Shaping the High-rise Framework: Tall Buildings Policies and Zoning

"Learning from the Netherlands: Ask not what the city can do for the tall building; ask what the tall building can do for the city."

History has seen some legendary examples of high-rise zoning policy. Certainly the oldest one was drafted and implemented by the Lord himself, as he considered his children to have grown too close to him and, as a result of a policy of miscommunication, left a tower uncompleted. Roman emperors Julius Caesar, Augustus and Nero all set maximum building heights for ancient Rome, for safety reasons and to prevent overcrowding. The tower-minded citizens of the medieval trading city of San Gimignano in Tuscan Italy, were not allowed to build taller than the 165-foot-high tower of the town hall. This limitation was worked around by some erecting twin towers instead. Legend has it that UK’s Queen Victoria was so aggrivated over the Queen Anne’s Mansion building, blocking her views of the Parliament from the Palace, that this triggered the 100-foot height limit on all of London’s buildings. This limit lasted from 1894 to 1954.

Origins of high-rise zoning

For centuries, towers were mere iconic and power-boasting incidents in the urban landscape. The invention of the elevator and the introduction of metal framing and new lighting systems in the late 19th century gave a utilitarian function to the tower. Spurred by land prices, fast economic growth and ego-boasting, the skylines of Chicago and New York City rapidly became symbols of the new world. As unbridled construction lead to unwanted side effects, both cities started to adopt tall building principles as a framework in which market forces were allowed to shape towers. The history of high-rise zoning in Chicago and New York City shows policies based on height, setbacks, volume and floor area ratio (FAR). In the book Form Follows Finance (1995), Carol Willis illustrates that, in the course of time, principles of planning and economics have shaped skyscrapers. As a result, they became quintessential for their time and place. Today, the world has become a complex information society and high-rise zoning has become a holistic way of thinking. It incorporates the skills of urban planning, architecture, engineering and politics.

Dutch zoning policy

As the Netherlands is one of the most densely populated countries in the world, one would expect a natural tendency to build upwards. However, the tallest buildings are a mere 500 feet (150m) tall. High-rise, and urban density in its wake, has become a topic of discussion outside the main cities of Rotterdam, Amsterdam and The Hague in the past ten years. Currently over 25 Dutch cities, some counting just over 50,000 inhabitants, now have policies on high-rise zoning in place. In recent years, buildings of up to 300 feet tall have been erected in these mid-size cities, sometimes as a result of local ambition, but often times as a result of lacking a proper framework or an agenda. In some cases, the erection of tall buildings triggered a tall buildings policy. Especially the less experienced cities are searching for proper tall building guidelines on how to cope with aspiring market initiatives.

With space at a premium, the Netherlands has a history of firmly organized zoning plans in which size, height and function are precisely stipulated. To provide certainty, a zoning plan has a validity of ten years. Until recently, developers could deviate from these plans only if the local government was willing to formalize an anticipated change the next time a zoning plan is up for revision. This must be based on a long-term plan, such as a vision on the development of tall buildings. This basically means that the zoning plans are being adjusted for the actual projects that

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...America Tower

"The 54-story result is among the most ungainly forms on the skyline, like a matron who swathes herself in thick layers of fabric in a vain attempt to slim her burgeoning silhouette. The tower climaxes with a spire as impressive as an auto antenna."

Comparative research

To create insights into the way cities shape their high-rise zoning policies, in 2008 the Dutch Council on Tall Buildings commissioned a research project on Dutch high-rise policy. Mixed with over 25 years of council experience, the Rotterdam-based architecture firm of Zandbelt & van den Berg drew up a top ten list of guidelines. These are highlighted in the next paragraphs. They show that high-rise policy in a Dutch, but also European or even western context, isn’t just about scarcity, density and height. It is also about agenda, ambition, sustainability and the impact of tall buildings on the urban habitat and environment.

Ten recommendations

There are several reasonable arguments debating the purpose of tall buildings, such as the need for space, high land prices or the desire to create urban density. However, these arguments cannot always be backed up by a proper interpretation of the facts. It is important to understand that in a contemporary, western context, skyscrapers are not necessarily an economical product of high land value. In some Dutch cities, ground lease of government-owned land, which could be an entire city center, is based on building volume, so the market mechanism actually works the other way around. Building tall is also not the same as creating density or urbanity. It will not solve your housing or planning problems nor ensure green open space. The impact of tall buildings on the urban habitat and environment.

Skyscrapers are a compact part of the real estate market, meeting the demand for exclusive urban space for those who want to be visible and appreciate the views. At the city level, skyscrapers can create a modern skyline, not only making the city readable but also creating a powerful image with which both tenants and inhabitants can identify. As such, the message and agenda, which the height embodies, becomes an essential issue.

