

**Overview of New York skyscrapers in the context of city vision
of Le Corbusier and Frank Lloyd Wright**

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1. Introduction

According to Rem Koolhaas' (1994) words in *Delirious New York*, he claimed that:

Manhattan has generated a shameless architecture that has been loved in direct proportion to its defiant lack of self-hatred, has been respected exactly to the degree that it went too far. Manhattan has consistently inspired in its beholder's ecstasy about architecture. In spite—or perhaps because—of this, its performance and implications have been consistently ignored and even suppressed by the architectural profession.

These words are a pretext for a dialogue which Frank Lloyd Wright and Le Corbusier have never personally conducted on the architecture of New York, particularly Manhattan, from the beginning of the 20th century, when its rapid development took place, and the term “skyscraper” was widely adopted. In the 1930s, both architects gave lectures at American universities. In 1930 at Princeton University, Frank Lloyd Wright (2008) presented a series of six lectures, titled “*Modern Architecture*”.

On the contrary, the Rockefeller Foundation invited Le Corbusier in 1935, who had visited several universities, including Columbia, Harvard and Yale, where he presented twenty-one lectures, promoting the idea of *Plan Voisin* (the plan of the redevelopment of central Paris) and his point of view on modern architecture and urban planning (Flint 2017).

During Le Corbusier's stay in Chicago, two leading architects of the modern world were about to meet. However, Frank Lloyd refused to meet Le Corbusier already on three occasions, claiming: “Corbu’s influence in this country is just terrible, and he has no business here. I do not want to have to shake his hand.” (n.d., cited by Żukowski 2016).

Moreover, his aversion to Le Corbusier's had manifested itself earlier, including in his review of the book *Towards an Architecture*, published in 1928, but above all in his lectures, where he fiercely criticized the love of modernity and the apotheosis of the machine proclaimed by Le Corbusier (Żukowski 2016). For example, Frank Lloyd Wright (2010) denies Le Corbusier's vision of a city that ruthlessly breaks with the history of the place and instead proposes identical solutions for every city in the world, regardless of the context, history or social aspects. This totalitarian vision of impersonal architecture forming the fabric of the city evoked in Wright as an architect who placed his designs strictly in the context of the place, absolute negation.

Considering the observations of architects with such antagonistic attitudes, contained in the reading of Frank Lloyd Wright's lectures and Le Corbusier's memoirs from his stay in America, concerning the buildings characteristic of Manhattan, provoke to start a new discussion at the beginning of the 21st century in the context of modern architecture. Significantly, when it comes to assessing the phenomenon that Manhattan is undoubtedly, architects have diametrically different visions of the city's future (Koolhaas 1994). Dialogue, which never took place between architects, and its trace was reflected only in literature, has its actual continuation in a bustling architectural city, where architectural visions of the place have been clashing for a hundred years. For instance, the tower structure is the primary type of development in residential and public construction in New York City, as in many modern, developed cities of the world (Dupré 2013). The evolution of the form of a skyscraper over the years is fascinating due to its structures, technologies and new user requirements, adequate to the times in which we live (Dyckhoff 2021). Due to its urban context, economic, cultural and social conditions, Manhattan has an exciting and most extended history in relation to skyscraper evolution compared to the other cities (Jencks 2000). The look at the transformation of tower forms in this particular city as a phenomenon of form transformations and, consequently, the evolution of the urban fabric is the subject of research and dissertation by many contemporary architects, such as Rafael Viñoly, Daniel Libeskind or Bjarke Ingels.

In conclusion, New York City is unique because it brings together the issues anticipated years ago by the oppressive visions of both architects and brings in its own experiences, which due to their uniqueness, are worth analyzing.

2.0. Tyranny of a skyscraper

In 1930, Frank Lloyd Wright delivered a lecture devoted to the assessment and criticism of the issues related to the fashionable and innovative form of the building, which was the skyscraper (Żukowski 2016). Using examples of New York, Wright pointed to the threats to the future of cities posed by the form of the skyscraper and the method of densifying the urban tissue that it delineates. In order to support Wright's argument in his idea of imitating forms of architecture, to exemplify both secular and sacred power is interesting: Wright gave an example of the design of Michelangelo's St. Peter Buonarotti's dome, which, according to him, was meaningless - devoid of any sense other than that of a papal mitre (Wright 2010).

