

INDEX

Introduzione	
<i>Sprawl e shrinking: The contemporary context</i>	3
Capitolo I	
<i>A Recent Past: the High-Rise as a principle</i>	9
I.1 Intro	9
I.2 Side conditions	13
Capitolo II	
<i>Pohetics of the Symbols: semantic and semiology of the tower type</i>	17
II.1 Genesis and evolution of a symbol	17
II.2 Esthetics of verticality	21
II.3 Perceptive and psychological qualities	23
Capitolo III	
<i>Tower and Economy: a driver of economic and territorial development</i>	27
III.1 Materials, cost and energy efficiency	29
III.2 Financial revenues	33
III.3 Psychology, urban and territorial marketing	35
Capitolo IV	
<i>Building and city planning: sustainability of the tower type</i>	39
IV.1 Esthetics of demarcation	43
IV.2 Ground quote in the high-rise	45
IV.3 Form: principal definition of success	49
Capitolo V	
<i>Ground in Height: Public space and its impact on the high-rise</i>	53
V.1 Public places and the high-rise	57
V.2 Space as common environment	63
V.3 Outside in - inside out	65
Capitolo VI	
<i>The Next Future</i>	73
<i>Abstract and project introduction</i>	77
Bibliographic references	83
Web References	85
Journals References	86

INTRODUCTION

SPRAWL E SHRINKING: THE CONTEMPORARY CONTEXT

The tower in the contemporary world is strongly present, and it express many different forms with many different intents, so many that is impossible to follow a chronological order or to list everyone of the examples. It wouldn't be possible either to list the buildings by styles: the unconfined technical and technological possibilities allow everybody to build anything in any given context. Also, there's no sense to have a style, today, with the increased context attention that's needed. There's no need for a style, anymore.

Despite the uncertainty aspect that these phenomenon obviously spark, the contemporary scene states the vitality of the theme: the impressive acceleration in building and planning high-rises in recent years exhibits, even if tending to self-reference, researches and path which confirm, in continuity with its cultural economical and symbolic roots, the social role of the high-rise into the complex dynamics of cities transformation. The growing attention to environment and territory relates architectural projects with their sustainability and social welfare, trying to confirm that verticality, nearby the economic value, is founded now more on cultural and social studies.

Thinking about the role of a skyscraper in a city, not only as icon, but as an architectural piece, means thinking about architecture in general, how the contemporary view is modulated and how this debate is inflected into the cultural context of a project.

Emerges an international effort where experimentation tries to give answers to many pro-

blems, trying to accord the cultural, social, ecologic, historic and economic background of a city with the capabilities of the high-rise, which until now had had a difficult relationship with the urban environment. There's the thing: the high-rise has plenty of space, but until now economics was the only goal; it can't be anymore. The space has to be given also to the community.

In this context Italy should have one of the biggest parts: until now we struggled to create something equally nice and good, but our unparalleled historical and cultural background forces us to face the problems of the contemporary city and therefore to think about the high-rise with the newest of looks.

We have confront theories and practical reasons with the historical knowledge we have, to give the high-rise the face of a vertical neighborhood.

In the following chapters I'll try to recap, how much clearly I can, how the high-rise, with his peculiarities and particular characteristics, could be the better choice in an urban environment now necessarily changing.

the enormous push given by the urbanization is inducing cities all over the world to grow in a way never saw before, often with terrifying consequences.

The examples are many, but we'll take the two of the most significant: Mumbai and Mexico City.

For sure they already were big, but is in the last 40 years that they knew a growth only comparable to the ones of Chicago and London throughout the Industrial Revolution.

These two cities climbed up to be megalopolis in little less than four decades. Mumbai, in 1970, didn't count more than a million people, and Mexico City almost passed the two.

Now, respectively, they have 12 and 23.

Why all this difference in such a small time? The explanation is very simple and well known: cities, in second world countries, are still saw as "place of opportunities", as in the past for us, the place where you can seek refuge from the farmlands not anymore productive enough and with no bright future.

And because cities not anymore sustain on primary resources but on finance and international economics, it's normal that they'll have to support this migratory flow.

And for sure the city doesn't work very hard to stop it. But, after all, being a node in an ever growing financial world, the city has to demonstrate its capabilities, and underline its power to enlarge its attractive ability; attractiveness, it has to be clear, for other activities that could be favorable for its prosperity. Basically, what's bad it can be useful for good.

This way, people turns to the city to find at least some of that pretended welfare, and masses up in its suburbs, because the center is either full of other functions, or simply is historical and therefore unsuitable to welcome lots of people in brief time.

But this brings along another problem: the so called “urban sprawl”. [147][148][149] This phenomenon is proper not only of the last decades. This sprawl is something that happens again and again in history of urban environment: the center is historically the richest part, and all around the poorer clump. At a certain point, then, usually around the main transport infrastructures, productive activities will attract money (as investments) and wellness, forming an outer ring still richer (and maybe, becoming richer and richer, these rings will form pure “gated communities”, excluding the outside), the poor will surround it and so on.

This thing happens in every city of the world: historical center, secondary centers, peripheries and suburbs (any kind: rich, poor, popular, industrial...).

The topic would require a second thesis just to study it, for its complexity and constant evolution, but I’ll stay on what basically is the part of the problem of my concern, that really make the rethinking a priority: the continuous stacking of people and buildings provokes an enormous spreading of city limits, often thoughtless and absolutely out of human and environmental reasonable scale.

It’s a gathering of people every time in poorer conditions and with every time worse impact on the environment.

As I already said, Mexico City is emblematic, but this phenomenon is not restricted to second world’s cities; Tokyo has the same problems, and Tokyo is the capital of an ultra-powerful ultra-rich country. Both suffer from the same struggles: overpopulation, excessive pollution lack of green, poor life condition and incredible dispersion on their area.

Another eloquent example to make the problem clear is this: if the whole population of the world would be compressed in a city, a city with an urban density comparable to London’s, would be big more or less like France. If this city would be dense like Houston, in Texas... well, it would be big like the whole North America. Pretty impressive, isn’t it? That’s firing bull’s eye. Soil is a limited resource, and we have to conserve the most of it. Cities are following more the Huston example, but they simply don’t need nor they have to.

This is how it went until now.

It’s very recent, actual in fact, the case that the city is being pushed towards an opposite direction, by its very previous experiences.

This line isn’t still completely general, but the effect are already tangible; cities are not emptying massively at the same rate they once were filled, but the trend is strong: the tendency to “shrinking” is a reality.

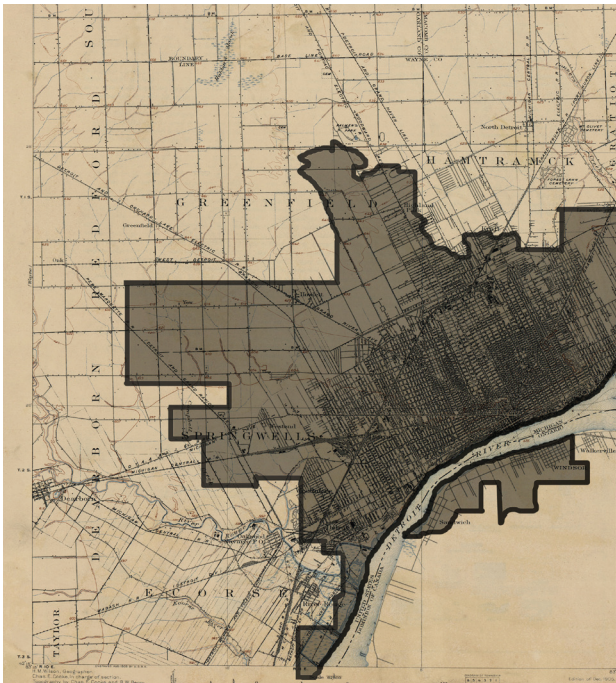
The modalities are surely different from the ones which formed the all-together city, but it’s possible to recognize them as consequences of the diffuse city: hybrid between concentration and disintegration into small new-towns, the diffuse city spread and diluted its limits, blurring the very concept of city. But the diffuse city embodied the forma urbis dedicated

[147] Detroit, 1852
To demonstrate the currents happened in the cities around the world, Detroit is the best example. This is an image from 1852, only 50 years after its foundation.

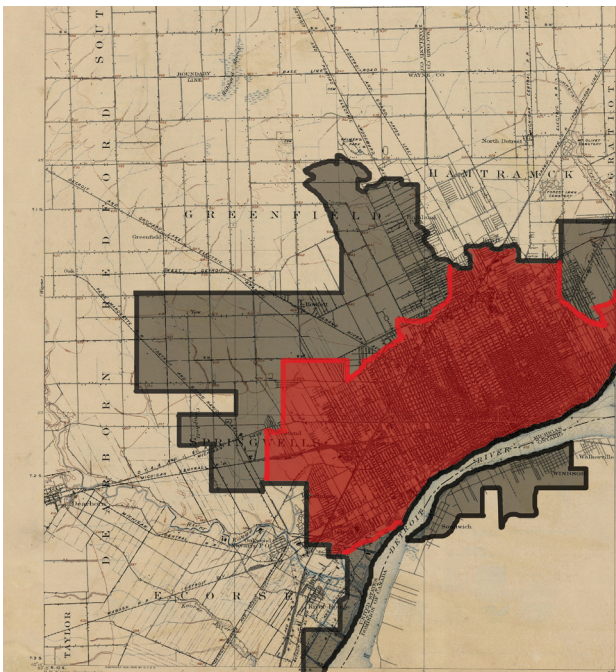


[148] Detroit, 1909
This map shows the city how it was between 1905 and 1910, when the city was becoming important in north american commercial routes.





[149] Detroit, 1960 ca.
The black line represents the limits of the city in the period when it was the most important industrial city in America.



[150] Detroit, actual
The red area is instead how the city is today, remembering that between that area there are still lots of industrial areas left abandoned.

only to the “economic centre”, where the displayed wellness made acceptable an hour trip from home to work, an immense increase of private transport and the failure of transport infrastructures, at least in very big cities. A trend sentenced to die. With the new communication technologies, lots of companies lost interest in having the central place, or maintained it just for prestige, and created new centers around them, new attraction points.

Population is no more fascinated from the multifaceted opportunities, instead looks for a more human, “familiar” and livable environment.

This was opposed by the undeniable leadership of the city for opportunities. But now, in a moment when the big city has become less attractive, or lose the specificities that made it big, the same city empties, gains areas before dedicated to disappeared activities, gains possibilities of developing zones into its internal network and tries to re-propose itself, with an eye at new tendencies.

This is the shrinking phenomenon ^[150], that cleans the city from its uselessness, learns from the critic points of the sprawl and rethinks the urban web completely, to recall all the people who stopped to see it as the centre for opportunities but more as the beginning of a frenzy. Therefore the city shrinks, compacts, refuses the oil-drop extension to go back in a more humanized environment, even if remaining very active, modern and without losing anything good.

The most impressive example is Detroit – or Turin, in Italy, that is incredibly following almost the same development. Identified as the “automotive world capital”, in the ‘60s it counted up to 2 million people. Today, it almost overpasses the 600.000. The reason is the one before explained: closing most of the factories (its only attraction point) the city lost its specificity, and people simply went away appealed by its livable surroundings; in this way, people left behind the factories, which filled up the city with their abandoned structures and made the city the worse in America (it’s not a case that the city has the biggest criminal rate in the country).

The shrinking, derived from the sprawl, in plain action, pushed the city almost to its failure. But the shrinking is not only a consequence: it is also an opportunity.

Detroit is trying to restart from its ashes, even if slower than Turin. Our city had an history that made a good base to restart. Detroit had not. Both cities, anyway, in the past years and with new verve today, reused its abandoned areas building parks, new neighborhoods or new public systems, researching its way not into enlargement but into the maximum and best use of its consolidated environment.

The problem is enough explained, and is the principal one that I will engage in this text, because I think the skyscraper to be not only a commercial symbol, but a concrete option for urban development: cities, to be functional, need to be dense.

With density you can spend less to bring services everywhere, the average standard of living

is raised, you can use less material and the footprint is less imposing on the territory.

This is the direction that the city is taking to revamp its image and its essence.

And as for the city, this is valid for the single building.

It's exactly here, in this state of uncertainty between a still existing sprawl and an opposite tendency that my thesis wants to go: not as an historical research, but neither as a prospect for the long future. More than that, a study of the actual facts and a proposal for the next future, a proposal of a theme that is still in its creative phase from the stand-alone building to the social skyscraper.

In the first part I'll divide the debate into thematic areas, and for everyone of these characters of a building towards the city I'll try to explain how the high-rise could be the answer for.

In the second, I'll try to transport all of this in a practical project, a plan for my city of Piacenza, to try and see how everything really could work better.

All I did, therefore, isn't an indication for direction: is more a formulation of an hypothesis, based on a research of the contemporary state of being, to demonstrate how typology could be the new architectural current more than certain building characters as it was in the past. For the next future, the building is no more the expression of a formal thinking for and in itself, but is more of a development of an urban thinking in the third dimension. The building has to stop being a standalone and start being a vertical neighborhood; there will be less architectural currents and more typology currents, each of one will be used depending on what you need in that situation and how useful it would be. The future is functional, not formal.

Photografic references

[147] Produzione personale su base <http://www.ezmapfinder.com/en/map-97795.html> e <http://www.detroittransithistory.info/TheDURYears.html>

[148] <http://www.ezmapfinder.com/en/map-97795.html>

[149] Produzione personale su base <http://www.ezmapfinder.com/en/map-97795.html> e <http://www.ezmapfinder.com/en/map-97795.html>

[150] Produzione personale dsu base <http://www.ezmapfinder.com/en/map-97795.html> e sito dello Stato dell'Illinois

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CHAPTER I

A RECENT PAST: THE HIGH-RISE AS A PRINCIPLE

SECTION 1

It's clear that the high-rise is vastly improving.

The technical, technological, conceptual innovation is comparable only to the development that the classical sciences (medicine, physics and chemistry) saw in the last twenty years.

As ten years ago interplanetary missions were still sci-fi matter, so was building something taller than 500 meters.

And instead we're looking at a real exponential growth: in 1990, only 145 were the skyscrapers over 200 metres; in 2001, only ten years later, 261.

Then, the disaster of the Twin Towers seemed to stop all this tendency; instead, it revived and pushed it. Man didn't choose fear, choose to show how awesome he can be; the appeal of height never left his soul, the social and technical challenge of such a cheeky structure won over the awareness of fragility, "to boldly go where no man has gone before". After all, to me, architecture and engineering are two of the last frontiers, where man faces himself and his possibilities, taking on the unknown, with ever-changing opportunities to renew the entire discipline, to overcome previous boundaries and to answer ever new problems; architecture allows the man to show his capabilities. All of this, as we said, as a reaction.

In challenging the nature of structures, adverse conditions, technical limits, politics and economics, ideals, man found its pride and its strength.

From 2001 to 2010 there were 608 buildings tallest than 200 mt. In 2013 we could count up

to 850, in 2014 to 961 and now in 2015 China is building the tallest ever: 1001 mt.

Be careful: height is not the only aspect in new project; it surely is one of the researched aspects, but is no more the only driver. Society, life condition and sustainability took on over the nonsense race for “the one building to top them all”. Fortunately, the technical fascination was subordinated to the self-conservative thought: man started to understand that a certain way of building would be unsustainable in the future, that boxes of steel and concrete would not be capable of building a safe and sustainable future for the human being on Earth, nor for urban environment.

We’re continuing to build high not for mere competition, but because is necessary for our sake.

The same evolution about the architectural plan for an high-rise is an evidence: every step acquires more specification, more fields to consider, elements to study and thing to be kept under control.

It’s a natural development, an evolution that goes along with the evolution of human sensibility. It isn’t by change that the high-rise always remained faithful to its typology’s character throughout its whole history (it have been declined, but never modified in its ideas of density and height): it’s a symptom of its tension to the future, to the fact that being relatively new (as a type) it could be malleable enough to face all future challenges of man. We’re still at the beginning of skyscrapers history, and is because we pretty much always thought about it as a solution that the high-rise will every time win over other types which, being much less accommodating, will only try to adapt and limit the damage instead of solving.