Especially for companies dealing with intangible products, such as financial services, erecting a skyscraper is a way of shaping a presence and an image. The potential size of these markets is relative. On average, five to ten percent of the population of Dutch cities chose to live in the city center because of the proximity to urban amenities and the metropolitan life style. More than any other part of the city, the city center represents the city as a whole. It is a challenge for cities to shape this market, however compact, to the best of their abilities.

Before drafting a high-rise policy, the most important question that needs to be answered is, “What is it that you want tall buildings to do for your city?” The previous paragraphs have already noted that high-rises are not a panacea for urban density. This argument is often brought forward in debates about the bigger picture. On a practical level, this is often not the case. Especially outside the city center, tall buildings need breathing room to overcome the negative impacts of building tall, such as shading, strong winds and loss of privacy. The theories on high-rises in the early 20th century were actually written with the idea of creating space in mind, not as a way to create density. These theories were a response to the often dense, overcrowded and badly mixed urban centers of the European cities in the 19th century. In 1930, Dutch architect Jan Duiker envisioned a modern city made up of towers in a park, so all would enjoy the sun and fresh air provided by the space that was created by building vertically. Any building whose number of floors exceeds the maximum FAR demonstrates that there are other forces at work than just rational principles. But then again, there is nothing to be ashamed of by saying a skyscraper doesn’t have to be a necessity but also can be just plain fun.

At a practical level, anticipate the impact of high-rises on the surroundings. Mandatory assessment of the levels of shading and wind is quite common these days. The impact on visual experience, levels of pollution and communication ray paths is not always assessed. For obvious reasons, a traffic gridlock must be prevented by studying the impact of the development on the nearby infrastructure. In the wake of this, parking requirements often call for creative solutions. Underground parking, if possible, can be expensive, while upper level parking can be an architectural eyesore. It must be noted that both public and private parties sometimes find themselves hindered in their ambitions because national building codes were not always written with tall buildings in mind. Some of these include outdated rulings on balconies and window frames, but can also include codes on evacuation and fire prevention. A minimum requirement of parking spaces based on function and floor space, silences the debate on whether you should be offering these in dense metropolitan areas in the first place. In cases where typical high-rise related impacts are lacking formalized benchmark codes, cities choose to incorporate these effects into their local policy. In these cases, organizations for standardization, such as Nederlandse Norm
As with most public visions, private parties appreciate a clear and functional concept and a government that sticks with the vision. The opposite creates room for uncertainty and multiple interpretations. Tall buildings can make a city readable by marking focal points such as city centers, infrastructural nodes, entrance points and certain venues. If creating a skyline is one of your main objectives, it makes sense to cluster the tall buildings. Designating compact areas for high-rises is also a way to create an artificial scarcity that is the natural economic driving force of tall buildings. Although a city center seems the most logical place to do so, this is not always an option. An example is the carefully preserved historic look and scale of many European cities (see Figure 2).

Choose your locations wisely. Ask what you want the tall building to do for the city and assess what location would be the best to achieve that. A tall building must not be regarded as an isolated object in the city, just pointing out a train station or an intersection. Everyone already knows where these are. To ensure the tower is properly embedded into the urban fabric, create a high-rise culture by focusing on the urban amenities in the proximity of the location. If possible, plan tall buildings in locations which already have these amenities in place. As tall buildings are often not in the areas where the action is, do not expect the tall building to be a creating force of these amenities. Also, pay close attention to the ground floor level. Successful low-rise is the key to successful high-rise. Often the space the tall building creates on ground floor level is mere emptiness because of the lack of a proper program for the entrance level. To emphasize the importance of the interaction of the tall building and its urban surroundings, the term groundscraper was coined. It creates awareness for the idea that the part above the average building height may shape the skyline, but that the street level shapes the city. This knowledge calls for not wasting space on private lobbies, parking entrances and blind walls and to pay attention to details. It is also up to the policy-shaping body to beware of market saturation. Too many locations offered can make developers insecure over the exclusivity and the demand capacity of the market. A partially completed zoning plan can lack serious qualities compared to the artistic impressions of an over-optimistic full-scheme zoning policy. Almost all high-rise policies stipulate maximum heights for the designated areas. As Chicago and New York City found out in the early days of high-rise zoning, skyscrapers are about more than just the height. Tallness should be considered part of the architecture and, as such, doesn’t say much about volume, function, slenderess, ground floor use and other factors deciding upon success or failure. Often the height of the building is the most discussed element of the tall building, such as why a tall and slender building may fit in better than a low and clumsy building. On the street level, the size and design of the base floors has more of an impact than the floors above. Dutch cities, that were early to adopt zoning based on capped heights, found these policies to be outdated by market forces the moment they came into effect. It proved that there was a need to include long-lasting qualities by creating a framework of ambitions and assessment of realistic references of comparable best practices, existing qualities of the city and urban ambitions (see Figure 3).

