

# Conceptions of Height and Verticality in the History of Skyscrapers and Skylines

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**Abstract.** The main goal of this article is to reveal the significance of height and verticality history of skyscrapers and skylines. The objectives are as follows: 1. trace the origin of design concepts related to skyscraper; 2. discuss the perceived experience of the cultural aspects of skyscrapers and skylines; 3. describe the differences and similarities of the profiles of with comparable skylines. The methodology of study is designed to explore the perceived theory and principals of skyscraper and skyline development phenomenon and its key features. The skyscraper reveals an assertive creative form of vertical design. Skyscraper construction also relates to the origin of ancient cultural symbolism as the dominant vertical element as the main features of an ordered space. The historical idea of height reaches back to the earliest civilization such as the Tower of Babel. Philosophical approaches of elements of such post-structuralism have been included in studying of skyscraper phenomenon. The analysis of skyscraper and their resulting skyline are examined to show the connection to their origins with their concepts of height and verticality. From the historical perspective, cities with skyscrapers and a skyline turn out to be an assertive manifestation of common ideas of height and verticality.

## 1 Introduction

Creating a city image has always been one of the primary concerns of architectural thinking, because cities of the world, like people, want to be significant and recognizable. Figuratively speaking, sometimes they want to be ascended to the sky. If historical towns are satisfactorily served by the clock and bell towers, fire watchtowers and church steeples, the key to the image of the megacities is the system of very tall buildings such as skyscrapers. The skyscraper cities are easily distinguishable, because they, like Gothic cathedrals, rush into the sky.

The main goal of this article is to reveal the significance of height and verticality history of skyscrapers and skylines. The objectives are as follows: 1. trace the origin of design concepts related to skyscraper; 2. discuss the perceived experience of the cultural aspects of skyscrapers and skylines; 3. describe the differences and similarities of the profiles of with comparable skylines.

This study is based on works of theorists devoted to problems of contemporary high-rise architecture and urban-planning. The problems of the form and stylistics, symbolic values,

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and ideology of skyscraper are discussed in critical and theoretical researches of such authors as Louis Sullivan [1], Hugh Ferriss [2], Alfred Bossom [3], Charles Jencks [4], Ada Louise Huxtable [5] and others. History of skyscraper and skyline phenomena is considered in works of Francisco Mujica [6], Christopher Tunnard [7], Judith Dupre [8], Paul Goldberger [9], James Giblin [10], John Zukowsky [11], Joseph Korom [12], etc.

Groups of skyscrapers as a whole, as well as ‘skyline’ as the concept for its aesthetic and socio-cultural interpretations, are analyzed in works of Wayne Attoe [13], L.R. Ford [14], Thomas A. P.van Leeuwen [15] and others. A number of 21<sup>st</sup>-century researchers deal with skylines of certain cities: London [16, 17], Kuala Lumpur [18], Saint Petersburg [19, 20], Moscow and other Russian cities [21], Istambul [22], Dubai [23], etc. The problems of height are highlighted in works of Louis Sullivan [1], Thomas A. P.van Leeuwen [15], Joseph Korom [12] and others. The problems of verticality are emphasized in works of various authors, among them Thomas A. P.van Leeuwen [15], Ada Louise Huxtable [5], Philip Nobel [24] etc.

2 Methods

The methodology of the study is based on principles of the semiotic approach developed by Roman Jakobson, J.M. Lotman, O.M. Freidenberg [25] etc., opening semantic features and the importance of the studied phenomenon in the system of culture. The wider phenomenological approach of Christian Norberg-Schulz [26] and Juhani Pallasmaa [27], which is taking into account not only realized architectural and town-planning objects but also non-realized or not intended for realization architectural projects, images, and ideas expressed in literary works, graphic and painting, movies and a theatrical art. Philosophical approaches of elements of Roland Barthes [28] post-structuralism have been included in studying of skyscraper phenomenon as well.