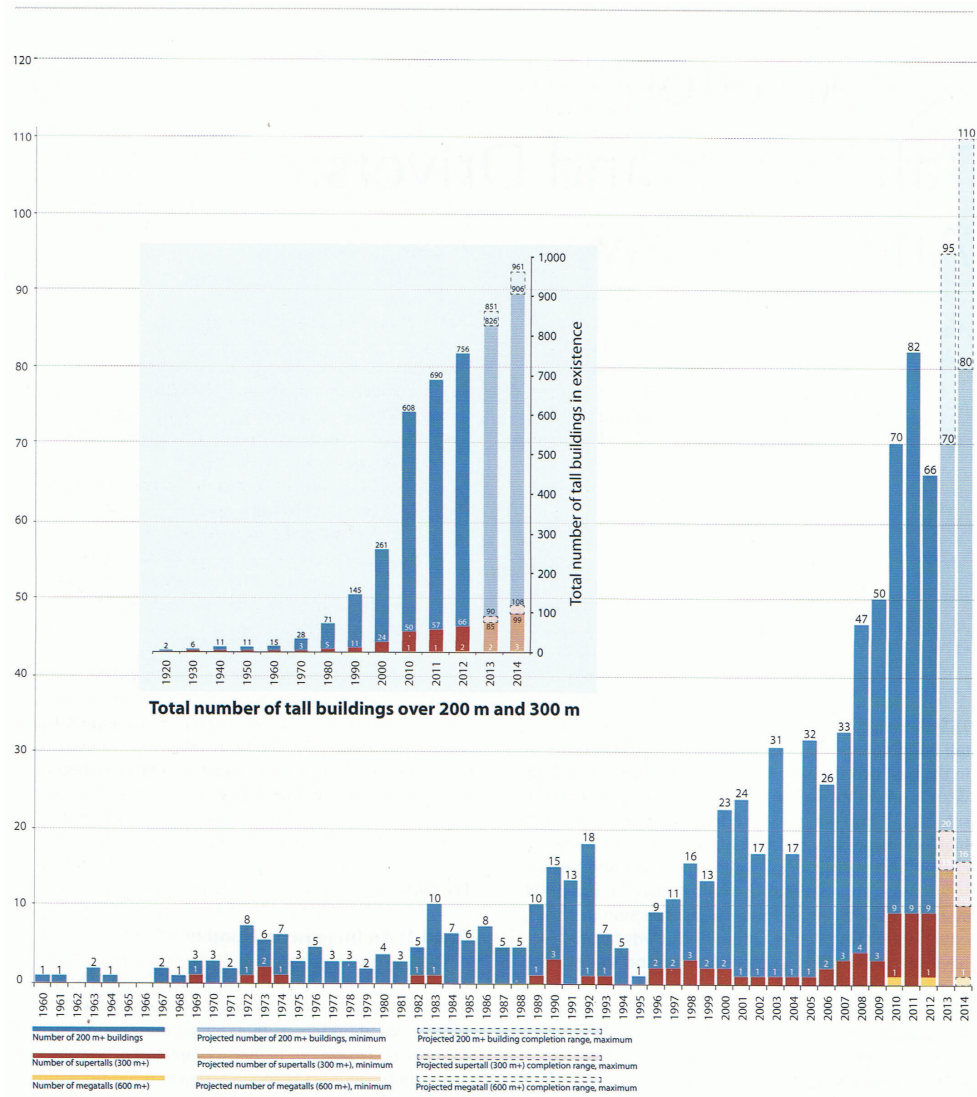
Here’s why so many experimentations, so many changes in such a little time: we’re at the beginning of its history and more than real consolidated characters there are privileged development directions and thrust factors; High-rise is a typology in fieri and because many cities in the whole world are developing their skyward urban habitat, so are its characteristics. Such as:

1. Growth in number

As already explained before, the growth in high-rise number isn’t only proper of the first-world countries, but is a diffuse will in many parts of the Earth. This way cities are trying to use the effect of a high-rise on urban marketing, while using its practical convenience. On an extreme level, from the mere number someone could find the success of the high-rise, saying that “a useless thing wouldn’t be built anymore”.

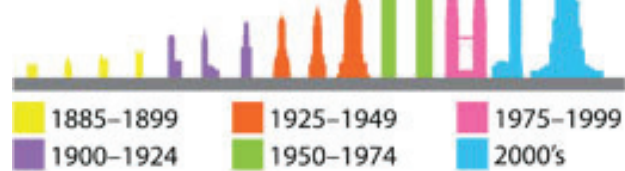
That’s partly true, because it is clear that apart from marketing having a pole that can attract other activities for a city is some of the best thing to keep it alive and make it become ever more livable.

2. Growth in height^[152]



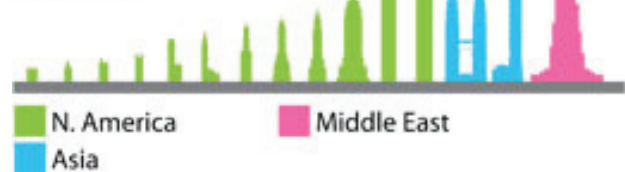
[151] Completed skyscrapers from 1960 to today
 This graph perfectly represents the debate, starting from the older era and arriving to the 2000s.
 The smaller one, representing this by decades, is even more significant because shows how exponential the growth is.

Completion



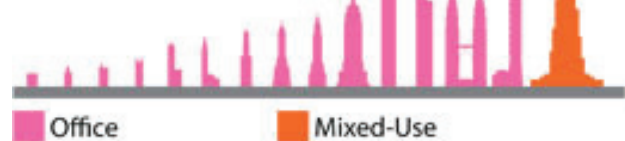
[152] Height growth
The continuous growth only stops in the 80s, when more than height iconicity was searched for, as much as today is.

Location



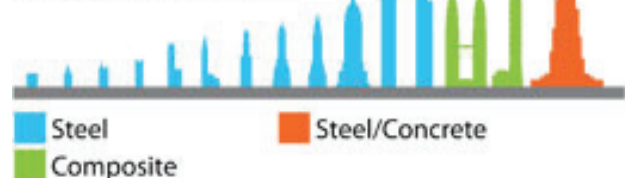
[153] Change in position
The internationalization goes whit the economic centre of the world in the period.

Function



[154] Change in Function
This is the most interesting: only recently the high-rise started to comprehend different functions, going with therecognition of its utility in many fields.

Structural Material



[155] Change in materials
This went mostly with the taste of the period; only recently, with the different structural possibilities, the declination became more diverse.

As said in the Prologue, buildings are becoming every time taller. It's emblematic to know that in the ranking of the tallest, only two of the ten that topped the list ten years ago are still there. Most of them are even taller than 400 mt. This is an indicator for what is happening, from the development of the typology to how height has still a great part to play in the discourse. It's important to specify, anyway: is the average height that is growing, not the maximum. Often, indeed, everything is needed is the building to be tall, not the tallest.

3. Change of position^[153]

Simply as that, this means that the "centre" of high-rises isn't anymore North America, which was until the '90s, but it's now shifted east, towards Middle East and Asia. To be very superficial, it can be said that the skyscraper follow where the most powerful economy is.

4. Change in materials^[155]

The structural change is very significant too, for the last two decades of high-rise's development. For stability needs ever more extreme (static resistance, dynamic strength, limit environmental conditions), for environmental sustainability, safety, or simply economic situation and specialized technical knowledge, the interest is shifting from the full-steel-frame to the cement or composite structures.

SECTION 2

SIDE CONDITIONS

There are in fact some side conditions that basically led the development of the high-rise in the previous ways. From economics to a new environmental attention, everything was good for the typology to grow. We can indeed recognize some reasons, and some ways that until now directed the progress;

1. Land cost and investment returns

Easy as it seems: one of the columns sustaining the idea of an high-rise is the relationship between these two elements. If it's stated that a skyscraper (as in any other investment, in fact) would not return construction or management costs as it was wanted, that project will be rejected or at least done again. But this was exactly what pushed towards high-rises: because of the major costs for the land inside the city, and especially in the centre, the only way (only speculative, in the beginning, as the Equitable Building exemplifies) to gain enough was to use the most area possible in the lot, therefore building vertical.

Obviously the indiscriminate growth is always contained by technical, materic, technological or banally cost obstacles.

2. Corporation branding and city marketing

One of the reasons why the high-rise is so well known: because of their strong image, companies try to build them (or acquire) to show off, to propose themselves to the market communicating a powerful appearance. And it isn't just useful for the brand: the city too gains something by the high-rise; it gains international image, it gains appeal. It's physiologic: while intimidating and transmitting austerity, what challenges us and shows our strength always fascinates and inspires us.

3. Fast urbanization

Is not anymore just urban branding that high-rises are, indeed, rising. It's been calculated that almost 70% of the population live in cities and to avoid saturation and overpopulation everywhere, most importantly in developing countries like Brasil or China, the only evident solution is to turn towards a continuous densification, to alleviate environmental and social charge.

It's demonstrated that a denser city, with an highest presence of high-rises, is more efficient than a big city characterized by a lot of "groundscrapers": the very New York, even if bigger and more populated than Los Angelse, consumes only a third of the annual pro capite energy of a Californian citizen. Density allows and helps a more conscious planning process for the urban floor, leaving more natural terrain and creating a more sustainable environment.

These are only general issues, but are very useful to understand which ways are determining the life and mind of the high-rise typology, introducing what I'll say later on. Schematically, makes you understand who we are and where we are going. We only have to understand how to do it and what to do.

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[151] http://www.ctbuh.org/News/PR_100308_TallestTrends/tabid/1468/language/en-US/Default.aspx

[152-155] United Nations (2007) World Urbanization Prospects: The 2006 Revision, Department of Economic and Social Affairs Population Division.

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CHAPTER 2

POHETICS OF THE SYMBOL SEMANTHICS AND SEMIOLOGY OF THE TOWER TYPE

SECTION 1

GENESIS AND EVOLUTION OF THE SYMBOL

Lots of architects, throughout history, said that “form has to follow function”, some more clearly making it become a planning reason, some just having it as one of the principles. For lots of decades is been like this, architects stripped the envelope every time a little more until coming to the pure form, even identifying entire architectural currents (think about Modernism or International Style^[156]).

For sure many of them would not be happy to see how the actual development is, on a first sight: twisting, bending, connecting towers with sculptural appearances.

But this is different from the pure formal way: technical innovations, which allowed more precise technical drawings, 3D models and innovation in materials and construction technologies just gave the building completely new possibilities.

These are the aspect which allowed to outdo the old international canons and reach new expressive freedom; it went for sure to enlarge the possibilities of the architect, and helped the recognisability of the building, but also its risk to be speculated on: clients want hotels or office buildings with dubious forms (Dubai Towers^[157], hotel complex that mimics a fire, representing the dynamicity of Dubai) only to show off the possibility to do it.

Even this, anyway, is useful to underline a thing: architects from last century really got it almost right; with new directions on sustainability and energetic efficiency, high-rises are more and more subordinating formal beauty to their performance level. Things are done only when

[156] North Lake Shore Drive, 1949-1951
Mies van der Rohe, Chicago
The International Style at its peak: maximum function for minimum apparent complexity (but maximum esthetic)



[157] Dubai Towers, 2008-
TVS Associates, Dubai
The Dubai Towers, instead (which construction has started but is now suspended) is the other side of the coin. The extreme esthetic experiments with complex forms, searching for recognition and ostentation.





[158] Jin Mao Tower,
1994-1999

A. Smith di SOM, Shanghai

This building, first of the three for the new World Trade Center in Shanghai, is also the one that less takes into account iconography by itself. His "telescope" shape not only recalls to the pagodas and the historical Chinese temples, but also is used to enlighten and soars towards the sky.



[159] Heron Tower,
2007-2011

KPF e Arup, Londra

This building instead gives a simple form, connected to the industrial history of London and offers a modern, functional and useful structure to its city, swiftly entering the context of skyscrapers.

technologically and technically possible, and done with care, trying not to interfere with a formal design that is always researched for the sake of social perception.

Still now, then, form follows function. Only, it isn't anymore an architectural choice, but more an attention to performance, appearance, study on public reception and an integrated project of many aspects together. There's no more a part more important than another one, or a topic more crucial than another: all the characters of the high-rise, instead, concur to its perfect functionality in any sense, morphing one another into the best performance status (that means also visual performance).

As we'll see later on, even if the form is no more the only objective, being now the efficiency, it still is a strong driver: once you decide what performance level you want from your building, it's form that comprehends, controls and directs everything. Here's why today is difficult to recognize one or more styles or currents in architecture, but it's preferred to refer to personal characteristics of an architect's ideal; if before aesthetics and a few other things were enough to drive the whole project, now, as we exhaustively said, new topics such as eco-sustainability, new rules about construction process and material manufacturing, connection and other things are all to be kept under control and has to work in concert to produce the project, that therefore will have an outcome form every time different, according to the needs.^{[158][159]}

This kind of Form intended as built mass, the whole geometry of the building, and the one that becomes the best synthesis of all the decision made during the planning process, more than the mere expression of a philosophy or a thought.

Its goals are both material and "spiritual", psychological and pragmatic, and always beware to the appeal they'll have on the public.

The form is subjected to the search or wellness.

And the wellness, both for who lives into the building and for who watches it from outside, is given by how efficient, functional and aesthetically beautiful it is, at the end.

It's still an important aspect. A good context connection is given also by a good esthetic figure. Normal consideration about scale are no more valid: a building overgrowing even just 10 or 15 storey or bigger than a certain dimension is already outside the human scale. And you can't define an high-rise by the harmony of its scale, in this sense. Rather, you'll have to value it in other ways, like the context (the out of scale in general doesn't exist, it exists only with respect of) or the meaning that the out of scale could have.

More than else, it has to be considered the esthetic (and the symbol that will become) through the form, the structure and the materials; practically, through the innovations and the specification brought along by it.

And this is what the high-rise has to deal with.

At the beginning, the vertical development of buildings was blocked by technical and technolo-

gic obstacles, from the lack of elevators, the use of natural materials and basically safety and structural problems.

We had to wait the late '800 to see the first skyscraper and from there for around 40 years New York had the monopoly of the phenomenon. Until the '60, anyway, the race for height was collective more than individual; I'll explain: from the first decades of the '900, high-rises in New York (or Chicago, in a smaller way) raced to surpass each other, but only to have a spot into the skyline, the true strength of a city; The skyline was the focal point, the building only concurred to be a recognizable part of the real display cabinet of the city.

Leaving out the Empire State Building, which with its dimension completely outclassed other buildings, the Chrysler Building is symptomatic: tall, not that much taller (as the Weinwright), attractive and esthetical complex only to be recognizable in the general image, in an inverted urban marketing: is city that publicizes buildings, not the contrary as it is now.

This happened because the technical bonds were too strong to determine a strong stylistic differentiation, and so everyone continued to differentiate only little particulars, like the top roof or the decorations of windows and facades, more than search for ways to diversify the whole. Surely, it was also for building rules of the time, much more restrictive than the reasonable, for newborn typology (just think about setbacks).

The turning point was around the '50s, whit the realization of the Lever House and the Seagram Building.

For the first time high-rises didn't follow precedent paths, but tried to impose themselves as architectural objects, bringing the function over the form and necessity to be recognized.

This conformation, after the strong estate possibilities had been discovered (the simple form and light walls left lots of free and versatile space inside), strongly struck and took on the old, becoming the lead in the world development; here we have the International Style.

SECTION 2

ESTHETICS OF VERTICALITY

From here, pushed by ever more intense economics and ambitious intents, high-rises deviated towards technological research and the stand alone idea: technical boundaries went more and more away along with the increase of height, and the continuous study gave more possibilities, bringing form-differentiation to the limit we have now and giving the high-rise the role of an icon.

Spirals, curves, connections, double and triple walls which can have both esthetical and practical function: all of this thanks to the '50s, that showed how the building could be more useful in itself more than as a stupid piece of skyline. Or, better, showed how more than the possible speculation on it, was good its essence, its appearance, its uniqueness in the path of being accepted and recognized as a whole, therefore augmenting its profit capabilities.

Height opened then to symbolism: just take the Taipei 101^{[160][161]} as an example, and you can see how local culture entered in its morphology and defined its appearance and meaning, going beyond classical limits of representativeness; the building is indeed raised on a trapezoidal stand, that guzzles the first office storey, to represent the ingress of a temple; over that, eight "boxes" each eight storey tall (lucky number in the culture), overlapped to have a little gap between one and another, so to resemble a pagoda. In the lower part we find a service part with a big metal medallion for every façade, recalling the typical holed coin, another lucky sign.