On the project level, state the meaning of the tower by asking what it is that justifies the height and visibility. What message do you want the tower to incorporate? What message is the architecture trying to tell you? In what ways is the tall building exemplary? How sustainable is the tower when it comes to economic, ecological and social values? Ask how the neighborhood and the city are going to benefit from the tower. Determining the meaning, message and agenda can be a complex process in which all involved, including the inhabitants, ought to be consulted. Also consider defining the tall building in the context of the city. Many, many papers and articles talk about skyscrapers as if it is one uniform typology. It is not. Some of the characteristics, which are often assumed to be typical for a skyscraper, might only be true...
for a supertall building. The iconic value is one characteristic. Other characteristics, such as the creation of local identity, may only be true for structures up to twenty floors. Most papers and articles seem to focus on the first statement as these are the most well known and appealing. These buildings are incidents in the global urban landscape and, as such, are not very suitable as a research focus for cities further down the tier list.

Opposite approach

As drafting a qualitative high-rise zoning policy always leaves an interpretational dilemma, an interesting approach was proposed by the city of Delft. It suggested a bottom-up process by taking the existing scale of the city as a maximum development envelope, but at the same time challenged developers to state the extras they could offer the city in exchange for the building permit. As tall buildings are often incidents in the urban landscape, especially so for European and medium sized cities and ideal locations aren’t always available for development, such an approach might be less clear but also more effective. Each project and location comes with its own strengths and weaknesses, which cannot always be framed in a general policy that fits all ambitions.

Benchmarking

As high-rise policies should contain qualitative ambitions, benchmarking these is often done by an advisory committee. A Dutch example is the welstandscommissie, or the buildings aesthetics committee, comprised of established architects, urban professionals and ordinary citizens. These committees provide more-or-less binding recommendations to local governments about the architectural quality of the proposed projects as part of the permit application process. As this helps to prevent the extremes on the lower end of the quality scale, it is also criticized for excluding the risk of brilliance and preventing the extremes on the higher end.

A so-called Quality Team is an aesthetics committee, which looks at the projects from a bigger perspective. In 2001, the city of Rotterdam established a High-Rise Team for buildings taller than 70 meters. Besides assessing the projects against local ambitions set out in the high-rise policy, this team would also guide architects and developers during the design process. Although the efforts of this team were appreciated by both private and public sectors, alas the team was dismantled in 2005 in a political attempt to cut costs and public procedures.

Incentives

As Dutch zoning procedures appear to be flexible for future plans, their strict and quantifiable nature do not provide for a wider or unexpected outcome within the envelope of the zoning plan. Nor does it offer incentives for developments that do more than just fit within the frame in exchange for more volume or height. A system based on air rights, for example, would be hard to implement within this framework. It also doesn’t allow offering FAR bonuses to developers who want to invest in public plazas, attractive ground floor usage, vanity lighting, landscape architecture, sustainability measures or other matters that could also benefit the city. Public ambitions are generally achieved through incentives outside the scope of the zoning plan, like a local or national subsidy program. It also tends to leave the end result with a somewhat predictable and orchestrated look, lacking space for the bit of chaos that can be so pleasantly characteristic for highly urbanized areas. As much as organizing is a good thing, so is allowing space for creativity.

The art of high-rise zoning

This research learned that recommended practices would be those systems that promote and professionally assess ambitions, while at the same time preventing pitfalls by high-rise minded zoning and codes. As much as skyscrapers represent their commissioners and architecture embodies contemporary styles and identities, high-rise zoning can shape the values of a society. They can become readable and historically understandable matters and, as such, have the potential to become art. Proper managing skills can result in a proper framework in which tall buildings are shaped, but it is up to the individual qualities and passions of the people involved and the space they produce, to create true added value for the city. As much as private parties are expected to maximize their profits and the government wants the best for the city, both are aware that skyscraper projects can also be more than just a financial gain. This is where the ambitions of both public and private sectors can meet, and it takes cooperation, mutual trust and understanding to make it the very best.

References

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For more information about the topic of tall buildings policies and zoning, feel free to contact the author at the CTBUH office or visit the CTBUH Skyscraper Group on LinkedIn at http://www.linkedin.com/groups?gid=1898129.