3 Results

The skyscraper reveals an assertive creative form of vertical design. Skyscraper construction also relates to the origin of ancient cultural symbolism as the dominant vertical element as the main features of an ordered space. The historical idea of height reaches back to the earliest civilization such as the Tower of Babel. Philosophical approaches of elements of such post-structuralism have been included in studying of skyscraper phenomenon. The analysis of skyscraper and their resulting skyline are examined to show the connection to their origins with their concepts of height and verticality.

Table 1. Comparative analysis of *skyline*, *silhouette*, *horizon*, and *panorama* notions.

Image character	Skyline	Silhouette	Horizon	Panorama
High (H) vs. Wideness (W)	H	H	W	W
Dynamism (D) vs. Statics (S)	D	D	S	S
Verticality (V) vs. Horizontality (Z)	V	V	Z	Z
Multi-Layered (L) vs. Flat (F)	L	F	F	L
Includes City Scenes	-	-	-	+
Involves Architectural Matter	+	-	+	+

## 4 Discussion.

### 4.1 Semantization of skyscraper and skyline notions

According to Bible and Russian researcher Olga Freidenberg in her book *Image and Concept: Mythopoetic Roots of Literature* [25], in beginning was the Word, a sign-symbol without pragmatic content. Then it becomes a conventional notion or an operational concept, and only after this transformation is possible to reach a prosaic non-symbolic reality. Let us consider this rule concerning several notions linked with the conception of verticality.

Terms most commonly associated with the idea of height and conception of verticality in architecture are skyline and skyscraper. "Skylines are largely a 20<sup>th</sup>-century concern" [13]. However, this word was used earlier to describe not architectural, but the natural phenomenon. Originally, in the English language *skyline* meant "horizon" or "outline on the background of the sky." The first general use of the word *skyline* is recorded in 1824 when it appeared as a synonym for the *horizon*, the line where earth and sky meet [29]. "In travel literature – journals, diaries, and guidebooks – and in novels about travel and exotic places, 'skyline' was employed in reference to the meeting of sky and land" [13].

In American culture, the word *skyline* has gained a new and more specific architectural meaning: "outline of skyscrapers on the background of the sky." The use of the word *skyline* as "the outline or silhouette of a building or number of buildings or other subject seen against the sky" for the first time appeared in writings of George Bernard Shaw at the end of the 19<sup>th</sup> century [30]. *Skyline* has gotten a new underlying sense, a secondary architecture-poetical meaning.

Undoubtedly, this derivative developed only after the emergence of such specific architectural term as the *skyscraper*. The word *skyscraper* was used in 18-19<sup>th</sup> centuries to describe notions linked with human activity, but not yet in the architectural sense. *Skyscraper* was originally used in various senses: high-standing horse (1788); a triangular sky sail (1794); a tall hat or bonnet (1800); an exaggerated or "tall" story (1841); a very tall man (1857); in baseball a ball propelled high into the air, a towering hit, a skier (1866); a tall ornament on top of a building (1883); a rider on one of the high cycles formerly in use around 1892 [30]. Old and contemporary senses of the word *skyscraper* have in common the idea of height and verticality.

The term *cloud scraper* as an alternative notion for tall building description was introduced by Minneapolis architect L. S. Buffington in 1880-s. He studied the idea of steel skeleton application for construction of high-altitude buildings at a level of sketches and engineering calculations of 30, 50 and even 100-storeyed towers [10]. In 1887, the inventor has patented his *cloud scrapers*. Buffington "brought the potential of the iron skeletal frame to the attention of the national architectural and building communities" [31], but the neologism *cloud-scraper* has not got accustomed.

Charles Jencks in his book *Skyscrapers-Skyprickers-Skycities* [4] introduced some more notions for different types of high-rise buildings and complexes. *Skypricker* stands for a "skyscraper with a pointed spire" [32]. However, this term has not got accustomed. *Skycity* is determined by Jencks as a "the compound tall building" [4]. Contemporary using the word *skycity* includes names of games (one of the science fiction tabletop games has name "War of the Sky Cities"), films, firms, restaurants, casinos, big skyscrapers, airports etc.