Almost wanting to become the Taiwanese Empire State, the building incorporates in itself all the commercial meanings wanted by the buyer while proposing new ones, strictly connected to local culture, making it easy to recognize but also typical and figuratively rooted into the context.

The oriental particular shape would make it out of context in other places of the world (even just in the near and hyper-technologic Tokyo), while the particular recall to its site exemplifies the enormous iconographic possibilities that technology brought along to the development of the high-rise.

Taipei 101 offers examples also in another aspect: the need of dealing with nature.

Growing in height, and diversifying the places where high-rises are built, technical challenges are diverse. The same Taiwanese skyscraper had to deal with an area of high earthquake hazard, and therefore had to install a special device, an inertial mass dumper on the top: a big steel 15-meters-across ball that moves (guided by hydraulic pumps) inside the building to counter the oscillation of the structure and guarantee its safety.

[160] Taipei 101, 1999-2004
C. Y. Lee & Partners, Taipei

The Taiwanese tower is one of the example of olistic planning. Esthetics, sustainability (the tower managed to earn the maximum LEED certification), integration with the cultural context, harmony in the general form.

It's an example where Form decides everything else. It's the will of building a "proper" building which led to this creation, appreciated by critics and public.



[161] Taipei 101, 1999-2004
C. Y. Lee & Partners, Taipei

A scheme of the inertial dumper in the top floors of the building. Balancing throughout the last four storeys, it slows the lateral movement due to typhoons and earthquakes. Not only covered in gold, the dumper it's a turistic attraction; from the last floor, this enormous golden globe is more pictured than the surrounding view of the city around.





[162] 30 St. Mary Axe,
2001-2003

Foster & Partners, Londra
The singular ovalized form gave it the nickname of "Gerkin"; beyond the name there's a very innovative and precise structural study and a very innovative double glazing system that can merge a fantastic and new appearance with a extraordinary efficiency dog leg pattern.



[163] CCTV Headquarters,
2010-2012

R. Koolhaas e soci, Pechino
The enormous possibilities given by the new technologies lead to experimentation. The headquarters of the chinese television demonstrates how a planner, duplex system, can take any liberty to reach a iconic, original, innovative and unique creation.

But how this system affected the esthetical part, if it is internal? It did its part becoming an observation point and a touristic attraction, after being painted gold and left completely visible through the top floors of the building.

More clearly, it's possible to find many other examples of building shaped by nature: the Gerkin in London ^[162] that uses wind for its internal ventilation, the Burj Kalifah, that has to be in this form to resist the enormous desert winds, the Shanghai Financial Center with his top hole to allow the wind to pass by and diminish its strength, the Commerzbank in Frankfurt, that uses the natural ventilation for offices cooling, just to quote the famous ones.

Nature becomes a planner: from context in which to insert our buildings (and often to combat) to active sculptor, it defines forms and function, limits and opportunities of a building: Nature, in other words, charges the high-rise with psychological values, making it the mirror of human capacity.

In the form, so, but also in the structure.

John Hancock Center, Bank of China Headquarters, HSBC Building, the world is full of buildings that proudly show their structure, or their technological advances, to address the decision of defying nature and build where it wasn't possible before.

Other meaning, this, that topped the old one, which stated that the showing structure was simply the expression of an extreme functionalism and the excitement for the new constructive system, typical of the structural honesty in the America of the '50s.

But this honesty is not related only to that period, as we saw; it's something maybe related to the novelty of the system that pushes the human being to show off: every time something is new it's made as the only and most important character of a thing. Just think about the Twin Towers, the One and Two World Trade Center of New York, whose structure was in fact the very façade, or the John Hancock Center in Chicago, that proposes an innovative crossed structural pattern using it to give itself a particular image, or the contemporary CCTV Headquarters^[163] of Beijing, that thanks to the avant-garde structure proposes an unseen and enterprising system for its whole faceted and gravity-defying form.

SECTION 3

PERCEPTIVE AND PSYCHOLOGICAL QUALITIES

As we saw, then, the semantics of a tower is complex and interlaced to every one of its parts. The high-rise can have different forms and meanings every time diverse and adapt (and adapted) to its function and its very objective inside the context. Meanings and forms that (as we'll see in one of the next chapters) determine its fortune. The reason is actually pretty simple: the façade of the high-rise is the first and most evident aspect, the one that really struck the visitor.

The Twin Towers become famous to the masses as big steel parallelepiped, not because of their innovative structure; and therefore here's why in my discourse is important to state how the esthetics of the high-rise is the only aspect of the type that really decides its fortune with the public.

The Commerzbank^[165] is well known in the architectural sphere, as well as the Petronas Towers^[164] are, but the seconds are surely more famous than the first. This is because, apart from representing a different scale and inserting in completely different contexts, the distinguishing aspect of the buildings are different: the extreme "beauty" of the twin towers of Kuala Lumpur outclassed the perfect functionality of the German tower (largely beating the towers in this sense), and the public perceived better the imposing figure, more than the efficiency. Therefore, if the first thing to be seen is the exterior part, I think was necessary to say it: the façade of a building is its dress, the way that it takes to show itself to the public; each one of those chooses how to dress, but it has to do it in the best way possible, respecting the characters of the high-rise, being it 10 or 100 storey high.

These values and characters, are then defined (as objectives) and inflected (as requirements) to make sure that every time the construction will respond as best as it can to what it has to do: ecology, economy, functionality, and everyone of its specificities. We saw how technical innovation allowed the shifting of the point of view from general to particular, and at the same time how the inflections of an high-rise are innumerable.

This shows how an high-rise could be good for a community and a city, if it's planned with some intelligence, and depending on its form how it could become iconography of the entire place.

Esthetics has not to be underestimated: this is how, mostly, the tower inserts in the context.

Here we return, then, to the form that follows the function.

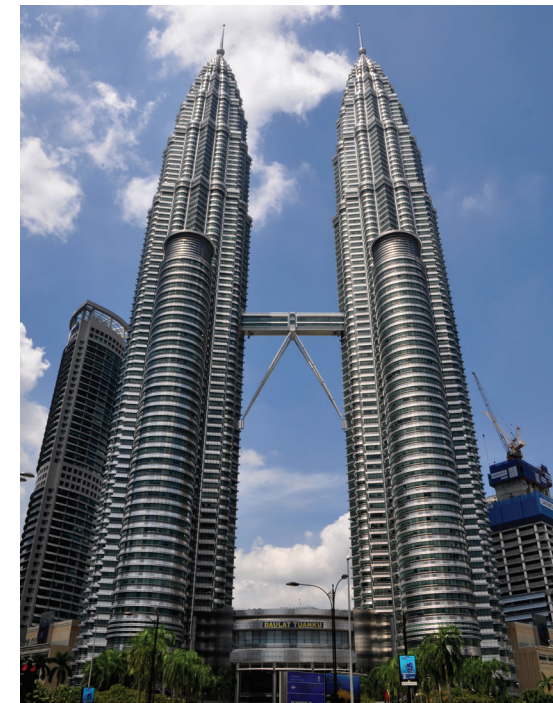
Here, however, the function is not the use.

It is, instead, that sum of theoretical (pride, symbology, marketing, expression...) and practical

[164] Torri Petronas, 1993-1997

C. Pelli, Kuala Lumpur

The Malaysian towers are sculptural symbols for the will of projecting towards international circuits. Esthetics and The esthetic and the strong and powerful appearance aim to fascinate the visual impression. Fame was always the main goal for the owners, through which they wanted to promote their country.



[165] Commerzbank Tower, 1994-1997

N. Foster, Frankfurt

The first building to be thought to be "ecologic" is one of the best examples of skyscraper in Europe. It inserts in a difficult context, the historic centre of Frankfurt, in a very fine way. Even having a massive appearance, the continuous interruption of the facade gives it a more reticular shape, and the continuation of the main pillars over the roof recall the gothic pinnacles of the local cathedrals.





[166] Guangzhou International Finance Center, 2005-2010
W. Eyre e Arup, Guangzhou
 Shaped throughout mathematical formulae in a rounded triangular shape, union of three troncooids, it's a symbol that emerges from the substantial inconsistency of the industrial landscape of the third biggest city of China, throwing itself in the international whit its tapered, elegant and simple shape.



[167] Kingkey 100, 2007-2011
T. Farrell & P. Shenzhen
 Still in China and in an industrial city we can find the "KK100". Simpler than the previous, this is the extrusion of a parabola, that makes it resemble a scalpel planted into the city. China is after all very rich of pure esthetical buildings, due to a lack of characteristic context (because not taken advantage of, not because non present; china has one of the oldest cultures in the world, but is rarely shown).

(energy consumption, soil consumption, material use, financial return...) meanings that the high-rise can gather, by its very typological feature, meanings that was able to communicate, throughout its history, with unparalleled energy.

High-rise grammar is all shown in this simple element, where every decision have end: esthetics.^{[166][167]}

However anybody could say, the high-rise before than an engineering work is an architectural and artistic work, where the impacts on the context are much more important than the structural and technical choices; semantic, the ability of a building to communicate and diffuse the intents which led its project, or simply to become visible to the eyes of the world, passes through innovation, but you can't rely only on tech; not today. Fundamental is its aspect, also for its super-human scale, or better its capacity to positively behave towards the observer, the cultural and physic environment, the Nature.

Anyway, its meanings, so much different one from another, can't simply focus on esthetics, important as it can be. They have to be integrated in a study where every decision concurs to build a system the most suitable for a certain need or idea.

façade, structure, sustainability, livability, financial value, estate value, marketing, efficiency, functionality: the tower is the only building typology that can summarize everything in one thing.

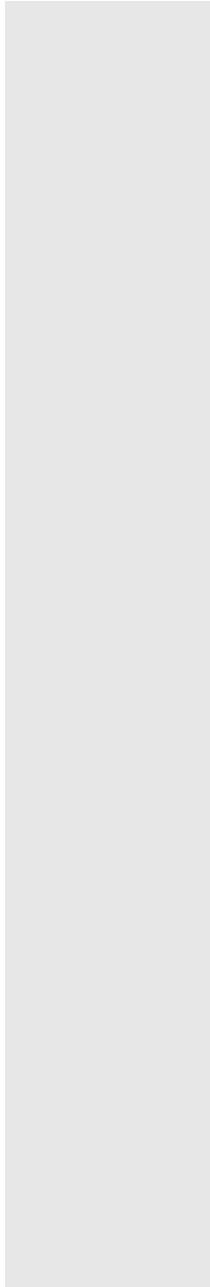
The tower-type, given its complexity, is almost a crystallization of the feelings of its creator and the mirror of the feelings of its host population. It has a scale big enough and impacts strong enough on society to be the only thing that can summarize in itself this contrast single-collectivity.

The high-rise reflect on an adequate scale how the man feels in its territory. The high-rise, in the end, is the steel and glass transposition of the human being, that lives ruling the world, whereas being a slave of it.

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CHAPTER 3

TOWER AND ECONOMY A DRIVER OF ECONOMICAL AND TERRITORIAL DEVELOPMENT

The second question that is usually asked when an high-rise is brought on is “how much did it cost?”.

The pragmatism of the human being always took rapidly over on artistic pleasure, and every time that a sublime work is seen the first thing is to search to the aspects that could give a practical comprehensive sense.

Not always, anyway, the cost is the index for project goodness. ^[168]

Often, when you arrive at this point, is easy to say “it’s a useless waste of money”. Is it always like this? Is the construction of an high-rise, with respect to a traditional type (with same function), really less convenient?

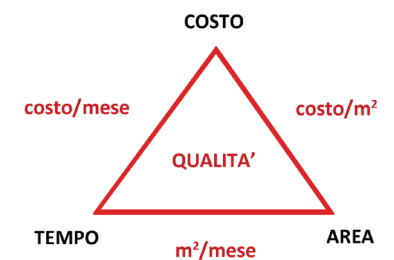
It’s obvious: the more you go up, the more you choose unsuitable places, the more you’ll have to pay. Material transport, specialized workman, project and system’s cost, all of this concur to define construction cost.

Another important aspect, by the way, it’s often forgotten: management cost. Here’s where the high-rise comes to pay off and justify previous costs.

It’s logical: a unitary building which gives a certain amount of inhabitable space is much more manageable than one (or more) which distribute this space in an horizontal form.

Installation and system costs, in the same way, become bigger for a low-rise building because of its plan’s complexity, but also because of a bigger energy demand to make these systems

[168] Drivers
The principal economic
drivers for the construction of
a skyscraper.



work: in an high-rise, because of the repeating plan, can be used the hydrodynamic laws for tubes, the chimney effect for ventilation and is possible to study in a better way the fire-safety, making the building safer in its entirety, the project simpler and more manageable.

This way you can spend less to build it, manage it and keep it active, because centralization and simplicity make the intervention easier when needed, the flexibility is improved (often independently from internal spatial subdivision) and also its control, and it's possible to plan its use in a better way.

[169] Economic Scheme
A splay scheme of costs
and possible neat revenues
for a skyscraper.

Elemento	Edificio medio	Edificio a torre
Area interna lorda (m ²)	91.440	365.760
Efficienza netto/lordo (%)	72	67
Area interna netta (m ²)	65.836	245.059
Valore fondiario (£/m ²)	45	55
Rendimento (£/anno)	9.720.000	44.220.000
Valore ad un anno (%)	6.00	6.25
Costo di costruzione (£)	91.412.000	499.300.000
Costo di acquisto del terreno (£)	30.000.000	30.000.000
Profitto (£)	40.620.000	178.220.000

SECTION 1

MATERIAL, COST AND ENERGY EFFICIENCY

Not only technical aspects are the ones to define the functionality of the high-rise: we also have energy matters.

In this case is less easy to recognize why these matters are important and vantagious to the construction.

I'll try anyway to explain briefly everything, starting from a very dimensional question: the materials consumption with respect to an area.

I mean, with this, the energy consumption and the quantity of material used to include inside the building a certain area (roof, walls...); it could be already clearer: if you want to include into walls, let's say, 1000 meters squared, is easier to do ten storey of 100 sm each, than a big square box of 1000 meters, or worse two of 500. That's because with less soil use you can use the same area. This way less soil means less machines to prepare it, less workmanship to build and a smaller building area, and therefore smaller impact on the context. With more storey in an area that has certain characteristics, it will be possible to use these particular characters on more area, and then recall inside more people; or, you could use this favorable condition and use every storey for a different function. Again, using the vertical direction will decrease the amount of materials needed for its envelope (only one roof and ground floor, for example), and this could be even improved planning the use of prefabricated elements.^[170]

About the envelope, then, there's another aspect, the sun performance: if an area it's wanted to have a certain natural light disposal, the highest as possible, and it's in a good position for that, build more storey in that point will be the best choice, because it'll be possible to use the same characteristics, than finding the same in different areas for more buildings. Practically, building in height allows to reduce compromises to face in the search for the best conditions, or anyway making these easier to manage.

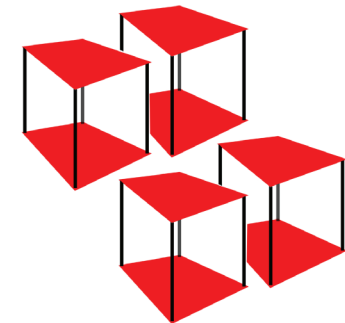
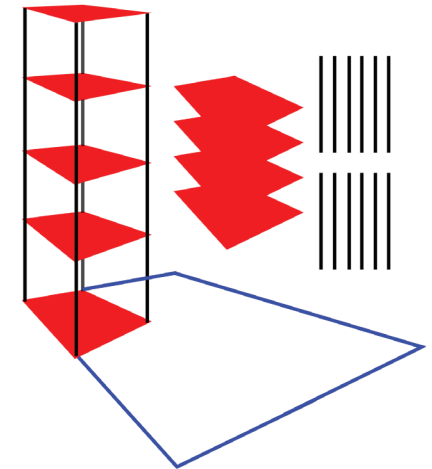
Having more floors in a certain, nicely illuminated position, will reduce necessity of artificial lightning, the necessity to research specific conditioning systems for every spot of the building, and the energy consumption to activate these systems.