In addition, he disagreed with the decorativeness of the dome and the eclectic style of the basilica. He believed that the random dome of Buonarrotti, recognized in the Renaissance as the pinnacle of technology and the ideal of beauty, was wrongly used for centuries and identified with a symbol of power, and then copied and used widely for centuries (Wright 2010). In light of the history of architecture and the frequency of using the form in many objects, it is difficult to deny such an uncompromising statement. Wright compares commonly used in architecture tendency to copy (in this case the Buonarrotti's dome) with the ubiquitous trend of thoughtless imitation of prototypes of skyscrapers, ubiquitous among architects at the beginning of the last century (Wright 2010).

The term skyscraper originally applied to buildings of 10 to 20 stories. Wright was fascinated by their construction. He recalls, as a student of Louis Henry Sullivan, in the 1890s, in his Chicago studio, he witnessed the birth of the project of the first ten-story, 41-meter Wainwright Building (Weintraub 2009). The building was erected in St. Louis in 1891 in a steel structure with a homogeneous facade and modest ornamentation. During his lectures, Wright emphasized the uniqueness of the building, appreciating it for “the usefulness that merged with its beauty thanks to the triumph of great imagination” (n.a., cited by Weintraub 2009). The second project that made a lasting impression on him was the prototype of the later skyscrapers, the Monadnock Building by John Wellborn Root, erected in Chicago in 1891–1893, with a brick structure and a height of 60m, being the tallest building in the 19th-century world (Weintraub 2009).

Wrights' (1970) criticism of Manhattan skyscrapers referred primarily to the naive way of imitating the form of brilliant prototypes of skyscrapers, without respecting the homogeneity of construction or materials and the use of inadequate ornamentation for function and form. Wright (1970) was irritated by the pseudo-gothic-renaissance-antique decoration intended to emphasize the owner's wealth and not the logic of the composition and function the building was to fulfil. The most significant disapproval was caused by how the surroundings of the skyscrapers were developed, or rather the lack of it. An example of this can be seen in The Woolworth Building, American Radiator Building, Barclay Vesey Building, Chrysler Building, Waldorf Astoria, Rockefeller Centre, and the slowly erected Radio City Music Hall, had features that Wright could not endorse as the author of the Broadacre City - urban development planning concept he was working on (Maumi 2015). The lack of sun, lack of vegetation, congestion of buildings, shading, microscopic plots, cumbersome communication

based on an orthogonal grid that is difficult to adapt to the growth of communication, artificial lighting, air conditioning, vertical layout of the city, threats to the electricity economy (directly related to carbon) are the features that discredited Manhattan as a city of modernity in the eyes of Wright. Moreover, he criticized city laws to increase buildings at the expense of the residents' comfort of living. He believed that interfering with the shape of buildings in such a way to reduce shading, which resulted in the need to design random stepped forms to increase the space for rent, which only intensified the city's density (Maumi 2015). Ultimately, Wright saw no future for skyscrapers in American cities in the form he saw in Manhattan in the 1930s. He believed that this type of development was not a solution to housing or office problems, or the idea of city compaction promoted by urban planners. However, only an emanation of the owner is striving for commercial success, which made the city unbearable to live in.

2.1. Manhattan

I believe that the American skyscrapers are too low.

At first glance, the skyscrapers are not quite tall.

I believe they should be huge and further apart.

These were the first words of Le Corbusier (1947), who, fascinated with New York, spoke during a press conference at the Rockefeller Centre in an interview for the "New York Herald" shortly after his arrival in 1935. During his trip to America, Le Corbusier saw opportunities for his visionary work, as Europe, just before the outbreak of World War II, rejected his avant-garde modernist visions.

Although the Plan Voisin concept concerned bold plans to rebuild the very centre of Paris, Le Corbusier (1947) saw the possibility of its application in America as an ideal vision of the city of the 20th century. Plan Voisin's assumed the demolition of most of the centre of Paris (apart from the most valuable monuments) and the erection of a new district, surrounded by greenery, with gigantic sixty-story glass skyscrapers on a cross plan, arranged on a grid, logically and universally. The entire complex, built of prefabricated elements, was filled with greenery and recreational areas. The architect proposed a communication system based on a motorway intended for road traffic, with pedestrian traffic on a different level - along with the parks.

This radical concept of a centralized city, developed since 1925, was confronted with Manhattan - a city, as the architect expected, equal to his vision of a modern metropolis. New York turned out to be a disappointment for Le Corbusier (2008):

It lacks order, harmony and entertainment for the spirit, to which the population should have easy access. Skyscrapers are too small. They should be giant obelisks standing at large intervals to provide the city space, light, air and order [...]. This is how I would see my city of Joyful Light! I believe that the ideas that I came here with and which I present under the banner of the Radiant City will find their natural soil in this country.