We consider *skycity* as an opposition to solitaire, stand alone building (even if it is big and composite *vertical city* as Abeno Harukas in Japan, discussed by K. Mizutani, K. Hirakawa, M. Nakashima [33]); *skycity* is rather a city with skyscraper's clusters. Some contemporary researchers use the term *Skyscraper City* in similar meaning. For example, Prof. Terri Boake writes, "The increase in density of our urban environment as we create

“skyscraper cities” is inevitable and desired as a means to limit urban sprawl and preserve valuable agricultural land” [34].

## 4.2 Idea of height

Modern skyscrapers and their clusters had emerged at the turn of the 19<sup>th</sup> and the 20<sup>th</sup> century in America. At that date architects and artists of America conducted active searches of the national identity and “new” city’s architectonic. The idea of height was principally actual. In the search of skyscraper’s style, the central attention was given to the height of its structure. In 1896 Louis Sullivan wrote, “What is the chief characteristic of the tall office building? And at once we answer, it is lofty. This loftiness is to the artist-nature its thrilling aspect. It is the very open organ-tone in its appeal. It must be in turn the dominant chord in his expression of it, the true excitant of his imagination. It must be tall, every inch of it tall. The force and power of altitude must be in it the glory and pride of exaltation must be in it. It must be every inch a proud and soaring thing, rising in sheer exultation that from bottom to top it is a unit without a single dissenting line, - that it is the new, the unexpected, the eloquent peroration of most bald, most sinister, most forbidding conditions” [1].

Dutch researcher Thomas A. P. van Leeuwen in his book *The Skyward Trend of Thought: Metaphysics of the American Skyscraper* considers skyscraper not only as innovative structure, but as well “as a late, but rightly timed, example of paradigmatic architecture; indeed as the tower of cosmogony” [15]. He believes that skyscraper is a modern successor of Tower of Babel: “Skyscrapers were the fulfillment of the Babylonian promise; the realization of both its technical enigma and its utopian-cosmopolitan objective” [15].

One of the first examples of such stepped form and skyrocket striving we can see in the fantastic view of Erastus Salisbury Field’s painting of 1876 named “The Historical Monument of the American Republic.” One of the latest examples is the Le Royal [35], 7<sup>th</sup> tallest building in Amman, Jordan, completed in 2003.

As Thomas A. P. van Leeuwen notes, “The non-conscious knowledge or intuition is probably what the old tower builders and originators of the first American skyscrapers had in common: an enthusiastic, non-rational, desire to build high in celebration of something that probably they were not aware of” [15].

The concept of height becomes the basic sense of skyscraper. As J.J. Korom shows, “We celebrate the push upward to be nearer the clouds and we celebrate our tussle with nature, gratified it allows us the notion of supremacy. We can now build higher than ever before and realize the celebration of the height is primal and constant” [12]. The concept of height summarizes the essence of all possible kinds of height. More precisely, it embodies the idea of height. The form of skyscraper itself does not make any deep spirit, it is included in one or other pragmatic context directed on the realization of certain practical function. It is possible to say that *height* is concept in the absolute. The interconnected idea of being “No. 1” is embodied in architecture in the constantly updated lists of the word tallest buildings – symbols of maximum achievements.

The idea of height is excluded from any context; it is organic, immanent to the human, deep architectonic sense as such. The basic concept of *height* is used not only in architecture; it is performed in other arts. As Roland Barthes wrote, “This common domain of the signifieds of connotation is that of *ideology*, which cannot but be single for a given society and history, no matter what signifiers of connotation it may use” [28]. Thus, the concept of height belongs to the ideology extending on all manifestations of culture because the area of ideology is common for all signified senses.

Moreover, as Thomas A. P. van Leeuwen writes, “19<sup>th</sup>-century Americans, as well as Babylonians, had shared the common realm of platonic ideas, from which they had derived their ambitions as well as their concept of verticality” [15].

