

## THE IMPACT OF TALL BUILDINGS WITHIN THE EXISTING AND HISTORICAL URBAN ENVIRONMENT

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### Abstract

The rapid growth of the world increased the demand of the tall buildings as a result of physical, social and economic needs. Tall Buildings with their great size and large impact on the existing urban environment and especially on the historical one became like a double-edged sword. They may be an active city element and become a landmark that has its own value, preserve and respect the built surrounding, or it will be a portion that disfigure the urban skyline of the city and become a visual deformation within its space. The most important point that should be considered while designing a tall building is the harmony between it and its built surrounding. Design considerations regarding physical integration of the tall building with the context around it must be handled with more care than any other conventional building. In order to minimize the damage on the historical urban heritage and the existing built environment maximizing the useful landscape provided by its footprint on the site should be aimed. This paper aims to evaluate the impacts regarding the integration of tall buildings within the existing and historical urban environment. A holistic approach clarifying this integration as a way of designing an efficient urban element also aimed to be discussed in this paper.

**Key words:** Tall buildings, impact, existing urban environment, historical urban environment.

### Özet

Dünyanın hızlı büyümesi, fiziksel, sosyal ve ekonomik ihtiyaçlar sonucunda yüksek binalara olan talebi artırmıştır. Büyük boyutları ve mevcut kentsel çevre ve özellikle tarihi doku üzerindeki güçlü etkileri ile yüksek binalar iki ucu keskin bir kılıç gibidir. Yüksek binalar aktif bir kentsel eleman, kendi değeri olan, yapılı çevreyi koruyan ve saygı duyan bir dönüm noktası haline gelebilirler veya bu durumun tam tersi bir etki ile kentsel silüeti bozan ve kendi alanı içinde görsel bir deformasyon haline gelen bir etki oluşturabilirler. Yüksek bir yapı tasarlanırken dikkat edilmesi gereken en önemli nokta, yapı ile çevresi arasındaki uyumdur. Yüksek binanın etrafındaki bağlamla fiziksel entegrasyonuna ilişkin tasarım kriterleri, diğer herhangi bir geleneksel binadan daha dikkatli bir şekilde ele alınmalıdır. Tarihi kentsel mirasa ve mevcut yapılı çevreye verilen zararı en aza indirmek için, tasarlandığı alandaki izdüşümünün sağladığı faydalı peyzajı en üst düzeye çıkarmak amaçlanmalıdır. Bu makale, yüksek binaların mevcut ve tarihi kentsel çevre ile entegrasyonuna ilişkin etkilerini değerlendirmeyi amaçlamaktadır. Etkin bir kent elemanı tasarlanmanın bir yolu olarak bu entegrasyonu açıklayan bütüncül bir yaklaşım da bu bildiride tartışılmak istenmiştir.

**Key words:** Yüksek binalar, etki, mevcut kentsel çevre, tarihi kentsel çevre.

## 1. INTRODUCTION

Tall buildings are the structures that have tall facades with small roof area and footprint, which need an exceptional structural system due to their heights (Scott, 1998). What considered as a tall building actually differs from country to country and depends on the scale of that place where this tall building going to be built. In the context of this article, tall building is a building that exceeds the height of its surrounding buildings and make a domination point on the view and the landscape by its scale, and does not have to have that huge height (Jałowicki, 2007).

Cities evolve, this evolving include their urban and buildings, a positive contribution can be made by the well designing of tall buildings, tall buildings by their own could be a good example of architectural work whether as individual or cluster of buildings. The image and the identity as a whole can be affected by these elements; they can be like beacons of growth and investment (Design Council, 2014).

Throughout the history of humanity, tall buildings played a major role being symbols representing the power and prestige of the cities. Way to fascinate people and bringing them closer to their god and keeping them in touch with him since these buildings can be seen from a distance if we were talking about mosques and cathedrals (Dąbrowska-Budziło, 2002). From the ancient time to the pyramids of the Egyptians into the tall structures of the middle age and then the contemporary ones. All used to become symbols of the dominant and wealth of their owner which in its turn will reflect the respect for them in their local community (Kumorek, 2010).

At the end of 18<sup>th</sup> century, the development of construction materials and the using of concrete and iron in the buildings industry allow for creating new shapes and modern architectural forms that give the ability for a huge transformation in tall buildings construction and led to have new kind of dominant symbols that have new iconic meaning (Dąbrowska-Budziło, 2002).

