decade was a time of increased prosperity and optimism. During this time, many architects were greatly influenced by a modern design idiom. Corporations were equally motivated by the era of increased prosperity and sought to develop efficient work environments to present a modern public image. Although similar in ideology, the intentions of contemporary American architecture and big business were often in conflict. Evaluated through the facets of corporate desire, design philosophy, civic regulation, and technological know how the case study looks to reveal a multitude of contextual influences.

Understanding the potential influence of architecture on an organizations structure, Lever Brothers wanted to portray a contemporary corporate environment that was also a catalyst of corporate advertising. In response to the corporations desire for an image of sparkling cleanliness, a modern building of steel and glass was proposed. The design of the all glass vertical slab was influenced by the multiple conflicted intentions of zoning ordinances, building codes, technological limits, and design ideology.

Using typical architectural conventions, plans, sections, details, building codes, and specifications, an evaluation of the following case study seeks to discover underlying organizational patterns present within the construction of architecture. The 1950's were a moment of great prosperity and changed the physical environment radically in a short time span. Both corporations and society as a whole were interested in a modern efficient life style. Often it was believed that purely physical reformations were the answer to defining a new modern environment. By looking into the case study it is evident that a single unified ideology was not able to purely direct modern intentions.

Keywords: Desire, Philosophy, Regulation, Technology, Multiple

INTRODUCTION

Focusing on corporate architecture completed in New York City between 1950-1960, the following case study presents multiple influences that contributed to the final constructed building. In the United States, the post World War II decade was a time of increased prosperity and optimism. The holistic focus of the nation seemed to be oriented towards a modern and well organized society. During this time, many architects were greatly influenced by a similar design idiom, a movement that also expressed ideals of a clean modern society. Corporations were equally motivated by the era of increased prosperity and sought to not only develop an efficient work environment but also redefine their public image. Although similar in ideology, the intentions of contemporary American architecture and big business were often in conflict. Evaluated through the facets of corporate desire, design philosophy, civic regulation, and technological advancements this case study looks to reveal a multitude of contextual influences. Using typical architectural conventions, plans, sections, details, building codes, and specifications, an evaluation of the following case study seeks to discover underlying organizational patterns present within the construction of architecture.

In 1932 The Museum of Modern Art ushered in a new period of American modernism with the exhibition: The International Style. Focused on issues of universality, modern materials, and standardized modular parts this design ideology sought to disseminate avant-garde ideals of the 1920's for mass public consumption. "The 5 points of a new architecture", promulgated by Le Corbusier and Pierre Jeanneret, in the 1927 literature published for the opening of the Weissenhof Siedlung modern housing prototypes in Stuttgart were of particular influence. The points were: 1 les pilotis (the column), 2 les toits-jardins (the roof garden), 3 le plan libre (the free plan), 4 la fenetre en longuer (the ribbon window), and 5 la façade libre (the free façade). Proposed as a progressive mode of practice, the new philosophy endeavored to reorganized post World War I upheaval and congestion. Opening the exhibition catalog, Henry-Russell Hitchcock and Philip Johnson pronounced the main attributes of the paradigm:

The effect of mass, of static solidity, hitherto the prime quality of architecture, has all but disappeared; in its place there is an effect of volume, or more accurately, of plane surfaces bounding a volume. The prime architectural symbol is no longer the dense brick, but the open box. Indeed, the great majority of buildings are in reality, as well as in effect, mere planes surrounding a volume. With skeleton construction enveloped only by a protective screen, the architect can hardly avoid achieving this effect of surface, of volume, unless in deference to traditional design in terms of mass he goes out of his way to obtain the contrary effect.¹

Understanding the impact architecture can have on an organizations structure, Lever Brothers wanted to portray not only a contemporary corporate environment for the benefit of employees but also as a catalyst of corporate advertising representing the company's products. Originating in 1885 in Great Britain, Lever Brothers was founded by the brothers William Lever and James Lever. The company was launched on the premise of a new technique to manufacture soap developed by William Watson. Both the products and business model proved to be a success and developed into an internationally recognized manufacturer of consumer goods. In the early 20th century Lever Brothers Company, a subsidiary in the United States, was established. After 1925, Levers Brothers joined forces with the Dutch company Margarine Unie in the formation of Unilever. Unilever employed around a quarter million employees by 1930 and had become one of the largest companies in Great Britain.