These measures, then, will be part of a bigger planning idea, directed more to the management and use context of the building: the goal of energy saving.

It is one of the privileged way to approach the high-rise, today: it's important not to get scared by the eventual additional building costs, because it's building's life that defines the major impacts on a buildings cost. Due to this, architects always try to reduce energy impacts not only in the construction, but also throughout all the life of a building, making it less consuming or

[170] Saving

Whit this simple scheme I tried to sum up what i try to demonstrate the topic of this chapter. the saving in materials, space and complexity, the minor usage of soil and the possibility of position a large part of space in a favourable position, gives a lot of people the same possibilities in a very small area.





[171] Barhain World Trade Center, 2004-2008
 ATKINS, Manama (Barhain)
 the demonstration that technology allows any type of solution. These coupled towers, planned to channel the wind between them, are cconnected by three bridges with wind turbines, to help the energy consumption to remain low.



[172] Pearl River Tower, 2006-2011
 G. Gill per SOM, Guangzhou
 Aso in this case of plumouse structure determines a fundamental component. the particular shape channels the wind in the facade and towards the internal wind turbines that provide the 60% of the energy conumed by the building.

better performing.

Technological advance, then, is allowing us to use almost every source of energy possible (some think even the atomic, in the next future!), making every building more and more rooted in its context: it isn't indeed just a practical question^[171]; if a building is been built in Russia, for example, it would be more difficult to use geothermic energy, than it can be for example here in Italy. Colder temperatures, for examples, would negate the effectiveness of a system that relies on the stable temperature of the underground, and therefore would lower the outcome temperature of the water (I'm not referring, indeed, to the industrial geothermic power, but to the one used on a building scale, only for water). In the same way, using wind turbines is still a discussed matter, because of the scale that these should have to be effective, but it could decrease by much the use of city's public network for electricity.

Speaking about this, there's a building that suits: the Pearl River Tower in Guangzhou^[172], China (SOM). Built in an high-density environment, it has a complex and fluid shape but nothing more distant from chaotic: the tower uses indeed the currents generated by other buildings and leads them, via its forms, in "wind tunnels" incorporated in its very structure, which end in generator turbines that produce the whole energy for office storey.

It's an extreme example, but it was intended to show how a biggest cost in project and building led to a more cost-efficient life, and therefore at least 100 years (the average life of an high-rise according to trends) of savings.

Other mechanisms derived from the high-rise's specificities are for example the possibility of using better the thermal inertia, or to better use the solar and photovoltaic not being bonded by unfavorable context or lack of space on the roof (It's possible to use the façade, in the high-rises). Idiomatic is the case of a project for a mixed-use tower proposed (but unfortunately probably not on the way to be built): the Water Street Tower^[173]. This slim tower in the center of Lower Manhattan would have had a curtain-wall made from photovoltaic panels (perfect idea, the high-rises search for light with height) organized in a chessboard pattern, to leave space for windows but always mounted on single cells on semitransparent panels, to block as less vies as possible, from the inside out and from the outside at the unitary façade. These panels, being also nice brise-soleil, would have provided energy for the illumination on the lower floors throughout the whole year, and the hot water with the solar panels on the higher part. Because of the offices being put on the lowest floors, their residual energy from heating and the leftovers of the electric production would have been used for the residential superior part: using the chimney effect and the thermal inertia of particular light floors, it's guaranteed the heating with a saving for public network usage of almost 70%.

It's clear how ecology and economy are then related. Every element that can be used "freely" (I mean comporting no costs during the use) will be mounted or built even if means more

building costs. This because impact on environment is considered being the major concern in the project, more than the impact of buyer's wallet. Anyway, it is true that the ecologic value is one of the most important, in cost review, but it's wrong to be concerned only about that: the accumulation of ecologic-claimed systems in a structure that simply can't bear them or make them perform as they should, or in an environment not suited (just to claim ecology is our goal!) are obviously a waste of money and resources, with chain effect on everything else; paying more something that then will only repay you, instead of making a gain from that, it'll simply cancel out the usefulness and therefore become superfluous.

It's necessary, then, during the project, to be well aware of boundary conditions and study the most suitable solutions to allow the money saving we're talking about.

Here's where the connection between ecology and economy lies: economic efficiency of a building isn't calculated only on how much money you can gain from its estate value, but also on how much you can save from certain performances. And those performances are usually given by ecologic and energy systems, which are used to diminish the life and management cost and therefore making the high-rise economically sustainable; also, these systems help in the marketing section, because their work is well accepted by the public, therefore enhancing the value of the building.

With technical and technological innovation the biomimesis is starting to become important into the high-rise type: is more and more clear how the tower, being a structure that houses humans, is going to become an organism more than a rational organization of space.

With the two examples made before, we can see how high-rises are then better performing than groundscrapers: its particular nature, involuntary mimic of trees, makes possible to use its natural resemblance: the solar as photosynthesis, the geothermic as linfa, the structure as roots and the flexibility as branches.

Tech and eco are joined together tightly to define an enormously better consumption (and therefore money) performance.

[173] **Waterfront Tower,**
2009-2013
Cookfox Architects, New York
This mixed-use tower uses
BIPV systems (building inte-
grated photovoltaics) to reach
the status of zero-energy
building.



SECTION 2

FINANCIAL REVENUES

As in the introduction, the incredible growth of estate prices naturally pushes towards the intensive use of the high-rise; this way, it's possible to buy an area at a certain price and gain a lot more revenues with sells and rents than possible with other building types.

But why more storey mean more earnings? It's a conjecture of pshychological and physical aspects.

First of all, having lots of space in a certain logistic location, will recall more buyers that maybe would enter in a certain economic circuit, particularly if the building is mixed-use: some floor can be sold to a company, while some other to an hotel, and some can be restaurants and shops and so on. If the area you bought is in the center, for example, is more profitable building the most of it instead of building a part, or some building with limited space and then have to decide who to sell the construction (if you didn't build it for yourself). For sure, this could make the cities become clusters of big grey rectangles, sad and anonymous but other factors seem to intervene and slow down this tendency as the very same financial weight of building an high rise, or the necessity to be a marketing symbol.

Again, a central position and a big disposability of building surface gives great flexibility and vitality to the building, that will have good effects on the surroundings because of the improved people flow (due to its very differentiated possible use destination) therefore sparking conour activities in the area, like bars, shops and public services. Furthermore, the fact that an office is located in the center, and usually then well connected to the rest of the city by public transport, would possibly improve their functionality, bringing cash in public administration's chests and relieve city's traffic, curse of the contemporary city.^{[174][175]}

A multiplicity of factors that make income (and I mean only the income from the use of the building) the first concentration point on which the buyer focuses when starts to think about building an high-rise.

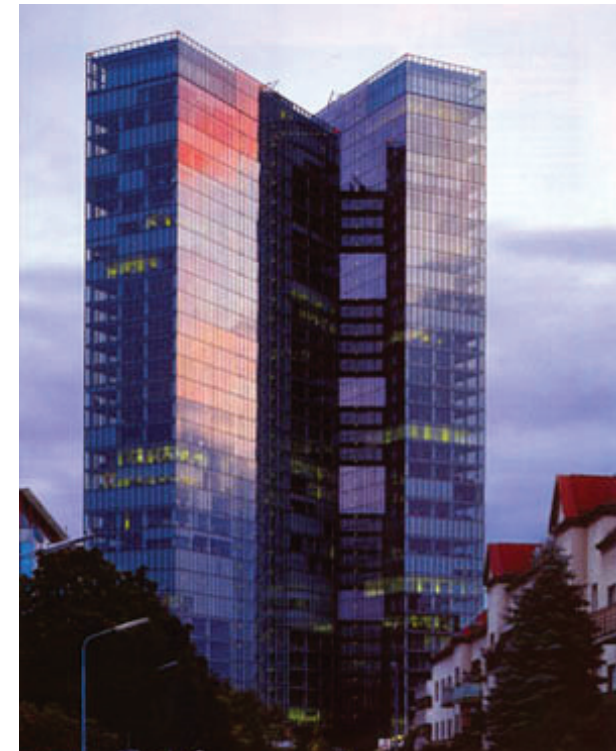
If, in fact, energetic and material savings are mostly regarding management and planning of the building, and specify in sectors which utility will lighten only in a longer time, the income from land and indoor room is actually a very tangible element right from the beginning, and extremely more intuitive. Intuitive because it works on aspects that embody the common consideration of the high-rise, as sensation that can raise on companies and privates and the fame that can derive from being higher than the others.

We're talking about marketing, and about very firm relations between "advertisement" and the possibility of rising the income, as it is natural in the market that today rules - and saying

[174] Manitoba Hydro Place, 2005-2008
 Kuwabara Payne McKenna-Blumberg Arch., Manitoba
 Pitch angled, this tower inserts in the center of the city and managed throughout the years to deminish the traffic in its surroundings by 80% and started a requalification of the area, reviving the city center; the volume is not very high, and very harmonized thanks to the not continuity of the facades.



[175] Vienna Twin Towers, 1999-2001
 M. Fuksas, Vienna
 These towers (twin only in the aspect: the heights and finishings are different) are built in the center of the city. A city that historically doesn't allow very much the insertion of skyscrapers. here why the form is simple, very close to the 60s american buildings, with minor attention to design (that usually characterizes Fukas' buildings), but whit more esthetic attention nonetheless. The glazed coating reflects the surroundings, and the relatively low height manages not to impact the context, also because the building is built in a lower ground to limit the height.



the contrary would be mad – contemporary construction industry.

A market that, anyway, isn't the same for every "product". The mere residences work on performance and position in the context, because their market is very wide and faceted, and therefore is determined by its environmental characteristic. The high-rise instead, being part of an elite, for its very nature imposes on territory, sometimes defining its conformation and so often defining its own fortune.

Here's where the high-rise sets itself apart, in terms of potential revenues: became part of the territory throughout the decades, more than structure into it, the high-rise uses its situation to raise the price and cost of functions that houses or can house. Psychology is also fundamental in the discourse: the pure human vanity that makes us search for possess or, in this case, the use of things that allow us to feel better than others. Is not only psychology; after all, any company want revenues, even if they not seem to be interested in the first place, and revenues come stronger when the company wins over its competitors.

SECTION 3

PSYCHOLOGY, URBAN AND TERRITORIAL MARKETING

Is not only estate income that keeps a tower alive, in any case. As I said, for the tower to be positively accepted by society and the context it has to bring with it economic advantages, for sure, but it has to be “emotionally acceptable”, and therefore have a strong ideal value.

Value that the high-rise, standing out against or simply giving the idea of standing out (the tower is not always the highest) solidifies in a material form. The same form that gives the possibility of narrowing and enclosing the constitutive elements in itself, and therefore shaping down the final product.

Height always fascinated man, and every city that has a tower of some sort always will have a panoramic point, to have a comprehensive view of the urban form.

Therefore is easy to see how a building which can have a privileged view or a better natural light disposal, or on any aspect that could add something to the life in any other place, will be able to count on a better value and therefore a bigger fortune.

Psychology means vanity, vanity means search for superiority: and the skyscraper can give, in the construction industry, relief to this tension. Isn't by chance that American estate dealers summarize the concept for where a building should be built with this motto: location, location, location. This repetition seems to be simple capitalistic view, but is derived from the evolution of the city and the buildings; is much more complex than what seems.

Location means that where you put a building is important. But why is it?

The first location means context.

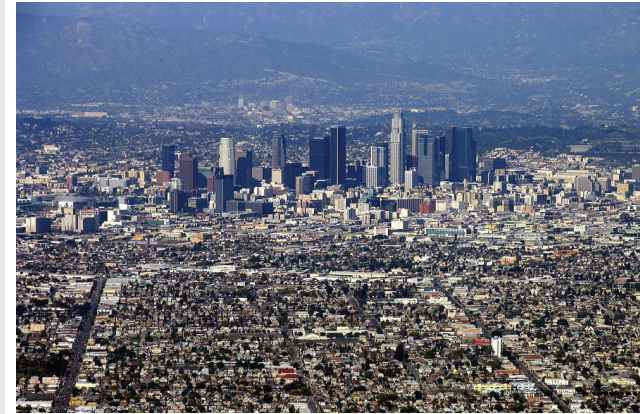
What you have around defines how much that place is worth, how many people will pass by, how many will see what is there, and how much the soil will be valued; therefore the fortune of your building is given by what you have around, by how much estate revenue you can make. But what you have around defines how much people like that place, and here's the other location: people.

People that live the city are the ones that make a place trendy or not, used or abandoned, good or bad. And for the sake of the new construction, the planner has to make the people like its work, because people are who decides for it to be functional.

Here's the final challenge: urban marketing. This is more a cause-effect loop, where you plan a building that can make revenues and be liked, therefore enhancing your chances of making profit. This also means that if more people will come, your income will grow, therefore pushing even more the context. And as we said, if a city is lived, it is alive. An alive city attracts investors, and therefore your location (physical) is even more pushed in its value.

[176] Los Angeles
View

The effect of “location location location” line of thought is very evident in the American cities. The main buildings compress in the same spot creating an “artificial hill” feeling, very common in America.



[177] San Francisco
View



[178] Chicago
View





[179] Sowthwark, 2009-2012

R. Piano, Londra

The new London Bridge Tower is the example of urban marketing that London wanted. A modern tower, to give the neighborhood and the city a new transportation hub (the new South Station) and a new nevralgic centre for urban life (that thanks to its integrated station lowened car traffic by 40% in the area). The sky terrace already paid back their own costs, and the very tower already became the symbol of London. Here's the essence of marketing (and after all is why the "archistar" exist).



[180] Porta Nuova complex, 2005-2012

Cesar Pelli, Milano

At the same way Milano wanted to renovate itself, looking forward to Expo 2015. This one, near to one of the areas of the city with the highest value, represents the will of Milan to characterise as an "european city", and to build what a city of that kind need to be competitive.

Here's the co-action: the planner has first of all the effort to choose the right area. But once he chose it, everything else is on him. He has the duty to build the best thing possible, because psychology, urban and territorial marketing step in to define the future of the context, and therefore the building itself.

Location location location therefore means a lot more than the banal potential estate revenue. At least, in the contemporary field. ^{[176][177][178]}

New York is one of the cities with the highest land value, to give a sample. This, exactly because its building image – whole city image relationship could recall enormous interest from international economy, and therefore allowed to raise without limit land prices, and to spark a loop that for every buildings raises the perception of power, recalling more and more companies, and the possibility to enhance its richness, with the location problem we said before.

At building scale, also this influences the revenues: an high-rise which could manage to address attention to itself, would reevaluate its position into the circuits it wants to join; like this, the value of the building would increase because it would be perceived as focal point, other activities could want to install inside it or nearby and therefore the inner space of the construction would become ever more wanted, making the revenue rocket up.

But urban and territorial marketing is not only building-sized, and it has its major influences when goes to infect the heath of the local market in a wider manner.

But how? Urban marketing is that thing that a city does to make up itself towards investors and circuits that wants to join, starting to build the equipment needed for a certain objective, If a city wanted to become a sports capital would build stadiums, swimming pools and sports arenas, would finance the local sports teams or try to host important sport events. And economy or psychology work in the exact same way.

The high-rise has always been a symbol, and therefore is normal that a city looks at it to promote itself. But for it to be effective, it has to be not only a skyscraper: it's not enough to have 30, 50 or 100 storey to make you visible.

It's necessary, instead, to bring with you something particular.

Height is a good catalyst only if it is extreme, if by itself represents something never seen before. But only a few places in the world would be ok with someone ruining their home just for this. The new building has therefore to present a multiplicity of particularities that could really difference it from the rest of the high-rises.

Here often comes in the usual and most intelligent answer: the integrated skyscraper.

Urban and territorial marketing – with this enlarging the discourse to territory, where the building is the city and the city becomes territory – today strongly entrust to lifestyle goodness and how an high-rise could well figure in the context.

For this reason the push towards an ever bigger integration in the urban context by the new

building is becoming more and more strong. ^{[179][180]}

A building which present indoor plazas, multi-use, rapid connection with public transport and energy efficiency would push them who work around it to renew themselves, pushing back towards it and therefore encouraging it to be always new and good, more productive and saleable, for its very catalizing effect in the first place. Diverse activities will grow around that building, making the area more alive and pumping up the local economy of that part of the city.^[181] Hopefully, minor companies or local offices will repopulate this renewed vital place, bringing with them a trail of minor investors or buyers.