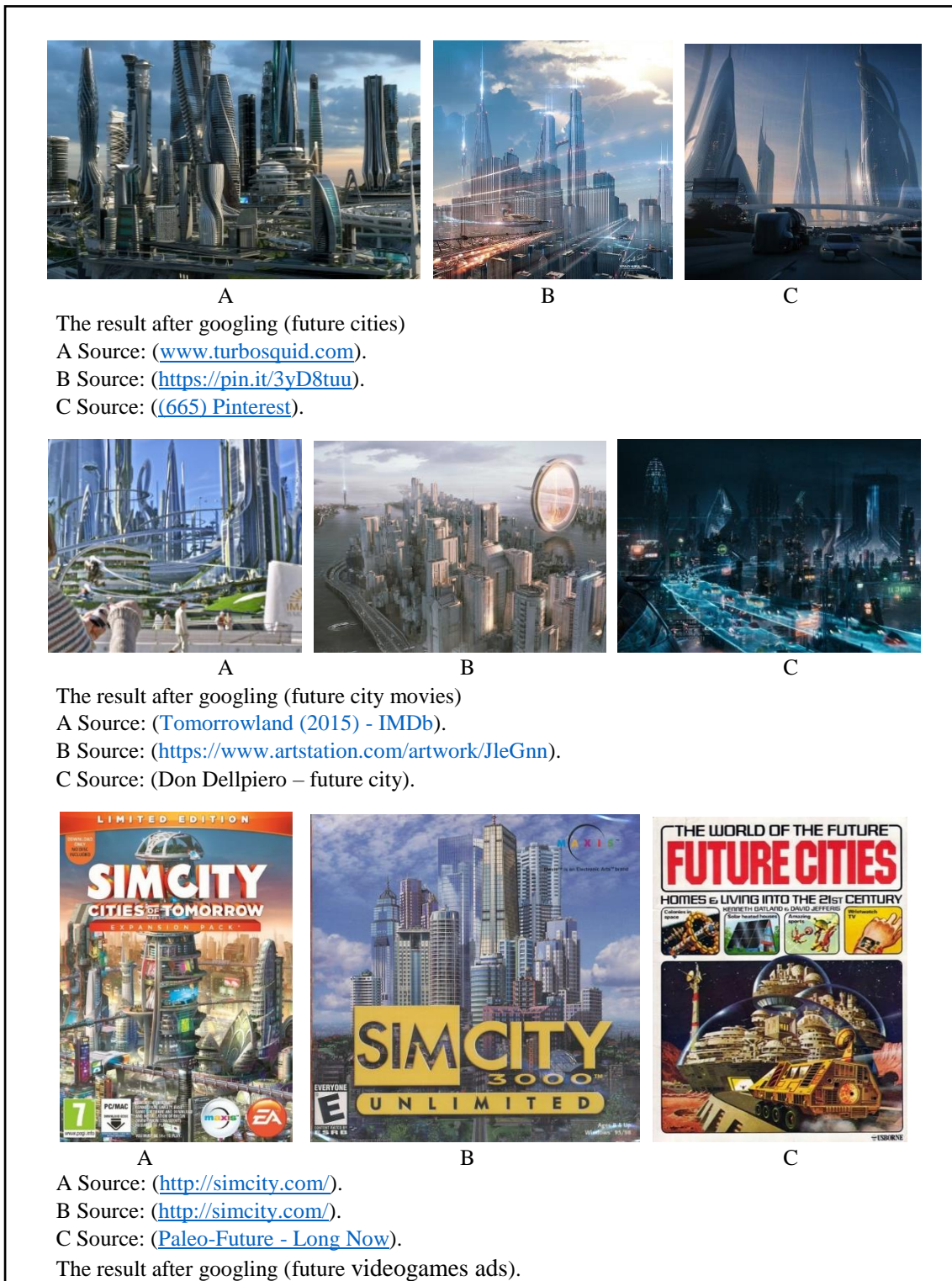
In the age of modernization, tall buildings came as a solution to the rapid growth of population by achieving a high dense increasing and controlling the urban sprawl. The majority of these developments following a similar pattern promoted by a globalized movement (Jasiński, 1970). The design of these new structures should consider the cultural background of its built surrounding and be respectful to the environment around it.

A building that solidify the identity of the place and appreciate the local community while maximizing the historical value of cities. Dimensions like the image of this building in the city and its role of promoting the legibility of the space and being an active city element which respect the culture and heritage of the area, and a part of the city that enhance the cityscape and link the past with present and future should be considered.

The existing environment and new tall buildings relationship for all dimensions should be taking into consideration. Social, environmental and ecological dimensions are important for the design of tall buildings. The harmony between the tall building and its built surrounding is one of the important dialogues, which should be evaluated.