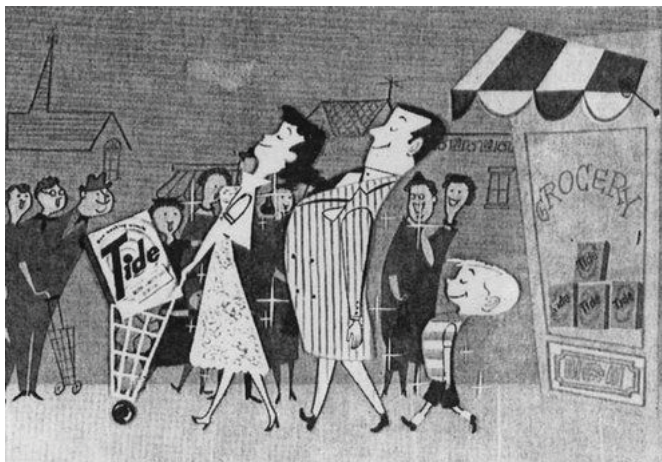


Figure 1: Tide advertisement by Ray Favata. (Source: www.pinterest.com/pin/400257485602491921/)

By 1946 Lever Brothers Company introduced Tide laundry detergent to the United States public market. A few years later the new washing soap was available across the country and quickly out paced competing products. Encouraged by the success of the detergent, Lever Brothers Company moved to New York in 1949. The following year Charles Luckman, the president of Lever Brothers Company since 1946, helped initiate the planning of a new corporate headquarters on Park Avenue in Manhattan. In 1950 Luckman resigned as president to open an architectural practice and Jervis Babb took over the leadership position of the company. Jervis Babb was familiar with modern corporate architecture from his time as vice president of Johnson Wax, the company's headquarters was designed by Frank Lloyd Wright.

In 1950 the architecture firm of Skidmore Owings and Merrill received the commission to design the mid-town Manhattan office building. Formed by Louis Skidmore, Nathaniel Owings, and John Merrill the New York City office of SOM opened in 1937, just 13 years prior to obtaining the Lever House project. The architectural team included founding partner Louis Skidmore, partner in charge Bill Brown, design partner Gordon Bunshaft, project designer Manny Turano, and design coordinator Natalie De Blois. The structural engineer was Weiskopf & Pickworth, the mechanical engineer was Jaros, Baum, & Bolles, and the general contractor was George A. Fuller Company. Located at 390 Park Avenue on the West side between 53rd and 54th Streets, the site was on a lot that measured 200' along Park Avenue, 155' along 53rd Street, and 192' along 54th Street. Programmatically the building area was just under 300,000 square feet and included 150,000 square feet of office space, a reception lobby, cafeteria, auditorium, and below grade parking. The project budget was six million dollars.

Responding to Lever Brothers desire for an image of sparkling cleanliness, SOM proposed a modern building of steel and glass. The general architectural language was defined by floating volumes accentuated by deep reveals. One volume was a horizontal free floating glass box, elevated from street level by a

recessed lobby and setback columns, that acted as a plinth which simultaneously defined the site perimeter and the void condition of the block. The other volume was a vertical free floating glass box, separated from the second level by a recessed cafeteria and setback columns, that acted as a tower which was disconnected from the existing context by large setbacks and a rotated form. The volume surfaces were made of polished vertical mullions juxtaposed by horizontal bands of green and blue glass.

The relationship of the structural columns to the volume surfaces flowed from exterior to interior as the building rose from the ground. The structure was setback and concealed behind the reflective surfaces of the horizontal and vertical volumes. It was exposed at both the deep reveals between the ground and the horizontal volume and the horizontal and vertical volumes. Set back 10 feet from Park Avenue to avoid below grade subway tracks the structure of the vertical volume was composed of eighteen columns spaced twenty eight feet apart in the East to West direction and a core along the Western edge. The composite structure was constructed of steel columns with a reinforced concrete slab.