His impressions about New York were ambivalent and exalted. Le Corbusier (2008) repeatedly emphasized the simplicity and genius of the layout of Manhattan streets: "the mind is liberated, it does not have to reflect on the complicated puzzles of European cities at any time", to conclude that the layout is too narrow for newly built buildings. He criticizes the stone on the façade with a steel structure and elaborate decorations and admires the Manhattan's buildings in the spirit of the Neo-Renaissance. Consequently, Corbu (2008) criticised the small windows of skyscrapers, but further he claimed "an anachronistic window has one advantage - it expresses the presence of a normal human being. It is extremely moving". In addition, he regrets the lack of green areas in the city. He stated that the area of 4.5 million square meters protected by the New York authorities of Central Park is too large and can be "trimmed" and divided into different parts of the city. "New York City skyscrapers have damaged rational skyscrapers, which I have called Cartesian skyscrapers" - he declared in his lectures (2014). All of Le Corbusier's observations serve one purpose - implementing the Voisin Plan for New York, based on the definition of a "Cartesian skyscraper" that could solve Manhattan's problem and humanity in general. According to the rules adopted by Le Corbusier (2014), a skyscraper should:

- be built using modern construction technology,
- be at least 300 m high (60 floors),
- have a vertical and smooth shape from top to bottom, without protrusions and faults,
- be heated with light,
- its plan should be related to the movement of the sun,
- have a steel structure, covered with a thin layer of glass.

Another key factor for Le Corbusier to ensure the residents had reliable access to the transport: metro, bus, tram, highway. He declared (2014): "We can already afford to formulate a basic principle; a skyscraper is a function of the volume and free floor areas in its vicinity. A skyscraper that does not harmoniously fulfil this function is a disease. New York Disease".

Manhattan at the beginning of the 20th century aroused many emotions (Frampton 2007). In the case of the architects mentioned - Wright and Le Corbusier - even with their different views, a similarity is unexpectedly visible in the assessment of architectural and urban phenomena. They had in common their fascination with the skyscraper as a form that offered new creative possibilities both as a single unit and as a set of objects. The innovative steel structure made it possible to obtain previously unattainable solutions (Hess 2005).

The rational minds of both architects could not agree with the type of the façade, encapsulating the modern structure with anachronistic ornamentation. They realized that new technology needed a new language of expression (Frampton 2007). Wright and Le Corbusier were avant-garde and modern, successfully implementing experimental projects. Disputes regarding the vision of the future city are a natural conflict of generations between architects (an age difference of twenty years), fascinated by other cultural phenomena (Jencks 2005). Despite this, it is interesting that they both had a unique approach to integrating architecture with greenery and surroundings. It is visible in both visions of the designed cities: Broadacre City and Plan Voisin, surrounded by parks, where the main dominant is a skyscraper integrated with nature. Their criticism of how Manhattan is structured from the point of view of the next hundred years of the city's functioning is still valid. Many problems remain unresolved today, and the tower is still an advertising and commercial target for many investors. The race for which building will be taller, slimmer and more original is ongoing, and Manhattan still allows it.

2.2. New vision

After eighty years, has New York liberated itself from its "disease" while maintaining rational proportions? The shape of skyscrapers is evolving, but many of the problems mentioned years ago remain a matter of dispute and creative discussion.

The size of the window, the compaction process, the facade materials, the structure, the building's slenderness and the height race are still controversial issues (Frampton 2007). Le Corbusier's (2014) bold visions of "Cartesian skyscrapers" have become the standard in the near future, not only in Manhattan but around the world. The "cardboard box" - criticized by Wright (2010) - flat and without protrusions has been dethroned many times to set the direction in this discipline of architecture in a refreshed form. The world's tallest building, Burj Khalifa, is 828 meters high and is located in Dubai, on a new continent, setting new horizons (Jones 2018). The search for the perfect skyscraper form for Manhattan continues.