In the same way, facility of connection with public transport would encourage its utilization for transfer from and to that place, making the public transport more used and profitable (pushing for an improved efficiency, then. As is happening to the new stations of New York's tube). The well-being derived from this would recall more inhabitants, and in this simple way the entire city (and the entire territory, that identifies with the city) would acquire quality, attractiveness and would work as pulling engine for the whole local economy and well-behavior. All thanks to the construction of a building in a well-thought and well-done way.

The recent trend, when it was possible to conciliate the tendency to energetic sustainability from the first 2000s with the contemporary engineering enthusiasm, is sure following this idea: in the contemporary world more and more high-rises are being built, but the race to height has stopped, nobody wants to be the tallest anymore, they just want to be good environments for their cities – especially when fund disposability is limited.

That's evident thinking that often who ask for an high-rise is no more the company, but the city government itself. The city is understanding how many benefits can have to build vertical: tallest is by no means better; taller, instead, can be.

This stop in the height race isn't only due to lack of funds, is a very profound changing in the way people perceive and think about the high-rise. Towers already pack lots of different elements, and these multiplicity is what balances and gives release valves for every request made to the building without, if the planner is any good, falling into exaggeration.

What is requested now is for an high-rise to be tall the exact amount needed to become a landmark. Not necessarily a strong one, but something that is possible to be referred to as one.

From here, the attention of the project shift towards the construction of those particular, new or specific abilities which could make the building able to complete with the ones that, instead, focus on monumentality or the iconicity of super-height.

The increase in height, then, isn't intended to be as maximal: the new buildings are taller on average, not taller than any other in the world, making the others rise and therefore defining the success of the type; this lack of height isn't a way out from the race due to lack of resources, is a real and strong shift in the conception of every aspect of the high-rise, each being equally or even more useful for the good outcome of a project.

[181] Rockefeller Center,
1930-1939
R. Hood, New York
Maybe the first example of
urban marketing, the Ro-
ckefeller Center in its eighty
years of history pulled a large
part of the city and made
it one of the parts whit the
most revenues in the world,
starting the refurbishment an
further development of the city.



114

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CHAPTER 4

BUILDING AND CITY PLANNING SUSTAINABILITY OF THE TOWER TYPE

Even if this is clearly a pro-skyscraper paper, is necessary to remember that not everyone thinks the same.

And I'm not saying only in general: even in cities where the high-rise was always been accepted easily, some changes or proposes in some parts of the city are looked at with suspect.

Many of the arguments brought against the construction are usually understandable, like exaggeration of the forms, flimsiness of the project with respect to the environment, or valid hesitation because of the excessive cost compared to what it would be reasonable.

Many others, anyway, stupidly take off from what are called not-in-my-backyard murmurings: superficial moans and brought without understanding the choices made, for the only reason of having as image of the skyscraper the ones saw in movies, therefore perceiving it as scary, monstrous and destructive of the neighborhood.

And indeed lot of the discontentment towards high-rises focuses an arguments that, depending on who's speaking, can be founded or sterile criticism:

- The impact on urban environment (visually and physically, see The Pinnacle @ Duxton, Singapore^[182]) can be negative

- Environmental conditions are inadequate

Because of this, from here on, I'll try to explain why the high-rise can be instead perfectly integrated and even improve the condition depicted now, with regard to the situation of the

[182] **The Pinnacle @ Duxton, 2005-2009**
ARC Studio + Beng, Huang, NG, Guan and RSP Architects, Singapore
Even if the building is a good example of urban design, with his *skybridges*, and its vast disposal of internal and external public spaces, the massive appearance of the towers and the close distance with the old city, negated their good effect and focused the attention of critics.





[183] Heron Quay West, progetto

R. S. Harbour, Londra

London is actually one of the most dynamic cities in the world, and the same is in architectural sense, with new projects (and very etherogenic) being accepted every now and then. With this, comprehended in a masterplan for the new Canary Warf, we see three descending towers, with three other smaller towers behind which host the offices. Everyone of these towers feature skycourts and winter gardens, and the three are connected with an intelligent system of positioning elevators.



[184] Vauxhall Sky Gardens, progetto

C. Jones, Londra

With a thin and light appearance, it inserts in the neighborhood to become its very symbol. As many other projects in the city it has skycourts, but the particularity is that there is a series of elevators totally public, which provide access for everyone to the public spots throughout the building.

specific city.

Next paragraphs will try to demonstrate how research on high-rise has to move away from the capitalisation of every centimetre of space and concentrate more on incorporating support elements to improve the quality of the built environment: spaces like these should try to create a communal sense as it would be normal if it was a groundscraper. The challenge is to do it in the third dimension.

To be synthetic: everything is on the ground (shops, parks, gardens, squares, restaurants, schools...) has to be brought in the sky.^[183]

Beyond being social, this kind of idea would make a better internal environment, improving life quality inside the building and therefore its energy consumption and sustainability in general.

In the same way, some of the equipments of the building should be taken to the ground, or even outside, with the construction of semi-private gardens and atria, to build a connection and a graduate filter system between inside and outside, refusing the separation and reinforcing a bilateral union: the outside comes in, the inside goes out.

I'll talk about it later, but it's useful to specify it: the fact of the skyscraper being too often an icon, a stand-alone, provoked many of the problems that today are opposed to its construction. Above all, the high-rise is accused to be too egocentric, too concentrated on its wellness and its performances to understand being into a consolidated web of relations between society and buildings. The sterile application of some of those filter systems can't sure be enough to solve this problem. Here comes in the reciprocity: whenever the tower considers public spaces to be part of a continuous connective web between inside and outside, then the wanted integration will be closer to achieve, mixing the building with the city and blurring the limits away.

It isn't for sure the only thing needed, but is the first step to destroy the imagine of untouchable giant that the skyscraper built for itself, to its bad, throughout the years.^[184]

All of this has repercussions on the sense of familiarity of the local society and on the very physical performances of the building: a more sustainable building as listed above, host of gardens and atria, full of functions and even skybridges (just look at the Linked Hybrid^[185], in Beijing), will be able to use these artifacts for natural ventilation, natural light, and therefore diminish energy consumption and the dependence to electronic or mechanical systems in more than what really needed.

Usually, an objection is made: a reduction of the costs by 30% on energy consumption represents the 1% of the generalized costs of the buyer.

It is true, but only a part of it, and only in the initial stages: an improvement on work conditions and sustainability make the occupants feel better, happier of their work environment,

more productive and therefore improving also the relative gains on the longer term, often drastically.

it becomes evident that the high-rise, then, is not limited (and it has not to be) to be a functional envelope, but it has to decline itself every time to give the citizen a sort of condensed urban environment inside its very perimeter.^[186]

As we already said, beyond all this, the high-rise can become, depending on the context, the top of the pride or the maximum of the shame: the architect has to make it be the first.



[185] Linked Hybrid,
2003-2009

S. Holl, Pechino

Holl's project is the only one until here that really cared about not only create spaces in height but really to put on work a functioning three-dimensional distribution system.



[186] Gangxia Deve-
lopment, progetto

TR Hamzah, Yeang, Shenzhen

This render, part of a new residential project, shows three towers connected between them with helicoidal outer routes which give every house an "outside facing" and a recall to a "neighborhood road" aspect.

SECTION 1

ESTHETICS OF DEMARCATION

As we said, then, the high-rise often isn't just a building, but more an infrastructure, a system ever more at the service of the citizen. Yet still now, regularly, appearance and propaganda win over liveability and sustainability; principally for a reason, that we already hinted: the politicization of the skyscraper.

I'll explain: a skyscraper, or an high-rise in general, has to maintain certain characters to be well developed. When one of these prevails on the others (as it is in the Burj Kalifah) usually the building becomes debatable: for someone is a magnificent work of architecture and engineering, for others is another waste of money. This happens because in these cases the skyscraper only answers to company's or political needs, which can be acceptable only by who is disposed to appreciate it (a conservative won't agree with a renewal project that, for example, proposes to demolish an old crumbling hotel. Instead will try to make it historically valuable – not necessary intervening practically – to force the city and refurbish it). Skyscrapers, specifies Richard Keating in an article for CTBUH (Council for Tall Building and Urban Habitat), are becoming "analogous to retail perfume bottles. [...] Not part of the city, only markers".^[188]

Here lays the specificity for what is defined to be aesthetic of demarcation: a type of appearance that underlines recognisability, particularity, uniqueness of the design to emphasise the concepts that the buyer wanted to link to the building.^[187]

Is not a tendency linked only to the skyscraper: in any time and everywhere buildings made to represent a certain type of power were characterized for easy-to-recognize appearances. Yet often in this kind of aesthetic was easy to find a common character to every realization connected with that certain power (churches shaped in a certain way or private palaces with a precise internal distribution); the tower simply doesn't follow. The tower isn't just "a big building" of a certain kind, it can vary the debate between every building solution.

If the buildings of dictators or political powers always put univocal immediacy at first place, varying forms with the same concept to convey, with the high-rise and the growth of economy and market thinking it has become fundamental to become unique in itself, alone inside a global discourse that made common and immutable the base characters. Is like saying that the World became the power who adopted the high-rise as its embodiment, and that inside this field lots and lots of sub-centres fight to have the supremacy over the other actors using the same tools (the skyscraper) while expressing strength, independence and superiority (as technology made possible).

[187] Grattacieli Porta Nuova

Nuova

2010-in costruzione

A. Isozaki, Z. Hadid,

D. Libeskind, Milano

These three (now only the Isozaki's one is being built) were ment to strongly cut the city and become new symbols for it during the 2015 EXPO.



[188] Aura, project

Make Architects, Pechino

This enormous building (which side should be more than 300 metres) plays on the duplicity: strong and full from a side, the other is very faceted, to resemble a mountain carved with apartments and a park on the bottom, like an hidden valley. Beautiful as it can be, a project that only cares about one side can't simply be a good project.





[189] **Torri KIO, 1993-1996**
Johnson & Burgee, Madrid
 The so called "door for Europe" use the extreme inclination as their main point. With their 20° they are two of the most inclined buildings in the world and they insert at the beginning of one of the most important roads in Madrid, il Paseo della Castellana.



[190] **Trump Tower, 1979-1983**
D. Scutt, New York
 Perfectly reflecting the ego of its multi-millionaire owner, this monolithic and reflective tower becomes the "i've been here" sign of the man. architecturally is nicely planned, whit its carved appearance moves on another level the simple square plan and indeed becomes very recognizable while symple.

It could sound simple but it is like this: often high-rises propose extreme facades or forms to answer the need of marking the territory given by an imposed want of promotion and advertisement.

But these aesthetics doesn't have to be complex; they can be very simple, working on monumentality more than wonder. Just think about Petronas Towers, Twin Towers, Shanghai Financial Center, Burj Kalifah, Sears Tower, International Commerce Centre in Shanghai (it has to be said that some of these are just touching the discourse) and I could quote many others, but all of them are characterized by a regular and rigid form, proper of their "display cabinet" role.^[189]

This, again, is the aesthetic of demarcation.

A visual system to concentrate the attention on the building, detaching it from the context to make it simple banner (Sony Building or Trump Tower^[190] are perfect examples).

From here derives why the debate on urban positivity of an high-rise is still very active and comprehends lots of positions.

But anyway an analysis on the impact of the high-rise on the city has to be done in the most objective way possible: it's evident that cities in the world would naturally look at densification, and therefore that cities built in the car era will probably welcome easily more people because built with that trend in mind and still capable of modifying, as it was for medieval cities versus villages.

Is then very important to think about the connection that these big buildings will have with the outside and which condition they could bring along to the citizens that will continue to inhabit its ground.

lots of today's building are built near traffic nodes and are well connected with the public network, but often representing stand-alone, with a facade as only filter with the outside. Once density is developed, these nodes could become squares without a precise scale, almost leftover spaces, uncomfortable and not very useful, subjected to winds created by the big block around it (it's a real problem, actually, which earned Chicago the nickname of Windy City).

Even without extreme densification, these are the problems that arise and depict an important point on the study of the building-city relationship.

Here the necessity of making the high-rise not only serviceable in the normal two dimensions but also in the third with open spaces, public elevators, public storey and skybridges, parks and other spaces, all thought to be components of a 3D Neighborhood.

SECTION 2

GROUND QUOTE IN THE HIGH-RISE

A choice like the one yet presented entails interesting problems, for a city: the danger of creating a Blade Runner-ish city on smaller scale, maybe very efficient soil-saturating, is very real; in an even worse scenario this vertical movement will produce a social failure, a world where classism and hierarchy rule uncontested, shifting from the centre-periphery system to a ground-height model (exactly as in *High Rise*, the novel from James G. Ballard).

Here's the necessity to study two-way exchange models: planners will have to explore a vision of the height that can comprehend in the widest way possible the problems of the city and the citizens, sparking from the city itself.^[192]

These new buildings, still conserving the drama of showing human capabilities, will comprehend panoramic views and public spaces, beauty, and new solution for energy use. Moving and conforming as complex grids of transit stations, collectors and energy sources, public and private environments, these buildings will naturally assume different designs.

Intentionally integrating different uses inside the structure and making the public parts really public, going beyond the usual idea of panoramic terrace or park for residents, high-rises could become more deeply a part of the perception that society has of itself.

This is another important step: the liberation from the boundaries of use of skygardens and winter plazas.

Still today plazas and gardens which are included into high-rises structures, are permitted to be used only by residents or who works there, because receptions or the very conformation of the building simply prevent the outlings to come in.

I can't repeat it more: the next frontier of the integrated project is to study ways to make effectively free the access to these infrastructures, without interfering with the internal life of the building (nobody would like to go out and find tourists eating in front of the door), and therefore creating a connecting network in the vertical direction; Once nailed this objective the tridimensional city planning would have been created, as today is starting its life: a city that develops in every direction, without perceiving a performance discrete division between the horizontal and the vertical movement (some examples can be found, as in the Marina Bay Sands^[191] in Singapore).

The future of the city lays in the buildings to become infrastructures, not only structures: the building has to become a vertical neighbourhood, a part of the city being extruded from its two-dimensionality and brought in height to create a third way of living for the citizens; in an utopian view, a like-natural environment where you could not even say if you're entering

[191] Marina Bay Sands,
2006-2011

M. Safdie, Singapore

A building which really took to the extreme the idea of taking soil in height. In an extreme try to characterise the buildings, an enormous skybridge that connects the three buildings has been built (something like 200 metres long), becoming the biggest suspended structure in the world and taking away the attention from the skyscrapers themselves, which become only pillars.



[192] Scotia Plaza,
1985-1988

WZMH Architects, Toronto
with a spectacular atrium, totally in line with the building, the idea was surely to impress the visitors but also to give the city a semi-closed and more "safe" public space.



[193] Tokyo Midtown,
2004-2007

SOM, Tokyo

This plaza, and the next atrium, give the idea of how important the connection with the ground really is. While being a pretty heavy system, in reality it welcomes people in a more enclosed space, which develops between the buildings and represents a waiting spot in one of the most dynamic part of Tokyo.

[194] Tokyo Midtown,
2004-2007

SOM, Tokyo

Particular of the atrium-covered plaza. This section of the plaza is also the most interesting, because the covering continues from the roof of the proper hall, constituting the perfect filter between square (totally public) and the hall (much more private).

a building or not.

This goal is still a long way to go. It is much real, by the way, the fact that the integration of public and private and the possibility to mix uses inside one structure^[192] bring significant advantages both economic (as we said) and social, urban and ecologic, making the high-rise a typology completely able to put itself inside an urban context to improve its perception and conformation (seen the problems had in its realization).

The improvement of urban conditions via construction of a building, then, will have to keep in count how much high-rises can be useful; but by themselves, to remain valuable, these buildings has to be planned in a way to be every time more part of a system, more than individual affirmations of a certain company politics (Tokyo Midtown, for example, wants to integrate through parks and plazas^{[193][194]} but still maintains a distance with the city with building pretty much standing by themselves).