Figure 2: Lever House photograph by Ezra Stoller. (Source: www.som.com/projects/lever_house)

Contextually, the reflective steel and glass volume surfaces contrasted with the masonry facades of neighboring buildings. Both the building South across 53rd Street and the building North across 54th Street were full block masonry masses. The incongruity between the existing traditional masonry buildings and the new glass and steel building defined a streetscape rhythm along Park Avenue that read as mass, void, volume, void, mass. As sole occupant of the new headquarters Lever Brothers was able to define a beacon for modern living supported by a specific architectural vocabulary, a glistening green tinted glass and steel envelope in striking contrast to the surrounding masonry buildings. The ambitious new structure acted as a catalyst that clearly defined a corporate identity that advertised the company's products and the lifestyle they reinforced. As Paul Goldberger noted:

New York's first major commercial structure with a glass curtain-wall (only the United Nations Secretariat preceded it), and it burst onto the stuffy, solid masonry wall of Park Avenue like a vision of a new world²

The composition of floating volumes and voids clearly defined the functions of private office space, support space, leisure space and public open space. Accessible to pedestrians, the ground level void was completely free of the usual street lining shops and reintroduced the idea of an open air plaza for public use. 75 percent of the area was devoted to pedestrians and given back to the city as public space. The ground level entry lobby was setback from the site perimeter 14' along Park Avenue and 34' along 54th Street. It was enclosed with transparent glass, and programmed as a public indoor space for exhibits. Elevated above the ground level a full block the horizontal volume was programmed with support spaces. Floating higher up was the vertical office volume. Organized around a narrow slab, each level of the free plan interior work area of approximately 6,000 square feet was all within 25' of a window to provide natural light and views. The office volume was a straight vertical slab with no setbacks. It was 53' wide x 302' high and composed of 24 stories measuring 12'4" from finish floor to finish floor. Between the horizontal volume and the vertical volume an open void was programmed with leisure spaces. This area was defined by an enclosed interior cafeteria and open exterior plaza. Elevated above the noise and congestion of the street,

the private employee plaza was oriented towards the Sothern exposure for direct natural light and views to Saint Bartholomew's Church to promote employee health and well being.



Figure 3: Lever House plans. Source: Architectural Forum, June 1952

In the early 20th Century New York was one of the first cities to establish zoning laws to regulate the quality of urban space. In a time of rapid growth and advanced construction technologies, the 1916 zoning law was established to address the increased height and mass of newly proposed buildings. The intent of the zoning law was to address issues of light and air at the public street level. To achieve this, a system of required setbacks was prescribed relative to building height. If a building occupied more than 25 percent of a site, multiple setbacks were mandated at predefined intervals as it rose in height. This formulaic system resulted in a predictably repetitive tiered wedding cake building typology across the city. The proposed office tower of Lever House, a vertical slab, was in conflict with obvious solutions to zoning ordinances that required setbacks for light and air. In response to the civic regulations, the footprint of the tower was minimized to be less than ¼ of the site. This allowed the design of the office volume to be a clean and pure vertical slab that went straight up. As Natalie De Blois recounted in her oral history interviewed by Betty Blum:

Yes, that was because of the zoning ordinance. Gordon could have gotten a bigger building . . . set back and then gone up so many feet and then set back again. Our aim in analyzing Lever House . . . was to get a building shaft that went straight up and had no setbacks. But then the shaft could not be greater than ¼ of the lot size.³

In 1929, to address the Eastward expansion of mid-town Manhattan, the zoning plan was redrawn to allow commercial use buildings along Park Avenue from East 50th Street to East 59th Street. The extra width of Park Avenue, compared to other avenues, enabled businesses to acquire properties with increased exposure and visibility that reinforced the ideas that promoted architecture as a corporate image. Historian Henry-Russell Hitchcock described the influence, modernism and corporate clients had on Park Avenue:

If he knew the Park Avenue of the dozen blocks above 46th Street as it was before 1950 he will hardly recognize the scene. Of the older landmarks, St. Bartholomew's, several hotels, the Racquet Club, and two skyscrapers, the Ritz Tower and the Grand Central Building – soon to be out-topped by the Pan American Building behind it – survive. But almost without exception the solid brick and stone blocks of the teens and twenties have been replaced by glazed curtain walls – in several cases literally so since the old internal structure has been retained. If the visitor has the curiosity to ask, he will soon learn that this change began in 1951 with the construction of Lever House, the first example of a tall curtain walled business building.⁴

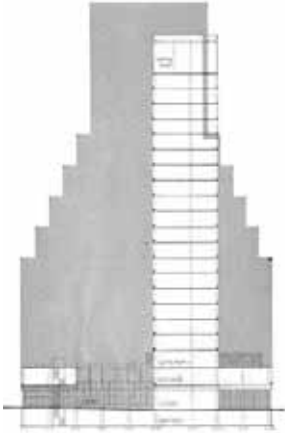


Figure 4: Lever House zoning diagram. Source: Architectural Forum, June 1952

Adhering to Lever Brother's intended image of sparkling cleanliness, the vertical office volume surface was designed as an all glass window wall system. The surface, based on a 4'8" module, was composed of 6'6" high sealed tinted green heat absorbing transparent glass, 30" high blue wire spandrel glass, and stainless steel mullions. The tint of the transparent glass and spandrel glass was drawn from the color of many of the company's iconic products. The mullions were composed of paired channel shapes sheathed in 16 gauge type 302 stainless steel. 2 1/2" wide, the mullions projected only 1" to reduce the amount of shadow cast on the glass. This allowed the window wall enclosure to appear as a smooth flush surface with minimal depth. In addition, according to the company's intent, the specified glass was highly reflective to help facilitate the appearance of a thin clean polished surface. The reflective glass was placed outside of the columns and completely obscured any indication of the structural system from exterior views of the vertical office volume in the daylight. This askew relationship between enclosure and structure seems to favor the corporate intention of self promotion over the modern design idiom of structural honesty.

As one of the earliest proposed glass and steel high-rise buildings in New York City, the design of Lever House was governed by civic regulations based on disparate building technologies and materials. The building fire codes written for masonry construction dictated the composition of the proposed all glass window wall system. Strict guidelines regulated the vertical distance and material between exterior openings. To meet these construction criteria a 4" thick masonry wall was placed behind the spandrel panels. As Natalie De Blois further recounted in her oral history interviewed by Betty Blum:

The New York City code required a distance between the top of one window and the bottom of the next window. This was why we had to have a solid wall there, for fire reasons. We couldn't actually have the glass come down to the floor.⁵

This conflict of intentions between civic regulations, technological know-how, and design philosophy resulted in the construction of a multi layered building enclosure. The enclosure was composed of a conventional masonry wall, constructed to meet code, which was then concealed by a reflective glass spandrel panel to maintain the smooth consistent surface of the floating volume intended by the design. As Paul Goldberger noted:

The glass that covers the structure between the floors, making the entire outside look as if it were made of glass –is not structural honesty at all, but merely a modernist brand of ornament.⁵

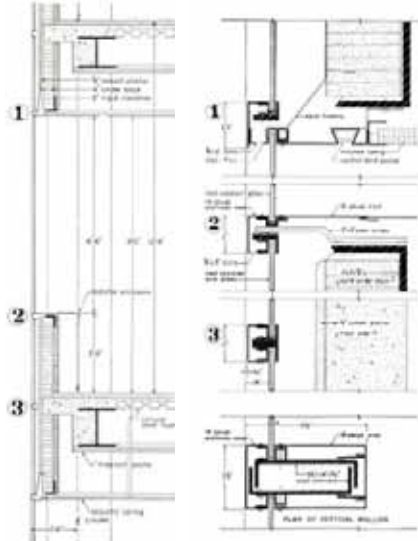


Figure 5: Lever House wall section and details. Source: Architectural Forum, June 1952