### 4.3 Verticality as a creative assertive gesture

Many theorists connect vertical character of skyscrapers with the deep initial, primitive senses of architecture. As Philip Nobel notes, “there’s something driving the height race. Something primal, competitive, romantic, eternal: some consequence of human minds, hard-wired to love a prospect, a mountain, needing to be high to feel safe from threat, congenitally driven to manufacture a marker on the land – the higher the better, and better still if it can be the highest of them all” [24].

Ada Louise Huxtable asserts, “From the Tower of Babel onward, the fantasies of builders have been vertical rather than horizontal” [5]. By themselves, the tower and skyscraper due to the rising form, reveal the phenomenological meaning of verticality since it represents a creative assertive gesture. It fulfills the requirement of certain efforts to maintain the stability of a vertical position, which means activity and strength in comparison with the less “energy-consuming” horizontal position symbolizing calm and relaxation.

This phenomenological meaning of skyscraper’s and medieval tower’s cities is expressed also, for example, in such tectonic games as the erection of a tower from playing cards, tower piles of children’s cubes or sand castles. As Thomas A. P. van Leeuwen asserts, “From that days to this, whenever men have become skillful architect at all, there has been a tendency in them to built high; not it any religious feeling, but in mere exuberance of spirit and power – as they dance or sing – with a certain mingling of vanity – like a child builds a tower of cards” [15].

Hence, skyscraper construction also relates to the origin of ancient cultural symbolism as the dominant vertical element as the main feature of an ordered space. The vertical development of the city space gives it a “new” architectonics – the symbolic dimension, outwardly invisible to the eye, which can be comprehended by the set of additional analytical interpretations.

### 4.4 Comparative analysis of skyline, silhouette, horizon, and panorama notions

The wide range of terms related to observing cities from different points of view exists in the English language. *View of city*, *bird’s eye view*, and *worm’s eye view*, *silhouette of city*, *panorama*, *vista*, *cityscape*, *skyline* and *horizon* are among them. The objective of this paragraph is to state differences and similarities of some this notions.

Beside *panorama*, *skyline* is characterized by larger height, compactness, and dynamism of depicted urban architectonic. At the same time *panorama* has large spaciousness, the wide-format scope of territories and static character of depicted urban form.

*Skyline* in its contemporary meaning and *horizon* are the characteristic projections of the vertical and horizontal, volumetric and linear, dynamic and static city’s views.

*Skyline* is closest to the *silhouette* because of its dynamism and other qualities of the described forms. Nevertheless, the *silhouette* is the undifferentiated mass, filled outline, while *skyline* is multi-layered, the mosaic collage of forms, ornamentation, textures, styles. *Silhouette* can be applied to any, even not architectural object, for example, *silhouette of vase* or the *silhouette of man*, while *skyline* already implies architectural matter, since it means the “outline of the groups of skyscrapers against the background of sky.”

*Panorama* can be interpreted as *panorama of urban life*, *city scene* or *urban picture*, where the everyday or holiday life of city may be depicted, including the typical urban elements, the motion of people and automobiles. *Skyline* and *silhouette of city* are more outlines of cityscape than a city scene in this matter.

*Skyline* comprises the wide range of the city's views: with upper, frontal, internal, even worm's eye points of observation. *City's silhouette* can be described only as a special mode of skyline in this matter, because it cannot be, for example, the upper view.

Most significantly, *skyline* belongs to the non-classical system of esthetic values. New symbolism and the artistic methods of *collage* (as discussed by Colin Rowe in *Collage city* [36]) *accumulation* and *assemblage* lie at the basis of its polycentric organization.

## 5 Conclusion

For a long time, skyscraper cities and skyline was characterized as an object of the American national and territorial identity. Since the 1950s, this city planning phenomenon as the unconscious realization of the archetype of 'tower city' was extended throughout the world. From the historical perspective, cities with skyscrapers and a skyline turn out to be an assertive manifestation of common ideas of height and verticality.

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