The goal of integration, then, wouldn't be possible to be pursued only concentrating on building scale planning, but it will have to concern the urban planning, following shrinking trends. All of this will have to face a problem that at a first glance it doesn't seem important, but that becomes it in relation with the will of connecting outside and inside; the problem is that cities, from their very beginning as central place for human society (and not a s a simple aggregate of rural houses, as Gerico was at its beginning), were always been planned as buildings and roads, roads and buildings, where one defines the other and the limits were neat and clear. The very plazas and squares, weren't studied to be fillers for empty spaces, but were buildings by themselves, free spaces for a practical goal (monument).

This idea, well solidified until the last decades of the 20th century, in the last 25 years faded away, while the interconnection between vehicles, roads and buildings had become more complex.

Often the difference between one and the other led to the supremacy of one, creating medieval strongholds or industrial zones, or the spread that we said around big transport infrastructures, defining the Losangelisation.

Actually this last one is the most diffuse, with the exponential growth of personal transport and the improved welfare, and therefore it could be natural to think for it to be not that bad: after all, if a city is not very dense, there'll be lots of space for other things.

It totally isn't like that: even if existing, the most part of it are private spaces or leftovers from industries and other not useful places.

this urban conformation, so, has bad consequences: lack of virgin land and its continuous reduction, challenges for general water and air conditions (Mexico City, for example: even if strongly diffuse, it's almost unbearably polluted for its position – at the bottom of a natural basin – which creates an artificial greenhouse effect. With a denser city, that would have cre-

ated space for the wind to flow, forcing it in the centre, and therefore creating an enormous natural cooling system), disconnected social web and energy and resources waste.

The answer to this problem would be: “let’s lower private and single transport”. Practically, drop the quantity of roads. Think instead at more intelligent ways to make the citizen live the city.

Join this necessity with natural shrinking of the city and the derived need to enhance public transport and the answer to this urban problem become one: build high, inside the consolidated city, and strengthen infrastructures and environment around and inside the high-rise.^[195]

Simplifying: the city becomes denser and denser everyday and it’s impossible to look and the lonely building, because it will generate a perennial traffic congestion to go from a point to another; it’s impossible to enlarge ad libitum the roads, because the good effect of the high-rises would be frustrated; private transport has to be lowered; the public network has to be reinforced and add more and more elements which could make the city more liveable than the little suburb house; every building has to be studied in a way that it makes it change or influence the development of its little part of city, hopefully removing traffic or moving it in a more intelligent form. It has to be said that a total subversion of the city is impossible, even if one day we woke up being able to build perfect skyscrapers and exemplary public connections.

But slowly, trying to start easy and calm, intervening in different scales and different ways, we will be able to have a modification in the conception of urban development.

All this text could be summed up in a fact, that whole discloses and grows together in a simple but heavenly phrase: cities can work in a better economic, social and human way only when density and transport capacity are in perfect equilibrium. The only way we have to bring density without destroying transport, and maybe proposing new methods instead, is with the high-rise.

[195] Morello London, East Croydon Station, project-
Make Architects, London

Seeing four towers along the existing train station, it shows a residential landmark tower, that creates a vertical road and communal spaces on various levels (completely public and that can be recognized within the image as the top sides of the blocks that constitute it).

The very station will be renewed, creating a new access and a new square with pedonal connection whit the undergoing roads. London is therefore again a reference point for sustainable architecture (in any sense): recognizeability is something that always goes with easy access and comfort for users, while not forgetting environmental and energetic sustainability.



SECTION 3

FORM: PRINCIPAL DEFINITION OF SUCCESS

Which are, in the end, the paths that high-rise follows and develops?

first of all, the principal driver: ego.

It's our will to feel strong, powerful, to understand our capabilities and brag about what we could achieve.

Letting this one be the only part to grow would start the vulgar "virility race" (to be very gentle. The English call this race "mine is bigger than yours". In academic circles).

Mediated with the rest, it's useful to push us towards the idea of a skyscraper.

Secondly, the demand.

Derived from ego, it has to be specified: high-rises are built because people want them. The reasons are various, as we know, and complex, but remains that the fascination for height and engineering challenge always intrigues us. Left alone, the problem of demand would produce infinite moors of bad buildings, ugly and badly planned, built only because we like to build.

After that, we have creation of value.

Demand is always very high because the high-rise creates value: being it capital value, quality of life, prestige of society, civic or contingent values (like creating branch activities), the revenue is always high. But careful with the construction, it's important not to generalize it. A quantity of high-rises appropriate to the context works fine, exaggeration doesn't. In the same way that demand works, the result of generalized growth would be what we see today in Dubai: strips of different height high-rises (as I said, is not the number of floors, is the main distribution that defines the type), not always thought to respond to the characters they should have in the situation.

Finally, we have innovation.

The simple fact that a building to be built needs a deep study in fields sometimes not even explored challenges us to continue and research these directions, to satisfy our need to defy Mother Nature.

How, then, are we stopped most of the time from falling in these many excesses?

Fortunately, there's an aspect that wins over all others, which remains the main principle and determines all other decisions: the form.^[196]

It is true: everything that concerns building an high-rise is truly decided by how the final overall form is going to be. You can't plan a structure without thinking how is going to look at the end. In the same way, the facade is created stranding from how we want the building

[196] London Bridge Tower, "The Shard", 2000-2012
R. Piano, London

Delayed due to energy and environmental issues, the Shard manages to be the perfect symbol for the city, with his light and recognizable form.

It sums up the egoism of the tower, the high revenue, the marketing and the ecologic strength, thanks to a complex which blends unicity, harmony and flexibility.



[197] Ground Zero Re-construction, progetto di concorso 2002

D. Libeskind, New York
The first project saw a very much complex form, 1776 feet high (recall the Declaration of Independence), of which only 1000 usable and with a "vertical forest" structure to reach the goal.

[198] Ground Zero Re-construction 2006-2015

D. Libeskind, New York
The final project simplifies enormously, adding 30 storeys to the original and giving more attention (rightfully) to the use, making it economically sustainable.
With its prismatic aspect, the new One World Trade Center (and the surrounding buildings) make evident how the tower auto-regulates itself, modifying its design to make it ever more powerful.

to look like on the whole. The strategy of complex, as well as system planning, comes in only according to form, and only in the end, after considering everything, we have market observations: yes, because form is what really lasts untouched, constant, throughout the project process. Market can give its limitations, but is the overall form that has the last word.

And this is why not one high-rise, if well planned, if valid goals are set and if everything has been prepared to reach these goals, will never fall in exaggeration not even in one of those drivers. Form will keep everything at its place, absorbing everything in a well finished product. The same thing is valid on the contrary: if the form is extreme, the conjunction of all the other problems will be what will restrain it and bring it back in more reasonable limits.

To conclude, this discussion underlines something: the economic convenience of the high-rise is something very faceted and profoundly connected with every other sector of its construction.

This is why is impossible to answer to a question conforming to its specific field and why is fundamental a reasoned project: every decision, every choice is having deep repercussions on success and performance level of the whole building.

Because of this, the high-rise will continue to auto-balance: no element will prevail or be disproportionate over the others (at least from now on, knowing what to do), but every one of its parts will influence choices made for the remaining, every time creating the best solution possible.^{[197][198]}

Then, ultimately, why the high-rise is convenient for economy? Is impossible to reach the same goals with other kind of buildings or a series of smaller ones? Is not possible to avoid the many problems of the type settling for a lower height, but also a lower effort with technical and building challenges? After all, low rises can sometimes reach the same revenue levels.

The answer I will give is no.

Iconicity, flexibility and saving opportunities given by the high-rise are, as we said, so deeply bounded with its very essence, to its plan since the beginning, even its typology, that in no other way another building could match it. The high-rise born with these consideration in itself, other types can only adapt.

At least until the "another building" keeps being "another type" and doesn't acquire planning methodologies which could compete with the extremely precise and deepened ones typical of the high-rise type.

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CHAPTER 5

GROUND IN HEIGHT PUBLIC SPACE AND ITS IMPACT ON THE HIGH-RISE

The high-rise doesn't only contribute in the physical conformation of the environment. City is not only composed by static elements to characterize its dimensions, liveability and performance: mostly, city is formed by inhabitants, citizens, people that live it and make it alive, using it as common ground where to build their lives.

These citizens use the city, exploit it, use its roads, its shops, they determine its development, the fate of neighbourhoods (as social environments) and their dynamicity, viability and ultimately they morph the city at their use.

And, citizen as we are, we perfectly understand the need of having a city that can give us what we want and need.

We need our home to be reasonably served in terms of basic equipment: we need for it to be near a grocery shop, a supermarket, to have water (hot and drinkable), to have electricity, to be safe and functional. And in general we would like our environment to be able to answer the most of our needs.

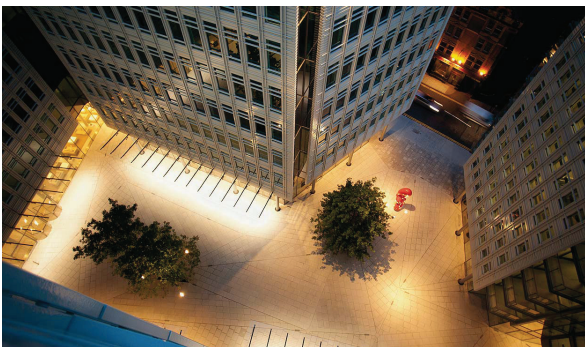
Furthermore, we want that our environment (this time intended as mere physical place) could be something the most liveable possible, and therefore healthy, differentiated, not claustrophobic, with a good air quality and with the possibility to have nice and safe public spaces, maybe even green and nicely wide, to have the possibility, whenever needed, to evade from the city and find a cushy little corner of relax: being it even a little square, hidden between



[199] High Line, 2006-2009
Corner Field, New York
 This park, extending from the 12th to the 50th road, passes through the city following the old abandoned elevated railroad track, giving it new life and gifting the city with a green strip.



[200] Central Saint Giles, 2007-2010
R. Piano, London
 Hosting offices and residences in the center of the city, the Architect wanted to build a social more than functional center, giving lots of space to the always busy public areas, and that could become a nevralgic point for the neighbourhood with its ground and roof gardens.



[201] Central Saint Giles, 2007-2010
R. Piano, London
 Comprehended between the blocks there's a little square, which with its three small accesses is much more like an oasis between the city, a cozy and quiet place in the everchanging London.

buildings, but at least welcoming and calm.^[199]

what we don't realize is that, often, our city, today, simply isn't capable of fulfilling totally these needs.

And most of all the environmental ones. Just think about it: today's cities, being them small or big, rarely have the possibility to have many little squares or parks in many areas. More often, instead, parks are big but slipped away, and the most internal spaces are only squares (usually invaded by cars, even in the so called art cities) or private gardens of fifth-sixth century palaces that we can see only through their gates.

Our only choice, usually, is to make ourselves good with the few benches of the boulevards, the inner gardens of the biggest roundabouts or the stone benches of the riversides, useless in every weather apart from "sunny". Anyway, we more and more go and search for these little places: after all, man is a social animal and therefore wants sociality, wants to stay together, even if today this still is more a situation of "being in the same spot with other people".

How's possible to conciliate this need of public space with the construction (necessary for the evolution of the city of today and tomorrow, as we want to verify) of high-density buildings?

Because the high-rise usually recalls more money than the mere landscaping, but also stated that is not possible (as a decision, not as a physical impossibility; if you close everything, as we said, is impossible to reach the necessary connection) a complete enclosure of a space, is therefore a pretty interesting move the one that thinks about bringing public and communal spaces inside and around the tower.^[200]

Explained in this way, integrating public space inside the buildings seems to be a moral duty of the planner: it obviously isn't. In reality, it's the simple awareness of the fact that inside the city is easier to build than to leave space free and open, even more with this shrinking frenzy that is happening today; the success of the internal spaces of a city is therefore given by the success of its buildings, and can be stated after analysing the high-rises, if present.^[201]

On the life-quality side, by the way, the growing wellness given by the high-rises, by themselves, is not that different from the one given by the public spaces planned beside its construction. Being these spaces plazas, squares or parks, or elements that influence human interactions and healthiness of the place in new ways (such as sky lobbies or winter gardens), their relation with the building has not to be underestimated.

The architect has not to concentrate only on the aesthetic appearance of his creation, but has to become also landscape designer and see his building as a source of users and a giver of economic wellness for its immediate neighbours.

Here's where lies the subtle line of demarcation between adding public and communal spaces as moral duty and doing it in a conscious planning: public spaces are comprehended inside the built nucleus because known and used for their advantageousness in life, economy and

because there are the perfect solution to the problem of guaranteeing social environments inside an ever-denser city; not because, instead, are simply useful to raise the economic value of the building.

The objective of all of this is to make the social speculation and thinking be a part of the project from the very beginning, to avoid underestimating or not considering any of them aspects.^[202]

If the high-rise, in fact, actually identifies as a focal point inside an urban system, is not right to simply turn around and hope that thank to its specific characters the tower could solve by magic social and communal problems that enclosure brings naturally with it.



[202] World Trade Center Masterplan, 2006
 SOM & Libeskind, New York.
 In the new masterplan for the World Trade Center the attention to green area is very easy to spot. With respect to the previous constructions, the most part of the ground is public and pedonal-oriented, with a very big transportation hub; this way the area can intersecate the modernity and singularity of the skyscraper with the community and of its ground surroundings.

SECTION 1

PUBLIC SPACES AND THE HIGH-RISE

History teaches: big buildings were always been built in particular areas, for political (roman forum or the agorà) or religious reasons, and always brought great renewal in the zone; people always regrouped around it for safety, wellness and social rank (a rich zone always attracted people).

And here's why in the contemporary city we can recognize without doubts many sub-centres and sub-peripheries inside a whole urban nucleus: every function always attracted towards itself the social net of the city, as a space-time web is deformed by the gravitational presence of a stellar object.^[204]

Anyway, if society is attracted by these vertical elements, is not negligible the necessity of being well aware and focused on the impact that they could have on the community, to make clear that integration of public spaces in the project process identifies a fundamental and unalienable need of the building. Only amalgamating public and private, closed and open, the high-rise will be able to overcome the biggest obstacle to the not-universal acceptance of its type: its egocentrism.^[203]

Condensing the discourse in one concept, his very nature of focal point in a social network that asks for attention towards the spaces that goes to occupy and (sometimes) negate. Is impossible to insert a new element in a network without connecting this element to it.

A perfect example of the urban and social boost given by a high-rise and accessories, going back in time, is the Rockefeller Center. Built into a pretty degraded zone, in its times, the scale and design of its fourteen buildings provided a strong diversity of spaces and places in the six blocks of its project. Big and safe pedestrian corridors, external and underground, spaced apart and balanced by vegetation were thought to be replicating the building in this level, creating a sort of natural extension of the elegant architectural form.

More than being suffocated in vertiginous heights and narrow spaces, pedestrians are offered with spaces with different scales of separation, forming a complex multiplicity of places giving energy to the man-building relationship.^[206]

The whole Rockefeller Centre can be saw as an experience more than a simple physical place, and so was planned to be: a complex pack of opportunities for the user, a union of services to create a human-sized neighbourhood even if exceeding its scale by far.

In the Rockefeller Center, in conclusion, with regard to social usefulness nothing was left behind (we'll not talk about building's efficiency; there wasn't the necessity of it at the time).

This is maybe the only critic possible to be thrown at such a good project: often, indeed, many

[203] Skyscrapers of New York, 1980

Life Magazine

This image is significative because shows the lots of nevralgic points in the american city, each one of which creates a center and usually empties the significance of the neighborhood, concentrating everything in itself.



[204] Quartieri di New York

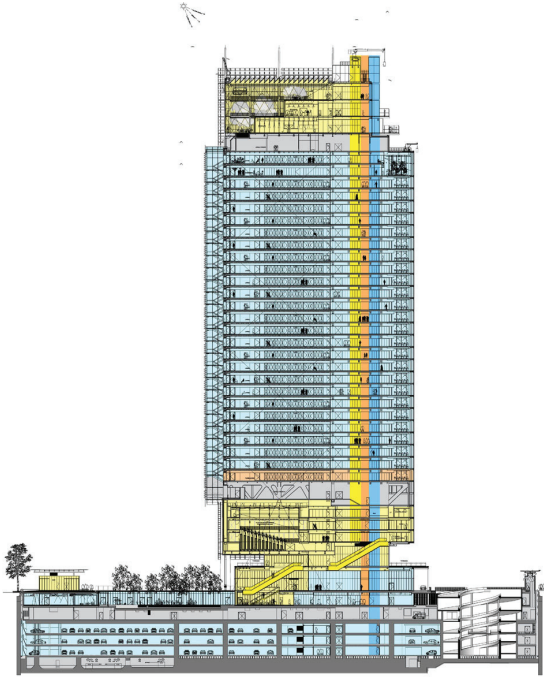
This image exemplifies even more: every part has a name and a very specific autonomous existence, often concentrated around some very particular points, or even singular buildings; the citizen could live without ever leaving its neighborhood.