Figure 1.0.: New York City skyline (Source: M. Stanczewska, 2021)

2.3. One World Trade Centre

Less than a hundred years after the construction of the Woolworth Building in downtown Manhattan, another One World Trade Centre skyscraper was opened in 2014 by Daniel Libeskind, David Childs and the Owings and Merrill group. David Libeskind, along with his Memory Foundation project in 2002, won a competition announced by the Lower Manhattan Development Corporation, to develop the One World Trade Centre. The Freedom Tower building measures 541m and is currently the tallest office building in the Eastern United States. The building is not only a formal sign of this part of the city but, above all, an

ideological symbol of democratic America; it is also an element of the new development plan of a part of the city devastated as a result of a tragic attack (Stichweh 2016).

The assumption consisted of several logically related elements:

- the 9/11 monument dedicated to the attack on September 11, located on the site of the destroyed twin towers;
- museum of memory - an exhibition devoted to the victims of the attack;
- three new towers forming the frontage between Greenwich Street and Church Street;
- transport junction connecting the metro lines with an underground communication system leading directly to the interior of the planned office towers.

The Memory Foundation 9/11 area is surrounded by a park that connects to the south of Manhattan and Battery Park, allowing residents to enjoy the sun, light and greenery of this part of the city in peace (Stichweh 2016).

The separation of the pedestrian and road communication route and the green paths designed by Libeskind could fulfil the vision of both Le Corbusier and Frank Lloyd Wright.

The entire project becomes a new showpiece of Manhattan.



Figure 1.1.: One World Trade Centre, arch. Daniel Libeskind, David Child, Owings and Merrill (2013-2017)

(Source: M. Stanczewska, 2021)

2.4. 432 Park Avenue

432 Park Avenue is a project by Uruguayan architect Rafael Viñola (1944), specializing in unusual architectural solutions, including controversial skyscrapers such as the Walkie Tower in London or the Vdara Hotel in Las Vegas. The 425m high building is currently the second tallest - after the One World Trade Centre – a skyscraper in New York. The building has a slim, ultra-effective design and over the city landscape. The original composition of the facade refers to a metal basket designed by Josef Hoffmann. It is entirely intended for living, a kind of precedent among high-rise buildings, which usually have a mixed function: commercial, hotel and residential (Steinmetz 2015). The skyscraper is still controversial about the development of the surroundings and its above-average height, shading Central Park and its immediate vicinity with its shape. Aaron Betsky and architect Steven Holl questioned the social aspects of the premise. They criticized the actions of the developer transforming Manhattan into a capitalist "holy land with no space for the poor" (Steinmetz 2015). Critics emphasize that modern technologies and high expenditures do not make architecture an "outstanding work". The example quoted here clearly shows that the discussion started a hundred years ago. The quality of architecture, shading, height and effective land development still arouses emotions of the architectural and the local environment (McKnight 2016). The problems of social disparities in Manhattan and how to solve them are unlikely to be resolved in the coming years.



Figure 1.2.: 432 Park Avenue, arch. Rafael Viñola (2013–2015)

(Source: M. Stanczewska, 2021)

2.5. 8 Spruce Street

Frank Gehry designed building 8 Spruce in 2006 in South Manhattan near Wall Street. It has a mixed hotel, residential and educational function. In this project, the investor - Forest City Ratner - was subject to stringent obligations related to the local development plan. Obtaining a building permit assumed the fulfilment of two conditions. The first was to design and implement green areas supplemented with small architecture to increase the biologically active surface, but most of all - to provide residents with the opportunity to spend time in the designed mini-park. The second condition was to build a school. The investor fulfilled both postulates, combining business assumptions with social and local benefits (Mairs 2016). The school, located on the first five floors of the skyscraper, has a different form - a rectangular block finished with brick, stylistically referring to the neighbouring building blocks. Only above it did Gehry build a sculptural, fragmented, liquid facade made of stainless steel with unique storeys (Holl 2015). By applying the irregularities of the façade, the building obtained a wavy effect, and the rhythmically arranged windows added lightness to the sublime form. The 267m high skyscraper was the tallest residential building in the western US until 432 Park Avenue was built ten years later. With its sculptural irregularity, Eight Spruce differs from all forms used in Manhattan and defines the line of buildings in the eastern part of the city. In a way, its shape resembles the art deco buildings of Central Manhattan, but the material from which the façade was made allows to avoid the gravity of the 1920s prototypes of the Wall Street neighbourhood (Holl 2015).



Figure 1.3.: 8 Spruce Street, arch. Frank Gehry (2006)

(Source: <https://www.6sqft.com>, 2016)

2.6. Jenga Building

Herzog & de Meuron, a Swiss architectural duo, completed the design of a new original skyscraper on 56th Leonard Street (Manhattan) in the Tribeca district in 2017.