Designed to be kept sparkling clean and emphasize Lever Brother's products, the curtain wall system had varying mullion shapes to vertically guide and help deploy a new technology of mechanized window washing equipment. Otis Elevator Company produced the mechanical exterior cleaning scaffold that was stored on the roof and moved horizontally along a rail system. The entire office volume exterior could be cleaned in under 120 man hours with 2 men on the scaffold and working at a rate of 90 seconds per window. As Lewis Mumford noted:

For a company whose main products are soap and detergents, that little handicap of the sealed window is a heaven-sent opportunity. For what could better dramatize it's business than a squad of cleaners operating in the chariot, like deus-ex-machina of Greek tragedy, and capturing the eye of the passerby as they performed their daily duties? This perfect bit of symbolism alone almost justifies the all glass façade.⁷



Figure 6: Lever House window washers. Source: Architectural Forum, June 1952

With the completion of the Lever House, the modern design idiom was widely accepted by the corporate establishment. Characteristics such as curtain walls, regulating modular systems, and smooth unadorned glass and metal facades supported on pilotis became the desired norm amongst big business desiring to embrace a modern enlightened environment. As noted in Carol Krinsky's writing on Gordon Bunshaft:

Some clients chose the ostensible functionalism of modernism because it was practical; others chose it out of a heightened aesthetic sensitivity to the desire to appear progressive. "We

never had to sell modernism to anybody”, said Bunshaft. “You have to understand the time. It was a unique and marvelous thing, the situation after the war. Lots of young architects, disciples of Mies and Corbusier, had just finished their training and were anxious to do something new. At the same time, the heads of these big corporations needed new facilities and they all wanted something new-looking. I’m sure these corporate presidents all lived in colonial houses in Connecticut, but for their offices they wouldn’t consider anything but modern. They all wanted buildings they could be proud of.”⁸

The 1950’s were a moment of great prosperity and as expressed by Ada Louise Huxtable the physical environment radically changed in a time span as small as a decade:

As the old buildings disappear radical new ones rise immediately in their place, and the pattern of progress becomes clear: business palaces replace private palaces; soap aristocracy replaces social aristocracy; sleek towers of steel-framed blue, green, or grey-tinted glass give the Avenue a glamorous and glittering new look.

. . . The staples of our civilization – soap, whiskey, and chemicals – have identified themselves with advanced architectural design and their monuments march up the avenue in a proud parade.⁹

Both corporations and society as a whole were interested in a modern efficient lifestyle. Often it was believed that purely physical reformations were the answer to defining a new modern environment. From this case study it is evident that a single unified ideology was not able to purely direct modern intentions. The proposed vertical slab of the Lever House office tower was in opposition to the setback massing stipulated by zoning regulations. Reduced to ¼ of the site, the pure clean form of the office volume epitomized the intentions of both a modern design philosophy and corporate desire. The reduced tower footprint also provided an abundance of natural light to the interior work area. Responding to the site condition of below grade subway tracks, the 10 foot column setback from Park Avenue allowed the structure to simultaneously be shown and hidden relative to the building envelope. This duality, by allowing the structure to be concealed behind the reflective surfaces of the horizontal and vertical volumes, reinforced both the corporate image and the design intent of lightweight floating volumes. The all glass curtain wall at Lever House was deployed before the new enclosure technology was capable of addressing civic regulations based on dissimilar materials and construction techniques. Although the visible outcome appears consistent with the contemporary design ideology, the physical enclosure was limited by fire protection technology and building codes. The glass skin laid over a masonry façade, due to a conflict of intentions between city fire codes, technological know-how, and design philosophy resulted in a redundant multi layered building enclosure. At the same time, even though technology was limiting at one phase, it was the generator at another. This is exemplified through the use of the mechanized window-washing scaffold. The mechanization of cleaning the sealed glazed skin played perfectly into the corporation’s identity and product advertisement. Reviewing this case study, it is vital to note that a complex exchange of decisions, based on a multitude of contextual influences, resulted in the organization of the constructed design as compared to a deceptively simple singular explanation that is typically embraced.

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