[205] Torre Intesa-Sanpaolo, 2011-2013

R. Piano, Torino

Strongly criticized for its economic sustainability, offers a third of the indoor space to public areas and social gatherings, such as theatres, restaurant, public parkings, museums and obviously a roof terrace. The disposability of elevators of free use allows everyone, not only workers of the building, to use it. This kind of decision allows to unify traditional use with more social and city-oriented functions.



[206] Porta Nuova Masterplan, 2010

render per il Giornale dell'Architettura, febbraio 2011

This entire zone of Milan is renewed underlines how the realization of skyscrapers not only brings a strong impact on City and Region finances, as it is often criticized, brings also positive impacts on ecology and environment, thanks to the concentration of the built area and the liberation of ground.



of the developments of a public space, and many of its characteristics, are brought along with the spontaneous transformations operated by the users.

The example of the RC should be followed, without thinking of doing something complete and eternal: it should be contemplated the possibility of leaving spaces capable of changing, morphing with the needs of the users. Here's why, to go out the debate for a bit, it's impossible for me to think about squares with massive green areas inside, unless being these totally walkable: whenever they weren't, indeed, they'd be an un-useful space filling, wasted spaces capable only of giving room for some lonesome and poor vegetation. Exactly as happens when (as many times happened throughout history) a building imposes itself in the context without foreseeing its real connection with it. The buildings becomes a "thing" that simply occupies space just to occupy it.

It's a thought that is possible to be widespread to comprehend any built environment.

Any given building, simply inserted (as for example, the Centre Pompidou in Paris, the Guggenheim in Bilbao or even the original one in New York), will always constitute a rupture in the system, even if planned to totally solve certain problems or if its history went on to transform it into an architectural milestone (obviously without any want of contesting the absolute awesomeness of some of these buildings).

Even if well planned, a low-rise building will always struggle more entering a context without resulting a lone island: that's because of its widespread soil occupancy and its bulky mass.

On the contrary, the peculiarity of the high-rise is his capability of opening itself to the public, of proposing new spaces and places while remaining a well defined building; his relatively small soil consumption combined with the vertical façade and the big offer of spaces gives more flexibility, due to the smaller neighbourhood that has to face, which can be used to enhance the visual and economic characters of it. Character that, as we already stated, are powerful engines to power social growth and wellness.^[205] As we'll say further on then, the skyscraper is by nature the only built product that can fulfil practical and psycho-sociological functions while hardly smashing onto them.

The union between wanting to give the maximum spatial opportunities, the profound and conscientious social ethic, and the ever new technologies will be the answer to the strong social and ecologic demands of the city of tomorrow.

But, as J.G. Ballard proposed in his book "High-Rise", the creation of tall buildings can bring with it an unpleasant collateral effect: elitism. Building green paths, skybridges or winter gardens just inside or between buildings can give a medieval fortress appearance: inhabitants inside the buildings are good, outsiders are bad; or, to be even more drastic, the one that live in the top floors are better than the others "low-lings". After all is what always happened ad still happens in a city or even national scale: every city has its rival, every one of them feels

superior to its neighbours.

The risk (exaggerated, but functional to the argument) is to form a dense gated community: a real medieval citadel separated from the rest and connected only through infrastructures, with the inhabitants strongly opposing welcoming new people.^[207]

This is why is fundamentally important to connect city and building. In every possible point and form.

Therefore attractive capabilities and space offer of an high-rise has to be carefully studied by the architect, who in this case is the only responsible to the social behaving of the building: if the tower is able to propose public spaces that inhabitants want, easily reachable, if manages to comprehend in itself services and functions that usually you find scattered on ground level without detaching from it and the city, but also allowing anyone to use everyone of its parts, only then the high-rise will transform risks into opportunities, gifting the city with a vast enclosed, protected, versatile and organized environment in function of a very small impact on soul and nature.

Just for the sake of thought, we'll try to merge reality and fantasy: with a clever connection between ground level (normal dimension of humankind) and height (perennial tension), the high-rise can bring to an all new social experience and a new conception of communal space; not only an enclosed space surrounded by other enclosed spaces, but maybe open and fractured vertical infrastructure, an open space surrounded by other open space (the sky itself), inside a city. View from such a privileged point could spark a totally new perception of the urban fabric in its entirety, making it more similar to an active living being, to something pulsing like a stupendous "artificial nature" sight; most likely, this organic and naturalistic view of the city could enter so much in our perceptive habits to morph our perception of it whenever we'd walk through its streets: not anymore union (be careful: union means anyway and organic merge, not a messy congregation of different parts) of buildings, but natural succession of veins and organs, extensions of branches which would transfer the urban habitat into being a unitary, enormous public garden, source and container of thick networks of social interchange.^[208]

I reckon these to be pure speculations but this doesn't mean for the reality to be very different: truly the high-rise (just one) if lived by a lot of people, can help to change their idea on what to expect by a public space, what it should give you, and how the tower type can be the way of giving people these new wanted characteristics.

An example of this can be brought by the Tokyo Midtown complex, right in the middle of Roppongi, one of the most exclusive areas of the Japanese capital.^[209]

Modern complex situated on top of a dedicated metropolitan station, it offers 5 buildings and a park area bigger than the correspondent enclosed one. Although, nothing new under the

[207] Sears (Willis) Tower,
1970-1973

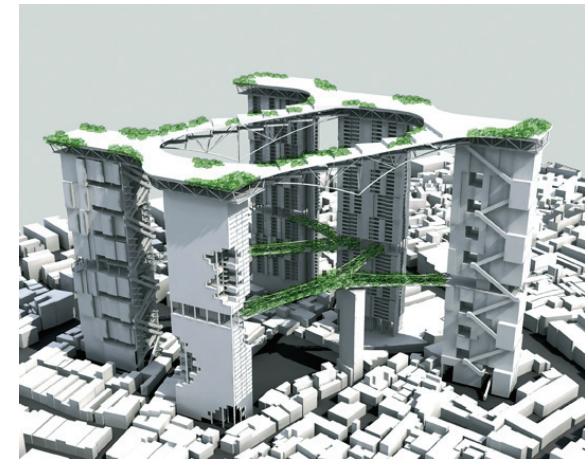
Studio SOM, Chicago

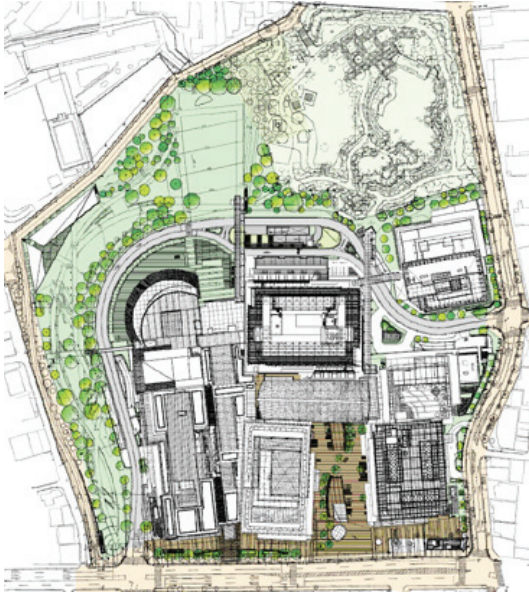
Even if it could seem out of context, a glance to the past with this has to be done, exactly for its dimension. The enormous disposability of space in it and the mixed use functionality allows who lives in the building to potentially never leave it. Thanks to the large communal functions disposability and the huge office area, some could say that it really is a sub-city in the city. This is where the true danger lies: a community closed in itself, without any contact with the exteriority, (even if, it has to be specified, this tower has strong connection with the city and its public transport system).



[208] Yatra Tower, progetto
L. Matteini e N. Hollister

An example of ground level considered as a fundamental and dublicable part of the city, that needs to be brought up for a connection (not only physical) between ground, building and the "space in the sky" .





[210] Tokyo Midtown,
2004-2007
SOM, Tokyo

Frontal view where, over the strong vertical development, its clear how the piazza and atrium are good strategic choices to bring people inside and between them (as is the Sony Center di Berlin).

sun, the parks are nicely planned but doesn't relate with the buildings: plazas, gardens, green paths are without any recall to buildings façades, for example, and doesn't change in relation to their position towards the buildings. In reality, both in plan and elevation, the site appears as two different parts, as if the towers were put inside the park and the park wasn't planned taking count of it, apart from some weak connection through bridges and roads.

It could be taken as example of bad urban planning; instead, it gives very interesting proposals: to partially heal this swerve, planners thought about a tree-lined paved plaza in the space between buildings, of which a good half is covered by a 20 metres high light steel-glass structure, with tree-like pillars branching out in metallic frond, used also as the main hall of the complex.^[210]

Planners realized the necessity of having large covered internal spaces and, at the same time, as much external. The external, though, (as the back park) were necessary but less manageable, exactly because natural. This sort of interstitial space between the pure inside and the pure outside, then, forms a fantastic compromise between these two fundamental necessities, proposing an intelligent solution for a space that works as a hall but also as garden, as private entrance but also as public space, which can be felt as own but also communal, forming a filter between extraneousness and familiarity.

What is, then the better way to connect a building with the outside? Building something "easy" and liveable in a vibrant and energetic neighbourhood. An high-rise has to be successful in the short term (and therefore bring useful services with it) there where something is already existing, where a community is already well defined; but for it to be successful also in the long term, the building has to "give back": it has to feed on its community at the beginning but then be able to return this welcoming feelings, to support the intangible needs of its users and the economy of urban network beside it.

Anyway, is not only with the exteriority and its physical connection with the city that the high-rise can enlarge social wellness: as I hinted throughout this chapter, his inner spaces are very important too.

The constant demographic growth and the necessity of building high moved the expectation towards the skyscraper on a more human level: the building isn't anymore only a symbol or the city or a representation of economic progress, it is instead an optimization of soil consumption in an environment where disposability of soil is always shrinking.^[211]

The high-rise, in the end, will remain the best and most clever choice for the construction of high-density environments; until a better solution appears (Martin and March, 1972).

From '72 until today the idea hasn't changed, even if criticism and disapproval comes from many parts towards the skyscraper: motions about high density, lack of social spaces, lack of legibility (as the difficulty or impossibility for the common person to grasp its aspects without

being internal to the project or the building environment), the destruction of health and live quality, safety and the higher maintenance difficulties are the principal causes that slowed down the diffusion of the tower type.

We'll see how, instead, spaces that the high-rise proposes could give answer to most of these critiques, starting from that communitary sense that a skyscraper has to have not to impose itself monolithically in the urban context.

[211] Millharbour Quarter,
project
Foster & Partners, Londra
Tall and slim tower, embodies
how the more the space de-
creases in disposability and
the cost of the soil increases,
the skyscraper is the only
reasonable solution.



SECTION 2

SPACE AS COMMON ENVIRONMENT

It's been decades since we understood this: the high-rise seeks balance of the space it occupies – not only on the ground but also as a tri-dimensional mass – through “skycourts” and “sky gardens”, gardens and plazas in height. A sense of communal can be therefore encouraged, because the architect gives the building open spaces just for that, and a better internal environment is created thanks to these “design goals” methodology. If a skyscraper tries to keep under control every aspect given by its presence in a place, how could in any way be bad? What is, then, this so wanted “community”, and what is a “communal space”?

It can be defined to be a group of people who live in the same place, are from the same ethnic group, or religion, or have the same job or same interests. The communal space is therefore what embodies and make clear these kind of relationship to foreigners, a place where people with similar interest could interact casually with each other being also encouraged to do this by the very environment; this is a communal space: an environment that pushes people to sociality through causal interaction or simple co-presence.

These activities, historically, has always been connected with city's spaces: squares, courts, streets and its corners always were the places of this casual interaction. We see it in many of today's roads or squares, which often have names derived from which corporations used to occupy its fronts (Merchant's place, fisher road...)

Here's why you could say that communal activity is strongly related to urban environment. The simple idea of bringing people together in a smaller space (as cities do) enhances the possibilities for them to find some others with the same ideas, and maybe even enlarge their knowing network.

The problem is that in today's city is that these spaces, until now limited on ground level, are being eroded away.

City is more and more shifting away from the “city of spaces”^[212] that was until the mid '800s (and it's easy to see it mostly in medieval cities, where houses just grow without a precise pattern, occupying volume where is possible, “filling the voids”, creating places more than destroying) and is slowly becoming a “city of objects”^[213]. In it, building's mass are less important than their equipment, and they really go to occupy every possible spot, making the city uniform and negating its communal role.

We move from a city that used its spaces to make itself recognisable, making them absorb the important characters (as medieval squares that attracted the important building around it), to the city that does it through the buildings themselves.

[212] Figure ground diagram, Rome
The “city of spaces” is perfectly exemplified by our capital which, as it's clearly evident from the image, is dense for sure but also dominated by white, open spaces that brake the continuity.



[213] Figure ground diagram, San Francisco
On the contrary the “city of objects” is represented by the american city, in which the only open spaces either are planned to be (as the squares in particular crossings) or are being represented only by the roads. Is the building that is central, not the space.





[214] Seagram Building,
1956-1958

L. Mies van der Rohe,
New York

Also in this case, in front of an architectural masterpiece, the inexperience in facing the open space and the bigger attention given to the building itself, brought anyway to a first embryo of environmental attention; the building is arretrated from the continuity of the facades, it wants to create an oasis in the strong and walls surrounding the Fifth Avenue.



[215] Bosco Verticale,
2009-2013

S. Boeri, Milano

The engineerization of the space in this project is evident: the building is wrapped with green terraces, to create a "vertical forest" (as in the name) and bring the green the nearer to the inhabitant as possible. With the intent of absorbing smog and particles, the towers wants to be ecologically sustainable but unfortunately fail due to the lack of use of their terraces, closed to the public and therefore only cosmetic, difficult to maintain, to build and to care about.

From being a simple filling of spaces between a point of the social web and the other, the building now becomes a representative node of its city, catalysing on itself all context's vitality and taking importance away from the spaces once purposed to that.

Once noticed this tension of the people to the iconic building, it's been researched, during last century, to create spaces ad hoc to be given to the community, as galleries or plazas in front of buildings (just think about the Seagram Building^[214] that, even if it was more for monumentality, had a people's-approach), giving every character that could make them really substitutive of the internal spaces of the cities.

Following this line, people can't socialize traditionally; their space would result (and is resulted to be) to be always strange and extraneous, non totally convincing, because the machine-like process would always be perceived too much, the fact that was planned from the top for that particular communal objective instead of being almost "naturally sprout".

the communal spaces, practically, is being engineered spatially and socially.^[215]

But, at least, there was the possibility to have these spaces. Often indeed developers, for economic reasons, didn't even plan these kind of environments, looking more towards the "black city", as would appear in a top-view map, with the built to prevail the open space.

And here's why in the past decades struggled to take on, as positive typology: paradoxically, tech advances brought social, environmental and psychological illnesses that only recently we're starting to face.

The addiction to conditioning systems, artificial light, disconnection with green areas, lack of diversity (environmental), the lack of a sense or a space that is really common, the lack of natural light or ventilation are all problems that high density and high-rise brought along and that, even if at the moment of construction those couldn't be predicted, are very present and must be dealt with.

But here's where community intervenes: historical communal spaces often revealed themselves to be also the better, not only in wellness and quality but in efficiency and performances, being the most useful to their area. Thinking about a garden or a little park is easy: better air quality, it's environment is literally happier, there's a lot of natural light and the general perceived environment is better.

The solution is clear, then: use social spaces, gardens and piazzas, bringing them inside not to substitute but to support a social environment that has to be planned also outside, creating a continuity of space; and use them also for their environmental (and I mean natural) characters, taking advantage of vegetation and openings for air quality inside, double walls and winter piazzas for ventilation and natural light (Commerzbank and Manitoba Hydro Place).