The new expressive 243 m high skyscraper attempts to cope with this vital element of the modern city. Herzog & de Meuron are critical of the rectangular shape of the skyscrapers and their anonymity. They emphasize that the life of the inhabitants in such a unit may give "the impression of identity and be unpleasant" (Howarth 2016). The architects' ambition was to design a unit recognizable for future residents with individual external features, and therefore easy to identify. The architects explain: "The design was created from individual rooms, treating them as "pixels", grouped on the "floor by floor" principle. These pixels combine to shape the size of the apartments and the exterior facade" (Howarth 2016). The concept of a single unit and the adopted construction method allowed for rough shaping of the body, creating many terraces and protruding balconies. The artistic idea of the skyscraper is based on the effect of undulating and vibrating forms. It was obtained by the sculptural building of the object from the base to the top. The scale of the upturns and faults was adjusted so that the form slowly gained expression and there was a specific explosion. These artistic treatments translate directly into the reception of the city landscape from the interior of the building, framing different views of the surroundings. The apartments inside are full of sunshine and create a "vertical neighbourhood" atmosphere specific to the character of New York. From the outside, the building defines the Tribeka area.



Figure 1.4.: Jenga Building, arch. Herzog & de Meuron (2016)

(Source: <https://group.schindler.com>, 2018)

2.7. VIA 57 West Apartments

Via 57 West is an unconventional mega-form built in 2016 in New York by Danish architect Bjarke Ingels. In a distinctly different way from the rest of the buildings, it defines the west bank of Manhattan on the Hudson River. The shape of a truncated pyramid with an open courtyard and a viewing opening towards the river attracts attention with its form (Howarth 2016). The 142-meter-high skyscraper combines the scale of a European residential building with typical New York metropolitan development. Seven hundred nine single and multi-room apartments with balconies, terraces and loggias have been designed 77,200 m² (Howarth 2016). Particularly noteworthy is the courtyard - the inner garden, repeating the proportions of Central Park with an adequately selected variety of vegetation. The yard is only accessible to residents, creating an oasis in the city centre. As emphasized by Bjarke Ingels, the design idea is based on the fusion of four elements of nature: water, energy, air and earth, which "makes the community that lives in such a place thrive and feel good in it" (Howarth 2016). The principle of balance of the elements distinguished is based on: sustainable management of water, efficiency and energy efficiency, good acoustics inside the building and lighting control (Howarth 2016). Bjarke Ingels's principles in this realization draw from the experience of the theory of architecture on many levels. A logical composition surrounded by greenery, maintaining the proportions between apartment surfaces and leisure and recreation areas, maybe a vision of a new city for Manhattan. But doesn't the new form, which breaks with the importance of the cuboid, contradict the iconographic view of Manhattan? Would Frank Lloyd Wright shake his hand?



Figure 1.5.: VIA 57 West Apartments, arch. Bjarke Ingels (2016)

(Source: <https://streeteasy.com>, 2017)

3. Conclusion

The dialogue between Frank Lloyd Wright and Le Corbusier is summed up in contemporary architectural tendencies clashing in the space of Manhattan.

The experimental forms of buildings are attempts to answer the city's current problems, looking for its identity and the way of urbanization (Samuel 2010).

The variety of examples shows that there is no clear answer, and with such a dynamic development of New York, its needs and pace of life, it will probably never be the case.

The form of the New York skyscraper, initiated over a hundred years ago, is adapting to the expectations of new generations of residents and investors (Jencks 2005).

The introduced legal regulations developed over the years of experience impose on investors, through rigorous development plans, the necessity of rational space management.

The rules apply to individual districts to preserve their urban and architectural character.

The city's prestige, scale and size attract investors from all over the world, making Manhattan a kind of experimental construction site for the world's most outstanding architects (Haduch 2013). The shape of the New York City skyscraper is changing, often setting new trends.

The postulates of utopian cities based on Plan Voisin and Broadacre City skyscrapers take on a fundamental dimension in Manhattan. The last eighty years of Manhattan's urban experience proves that the vision of a city based on a composition of high-rise buildings can be an alternative to living outside the city.

New York constantly fascinates architects looking for a rational answer to their uniqueness.

The most relevant concept seems to be formulated by Rem Koolhaas (1994) - Manhattanism, defined years ago in his book *Delirious New York*: "Manhattan architecture is a congestion exploitation paradigm" - allied to all walks of life.

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