All these going to produce a desired symbol of success (Tavernor, Gassner, 2010) and an iconic landmark that guide people and help them finding their ways (Lynch, 1960), also forming the coherent integration between the city's urban composition and avoid the randomly in the placement of these elements (LBHF, 2015).

It is noticed that the result of googling “future city” most of the time is a city full of tall buildings and giant structures, and that goes also into the movies and video games as well, creating by that the same image in the minds of onlookers (figure 1).



**Figure 1:** The result after googling (future cities, future city movies, future videogames ads).

## 2. LITERATURE REVIEW

### 2.1 The Significance of Tall Buildings

Tall building are the vertical structures that use special structural systems. Tall structure is a building that has a different height comparing with its surrounding buildings. Structures that fascinate people and make a domination point on the view by its scale. Depending on the existing surrounding heights, the tall building may be able to affect the city skyline and give a

new identity to the place where it has been built. Tall structure that features number of stories more than its sounding is a tall building.

Cities have undergone a huge transformation with the turn of 18<sup>th</sup> and 19<sup>th</sup> century, new vertical elements appeared as industrial stacks (Oleński, 2014) Vertical structures that use iron and steel which allow in its turn for new architectural forms, new technologies used also, all that led into a new vertical symbolic meaning (Dąbrowska, 2002). like the 10 stories building in Chicago, built in 1880s as a new development influenced the skyscrapers image of the city (Van Uffelen, 2012).

Tall buildings with the development of the construction industry and techniques became a trend to represent the power in the city, eye catching and tourist attractive elements. They also stand in a contrast with their vicinity and show the prestige on their place (Jasiński, 1970). These buildings usually can be noticed within their built environment, due to their size, and visibility they make a visual impact, which make them affect either positively or negatively on their surrounding (Strelitz, 2011). These buildings work as determination points of the aesthetic, reflect the uniqueness of the nature and identity of the city (Kosiński, 2011). Tall buildings came as a response and an efficient way to deal with the people immigration from villages to cities and a solution to the rapid growth of population by achieving a high dense increasing and controlling the urban sprawl.

They can be seen from many directions thanks to their height, guide people and tell them where to go, these elements contribute also in providing the powerful image of the city and considered as a landmark. Visual influencers affect the interior characteristic of the city allowing for spaces that are more open, identify the zones and close unspecified horizons (Jacobs, 1961).

While designing a tall building the social, environmental and ecological dimensions are also important criteria that should be considered and evaluated within that topic, this paper focuses on the impacts of the tall buildings when they are implemented within an existing texture and historical valued environment that has historical heritage

## **2.2 Potential Impacts of Tall Buildings within the Existing and Historical Urban Environment**

### **2.2.1 Tall buildings as an image of the city**

Lynch defined the city in 5 elements as path, district, edges, nodes and landmarks. Legibility is one of the most important characteristics of the city according to him, it is critically valuable in large and complex cities. Speaking of legibility tall buildings with their physical power could have the ability to make a more legible city and becoming a landmark within its built surroundings (Lynch, 1960).

A tall building can be particularly a beautiful landmark and an icon that represent itself as a symbol of success. These tall structures are the most popular constructions designed to demonstrate the aesthetic and contemporary character and shape the city's image which is based on respecting the identity of the place and protecting its value that's in its turn going to be a connection between the past and present (Athens Charter, 2003).

It is substantial when inserting a new development in a place to take the characteristics of that context into account in order to make a balanced contextual and avoid damaging these characters. Considering these physical conditions and compositions when looking from a

townscape point of view inspire the opportunity of making a tall building that will act as a landmark and enhance the idea of legibility (LBHF, 2015).



**Figure 2:** Baku flame towers – Baku, Azerbaijan  
Source: [Baku Flame Towers / HOK | ArchDaily](#)

The design idea of Baku flame towers in (figure 2) came from the history of fire worshipping of Baku city connecting the past with the present while making a vantage point that may be seen from most of the surrounding.

The success of a tall building changes and depends on its design and the context around it, in integration of a tall building within a city that has domes and minarets may change the landmark of the city or add one more to it. Tall building should serve in a way that will let the users integrate with it and converting it from a solid mass into a dynamic city element more effectively that is used in a social manner.

### **2.2.2 Tall building as an element of the cityscape**

The city skyline of an area is one of the important roles that regarding the tall building and its perception on that place from where it can be seen, and it is a handy way to understand the relation between this building and its surrounding and background (Lynch, 1960). Realizing how tall building could occupy a prominent place, and distinguishing this relation from the formation point on view is a very practical way to set the location of a landmark facility.

Looking at cities from a historical point of view, and regarding the idea of cityscape it could noticed that the highest point in any city before was a church or a mosque, as a way to represent the identity of that city and kind of a reflection that this city has born from this place. That's why it is essential for a tall building to enhance that cityscape, while being a landmark that respect existing context, and conforming the identity of the place regardless of its main function.

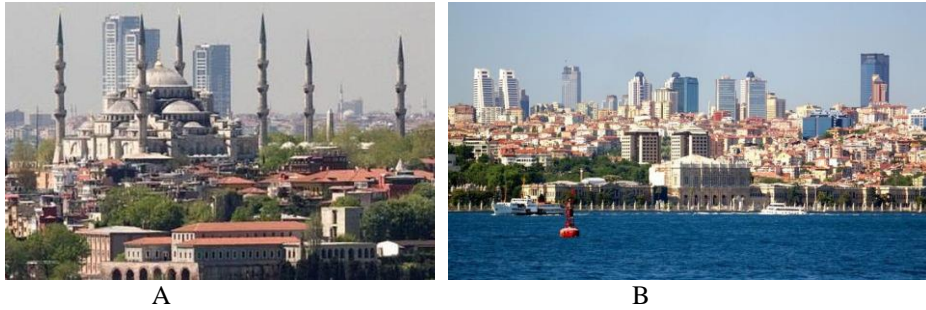
Tall buildings are one of the possible models of increasing the density in one space, this element can reflect a positive approach of development by taking the scale and form into consideration, and by appreciating it as a part of the local plan of the city. Moreover, a particular tall element is a location does not justify the replacement of new tall structures (NPPF, 2014).



**Figure 3:** Tour de Montparnasse – Paris, France  
Source: [www.bfmtv.com](http://www.bfmtv.com)

It is important when looking at a silhouette of a city to have a harmonic relation between its elements and their sizes. In addition, to notice the clear composition that will lead into a strong urban structure. And not to see a distortion between new and old tall buildings as a meaning of considering the identity and respecting the cultural heritage of the city (Czyńska, 2015) which at the end will help creating a futuristic city that has a homogeneous silhouette which appreciate the civilization of the area and its community (figure 3).

The geographical properties and formations of a place also play a major role on how this tall building will appear, or how the perception of it will be when looking at that city skyline. That is why it is an essential thing to consider while designing, or implementing a tall building since it will be a reflection on the futuristic skyline of the place.



**Figure 4:** Cityscape of Istanbul city – Istanbul, Turkey

A Source: ([İstanbul'un Gözdesi Yeni Yatırım İlçeleri Emlak Yasam - Hepsi Emlak](#))

B Source: ([16/9 Kuleleri İçin Verilen Tıraşlama Kararı Bozuldu - Tansu Pişkin - bianet](#)).

Istanbul city is one of the perfect example when talking about the geographical differences, in (figure 4) we can see that although the tall buildings are far away from the historical ones and the normal residential buildings but still we can see them like if they are next to each other's.

### 2.2.3 Tall building as an element of the streetscape

Thinking about the harmony of the tall structures, and their role of being in the every day's story of the citizen, help fitting a dominant element that promote the community involvement in the design of these tall buildings. Support considering it as a landmark that highlight the urban order of that area and make the people able to communicate with it (Jacobs, 1961). A landmark that will prevent what Lynch describe it as a 'disaster' and that when getting lost in a city (Lynch, 1960). The buildings arrangement within a street direct our sight into an important point which is the best place to locate a tall building, this location with that arrangement going to give this structure more than an architectural value (Czyńska, 2017). Studying and understanding the architectural mass of a tall building with its perception from close view and a distant, relating it with its physical surrounding will contribute making an imageable city and participate creating the mental map of that place.



**Figure 5:** The John Hancock tower Boston, USA

Source: ([John Hancock Tower | Pei Cobb Freed & Partners \(pcf-p.com\)](http://www.pei-cobb-freed.com))

The scale of tall building and the position it contribute to its perception within its surrounding, and help achieving a cohesive neighbourhood that has a relation with its context. A building that has a meaning, aesthetic and good composition, which in its turn respect the identification of the citizens and gain its value (Latour, 2000). Also help creating the relation between the people and their environment. Tall building works as a blocking element of the unspecified prospects (figure 5), that rise the curiosity level of the people (Cullen, 1961) which in its turn will accentuate the level of the development on that spot. It is an essential thing to understand how people recognize these elements within the streetscape and how they accept them as factors creating their observation.

### 2.2.4 Tall building as an element of the urban landscape

People usually create their perceptions about the urban landscape through its elements; the uniqueness of these features will make the environmental landscape stronger and brighter. Tall building is one of these factors that has a huge influence on the urban landscape due to its mass. We can look at tall building within the urban landscape from many perspectives, as an urban symbol specially if it was built in the right location and here this tall building will become a landmark, and then this landmark became an indicator or an index that will make the people able to communicate with it.

Public areas next to a tall building going to be enlarged due the nature of this building that's why another issue to consider in a tall structure is the diversity of the functions with the connectivity between the ground level of this tall element and people, by creating a human scaled masses, which encourage human activities. In order not to face a situation of depopulation, and emptiness on that urban spot (figure 6).



**Figure 6:** Boston city, USA

Source: <https://i.redd.it/fvjqidp3id451.jpg>

The visual perspective is the main way for people to understand the urban landscape which depends on the aesthetic of that urban environment, considering that built environment as a form and symbolic will make it easier for people to understand the meaning of that environment.

Locating the tall building in the right place and comprehending its relation to local landscape and people cultural value and its role of connecting the past and future will be the key to build and construct a cohesive futuristic city (Athens Charter, 2003).

### **2.2.5 Social impact of tall building**

Tall buildings have a direct effect on people's emotions due to their size so considering the intangible aspects while designing a tall buildings is a handy way of promoting the place making and improving the quality of community's life. Taking into account the cultural heritage of the place and how this building going to form a new identity or enhance the existing one is also important to promote the feeling of belonging of the citizens on that area.



**Figure 7:** 30St Mary Axe

Source: ([30 St Mary Axe | 30 St Mary Axe - "the Gherkin" Category: of... | Flickr](#)).



Orienting tall buildings during the design process towards serving the needs of that urban spot where it will act as an active element in the future of that city. Nevertheless, the harmony of a tall building and its integration with the surrounding culture an important key to consider while achieving futuristic coherent neighbourhoods.

The size and visibility of these elements may harm the nature which people appreciate in the space, depending on the scale existed in the space could be defined what tall building is. Most of the tall buildings miss the point of understanding the wider context, and the appreciation of the heritage impact (English Heritage, 2014). Thinking and careful selection to the location of this new development and its form of domination on the old cultural texture could make it a unique element. Also, represent the care given to the cultural heritage and identity of the city as well as the cityscape and its attractiveness. These developments are aesthetic determining elements for the city that create landmarks that are unique in the nature of the city (Kosiński, 2011).

### 3. CONCLUSION

According to the Charter of Athens the city should link the present and future with the past, such a link should be based on a knowledge, reason and a meaning in order to gain the special value and protect the cultural heritage of the city. The new development of tall buildings should be made in a way to avoid the harm of the historical fabric, the new image of the city should protect the historical facilities within the city and the urban arrangements as valuable elements. Protecting the historical places within the design process of a tall building will help this element to be as a positive extension that protect the city panoramas and the cultural heritage of the city. These buildings are important for the citizens identification, interrupting the social and cultural continuity of the city will lead to a degradation in the general cohesiveness of the city.

Therefore, it can be said that the rapid growth of the world and the development of the city in space and time, the function of these new developments became not only to respond to the economic and social need but also to interact and link with the historical layer of that city while making its own modern layer (Table 1).

**Table 1:** Suggestions should be considered while designing a tall building

Tall buildings as an image of the city	Tall Building as an element of the cityscape	Tall Building as an element of the street-scape	Tall Building as an element of the urban landscape	Social impact of tall building
Promote the legibility of a city	Considering the existing skyline and improve it	Be a curiosity element not a distortion one	Making multifunctional tall building that activate the place	Link the design with the people identity
Be an icon that shape an image for the city	Give the priority to the existing historical landmarks not blocking them	Involving the community with its design	Considering the community routine while designing	Visually appealing Design
Respect the identity of the place and be a dynamic city element	Harmonic relation regarding the size between the new and old buildings	Guide people & understand their needs	Promote the existing landscape and improve it	Featuring the cultural context of the place while designing

The social, environmental and ecological dimensions are important criteria to consider while designing a tall building; this paper focuses on the impacts of the tall buildings when they were implemented within an existing texture and historical valued environment that has historical heritage. Different examples of various tall developments around the world were presented, the physical and social impacts, the integration of tall buildings within the existing and historical environment were evaluated. Based on dimensions like the image of this building in the city and its role of promoting the legibility of the space and being an active city element which respect the culture and heritage of the area, and a part of the city that enhance the cityscape and link the past with present and future.

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