SECTION 3

OUTSIDE IN - INSIDE OUT

The historic ambivalence of communal space has to be retaken e used inside new buildings, creating more sustainable solution less energy consuming while in the meantime encouraging communitary feelings and rising the quality of an inner environment.

Is, definitely, the simultaneous application of physical and psychological advantages without losing sight of the connection with the city; here's why it's called "outside in – inside out": what's needed is a building which could be the main structure, the functional method to build a civic multi-level place, the skeleton of a multi-dimensional city-like environment, where gardens and plazas are not only accessories; the inside has to be pushed out and the outside has to be brought (as much as possible, not only physically but also typologically) inside. Even if it seems something utopian, it's very useful to understand which is the goal that architects and landscape designer want to achieve with new high-rises.

A "sky court" is defined to be an interstitial space that balances the figurative void of the semi-public on the inside, with the solid and private of the building itself. This means, in a few words, that gardens and inner courts are filters, a space which is not properly "a square" but that tends to brake the weight of the building, recreating the creation of gathering point where the mass of the building doesn't allow their construction on the ground. The sky court represents the mediation between these two experiences, the result of wanting to eliminate redundancies or spaces without character without intervening by building stuff or giving productive functions to those spaces (therefore "occupying" the voids). All of this is done with the objective of gifting the city with a new type of environment which could connect with other public spaces (inserting itself in the enlarged communal circuit) overcoming the boundaries of the building.

Sky court, definitely, is a space with external character brought inside to homogenize the perception of surroundings by the occupants.^[216]

Indeed their application all around the world show how the fascination and practicality of their integration in the project can enhance character or even e the main characteristic of the building.

As an example, we'll see the Newton Suites, in Singapore.^[217] This 36-storey building proposes terraces every five floors, to give nice and open spaces to residents while suggesting a sub-communal sense in the vertical neighbourhood (what I mean is that the nearest floors to these terraces would create a secondary kind of neighbourhood). The same green plan used isn't only thought for user's advantage as "green" itself, but also as brise soleil: the green is

[216] Sky Garden Tower, project

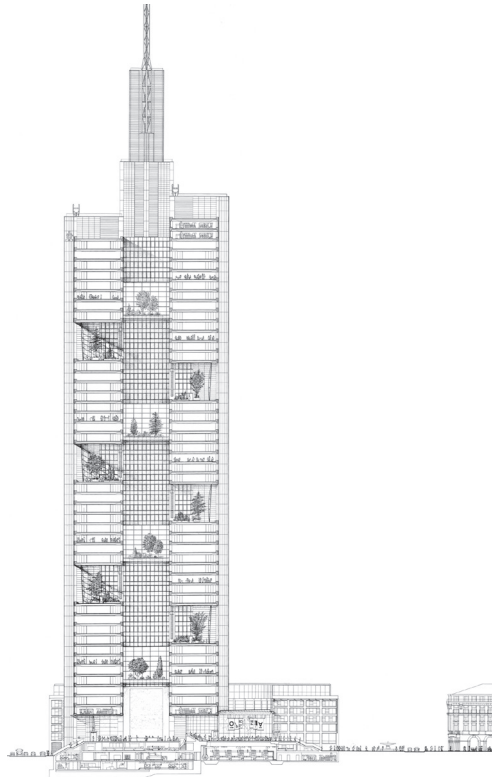
D. Libeskind, New York

In the project of a residential tower, the architect integrates a strong green presence in communal terraces that, even if subtracting space to residences and offices, gives the skyscraper of a healthy circulation system (only for residents, unfortunately), that comprehends how the integration in itself of the functions that normally would be on the ground is what to search in the skyscraper of the future, while the world is shrinking.





[217] Newton Suites,
2004-2008
WFOA Architects, Singapore



[218] Commerzbank,
1994-1997
N. Foster, Francoforte
In the drawing is easy to recognize the innovation and relative simplicity, while understanding how natural light distribution is key in the planning. Nel disegno di progetto qui presentato l'innovatività del progetto e la relativa semplicità dell'impianto sono perfettamente visibili e se ne possono cogliere i punti fondamentali immediatamente, soprattutto per quanto riguarda la distribuzione di aria e luce.

displayed in a way that block direct sunrays, therefore diminishing incidence in solar and heat gains, very important on those latitudes and therefore fundamental for internal liveability.

A parallel speech can be done with Bosco Verticale, in Milan, arguably elected “best skyscraper of the year” in 2015. The construction recalls the idea of Newton Suites with a different interpretation, coating the whole building with green terraces on every side and corner, thus creating (as the name) a vertical wood. In the same way, these terraces will give protection from the sun and at the same time create wellness derived from biophilia.

Even being a new construction, it's clear how this kind of solution is already surpassed: most of these terraces are not accessible, and maintaining already presented the check on financial perspective. In this case it was created just a very expensive coating, not a particularly vital or advantageous space inside the building (if excluded the little common atria on some floors), and neither they succeeded to create a vertical plaza.

Similar in the objectives but not in results is the always-quoted Commerzbank^[218] in Frankfurt (or Meinhattan, as it's dubbed) it develops in a triangular conformation with offices spreading from the centre, a hole going through the whole building. Sky courts (closed with big windowed panels) four storeys high and occupying the whole width of the sides climb throughout the building, rotating every time on the next façade, giving every office the possibility of a front over a garden.

The idea that brought to this decisions, over the use of environmental effects in this kind of way, is the one to create gardens which would have become new types of plazas, where you can find everything you would on the ground (groceries, restaurants, gyms, barber shops...) without having to go outside every time. As said, then, the triangular shape and the fact every office has an “external” facing (true exterior or sky court exterior) is very useful to make good use of the natural chimney effect, the sun-shading and natural ventilation, which cause a 40% saving on the total energy consumption of the building (that refers on electric need for office apparels and elevators, for the conditioning is almost natural throughout the year).

Therefore, as when the spaces between mix of function in horizontal landscapes can become recreational places, so sky courts can be in a vertical landscapes. (CTBUH, 2012) It's a perfect exemplification of what the function is, a social function, of the gardens in height: communal points, knots of that relationship web that keeps the urban tissue together and that has to be able to develop in the third dimension, now that the high-rise is becoming more and more an extruded neighbourhood.

Straight to the point goes the Shard, in London^[219], already characterizing the renewed, dynamic “European capital”.

And, about the discourse of connecting between functions, exactly midway high in the building you find a three-storey sky court, which separates offices from residential, but that at the same

time works as a communal space with bars, restaurants, exposition centres, museums and an auditorium;

practically, a focal point which could attract inhabitants, being them inhabitants, workers or tourists; the “piazza for a small city of 7000 people where has to be nice to stay” (Renzo Piano, from the presentation of its project to the public). The Shard therefore embodies the meaning of sky court: for its very function of focal and end point of circulation elements, where you can switch between local and whole-height elevators, or take a skybridge for movement in height, it reinforces even more its traditional piazza meaning, diminishing the sensation of a skyscraper as a standalone and underlining the idea of giving back soil to the ground, almost as wanting to repay the use of it (as, for example, the Marina Bay in Singapore).^[220]

Last but not least, we have to remember that sky courts can be used as simple observation decks. It may seem underwhelming, but it has to be reminded that during the first years after its completion, in a period when America was in a profound crisis and the building couldn't sell itself, The Empire State's 85th floor deck recalled 2 million visitors in a year; result even more resounding thinking that tourism wasn't yet a thing and New York had “only” 6 millions inhabitants in the '30s. That's what really kickstarted to building's success in the next decades. Anyway, this exemple gives us another point on which we could argue: privaticity of these environments.

Almost always, indeed, these sky courts either go under certain opening schedules, or are exclusive use of owners or workers, because receptions and automatic systems forbid access to not-residents.

Is therefore negated the real communal intent and is being created instead a gathering point for an elite of people that in a major scale could result in a real gated community.

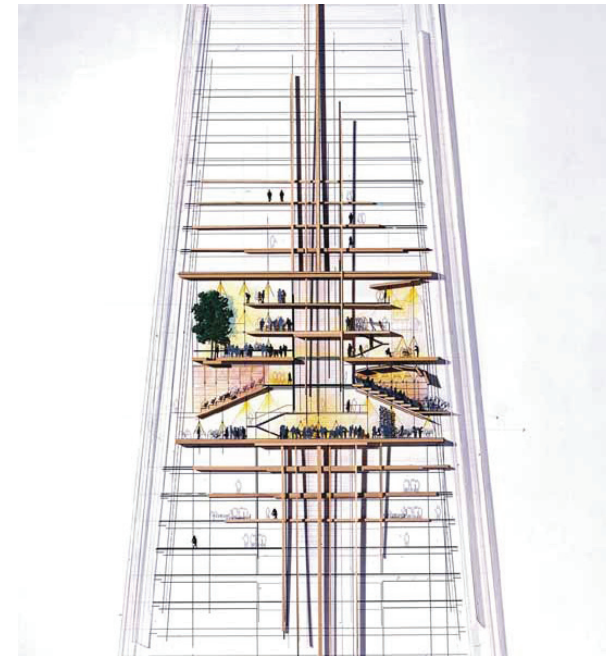
The next frontier of the social environment is then to research the civic value 24/7, eliminating the semi-private actual characteristics, always without interfering with the internal life of the building. Nobody likes tourist on its welcome mat, after all.

These kind of integrated solutions are indeed basic for the good future development of the tower inside the urban conglomerate.

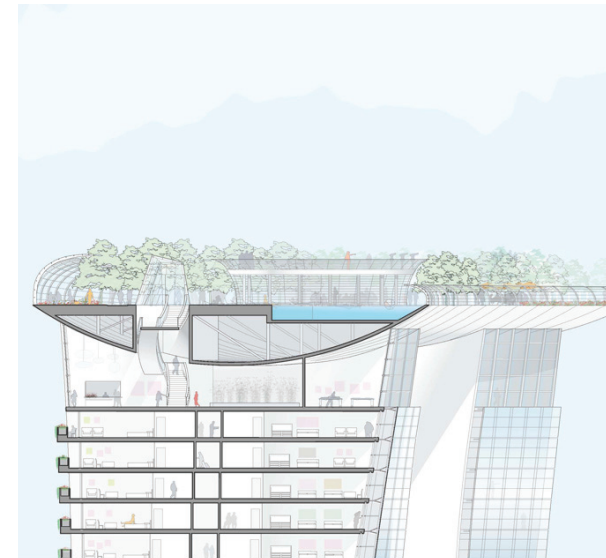
Once gifted with the freedom of movement and use, these spaces will be no more only “passing through” areas, but gatherings, objectives, finishing points and destinations of people's movement inside the city; in this way those will be able to fulfil their social value and fully embrace their role of support and extrusion for the ground-level communal system.^[221]

Looking at the future, it's optimistically possible to state that continuing to incorporating these places would boost their appreciation, their richness, their utility would be underlined and therefore the acceptance of the whole building type, building the consense and the research for ever-better performing places.

[219] London Bridge Tower,
2003-2012
R. Piano, Londra
Explaining drawing of the
skycourt and winter garden
planned for the tower, which
works as recall point and
relax area for the occupants,
that can socialize not only
outside but inside the
building.



[220] Marina Bay Sands,
2007-2010
M. Safdie, Singapore
In this section the idea is
almost calling LeCorbusier
in its idea of bringing the
functions on the top and give
back the soil to the people.



This will create a continuous densification of the urban fabric, but hopefully without determining a lowering in liveability status. On the contrary, the integration of ground and height will ever become stronger and better, more fluid and continuous, the quality of building and their sustainability will exponentially grow and it will be achieved that utopian dense and liveable city, as Le Corbusier tried to prognosticate schematically with his Plan Voisin.

It's very easy to mix up what's real and what's not, in this case; but after all, it's impossible to negate how mechanical the process is, how rational, and how widespread are the consequences of such a simple expedient, which every time becomes easier and more effortless to build and integrate, the more technology and planner's experience grow.

It could be possible to argue that facility of construction isn't always economic and technical sustainability; that's a false and superficial problem, and comes in only when the building isn't the result of a n integrated project. Technical difficulties can be overmatched when these devices are part of the plan from the beginning, and economic problems will not show if these devices are not considered "luxuries".

Skycourts, then, can be supported in their function by other environments not strictly internal but also not strictly frontal plazas, as halls. Uses since antiquity, technology of steel and glass allowed to cover big spaces without saturating the ground with columns, obtaining a substantial increase in the micro-climate underneath, and giving birth to the atrium as social station. That's why it's important not to underestimate their value: their social importance is even more high than skycourt's, because it represents the first approach you have with the building, and the first real moment when the buildings gives itself to the city. The will is to create a filter space that could be half-internal and half-external, to have a cozy graduate environment for the people to not fell a strong opposition between building and environment.

Lots of examples can be used:

The already called in game Shard purposes itself in this sense with a new suburban train station, using the pre-existing one and empowering vitality of its zone (that has become, in fact, the biggest node of transportation in the whole west London). This whole was all planned in the project and connected to urban context. The tower connects indeed in direct way: the only things to enclose the station are the glass roof which detaches as a shard in the Shard) from the building and the access gates for the platforms, mandatory for safety in any station. The rest is totally open; even the real and true hall of the building, closed just by a thin layer of glass, whose hidden joints give the sensation of a continuous uninterrupted sheet.^[222]

In this case, as it's noticeable, the true importance of the hall is the social, as through this whole chapter, more than environmental or ecologic: isn't that much the want to be a filter, but more the search for a pure, free and fluid connection with the context. The resulting plaza will be open, free from unwanted cars or superfluous gadgets (like trees, in this case): connecting

bridges and walkways will be all to the service of the slow-mover, therefore demonstrating that also trees, sometimes, can be space occupiers.

More functionally oriented are instead the halls of Burj Al Arab^[223] and Manitoba Hydro Place.^[224]

The first, that for sure searches for wonder with its height, it's at the same time important in the choice of "what to let in": it allows indeed the pass through for wind and light, never in excess, keeping out in the same time the extreme temperatures of desert, excluding rain and the marine winds.

The second, which requested even more technological study, is even more important for its building working as a thermal regulator and wind dumper; being in Winnipeg, Canada, the building is not in a favourable situation with regard to the natural energetic efficiency: thank to its atrium, instead, it's possible to have passive solar gains throughout the day thanks to the orientation, and use the strong winds for a pre-conditioned air system, lowering their strength through a double-façade and channelling them into the natural ventilation system, distributed via floor fans.

During winter, when condition are worse, these systems work in the same way to lower the impact of atmospheric agents and support the geothermic plant.

The impact on wellness for workers was so high that 90% of them modified its way to reach the building towards public transports because, and I quote a survey: "it's a nice place to stay, the trip by car is more stressful than the entire workday".

At last, it's interesting to analyse International Commerce Centre's atrium, in Hong Kong.^[225]

This particular place, derived from the will to connect water of the ocean and sky through the building, characterizes in a particular way, because its roof continues and flexes in vertical to become the façade of the skyscraper.

Doing this the atrium is not only able to guarantee that filter position we said but also allows the structure to resemble a growth from the ground, breaking it and elevating itself in height. Furthermore, this particular conformation allows the building to use and channel wind currents for internal ventilation, to continuously connect with the external piazza and to join the metro station, situated a few metres from the main building. The atrium is then a real winter plaza, and the dig to reach the metro makes the inner space even wider, bigger, more open and more welcoming, giving different levels and mixed-use activities. This atrium on its three levels (where the third is the real ground floor of the building) exemplifies what's the meaning of "filter place" that I stressed throughout this chapter, and determines even better how a public space should be integrated with the high-rise.

Union of energetic efficiency, environmental respect and socio-psychological attention, then, is what makes successful an high-rise today, more than its pure high-rising.

[221] Mode Gakuen Tower, 2006-2008

Tange Associates, Tokyo

La torre dall'estetica bizzarra ospita ogni tre piani uno sky lounge per gli studenti (la torre è una "infrastruttura educativa", come viene descritta nel sito) in cui poter socializzare, e per dare la possibilità di un luogo di riposo, in ogni momento sicuro e protetto, anche dove, a terra, sarebbe impossibile.

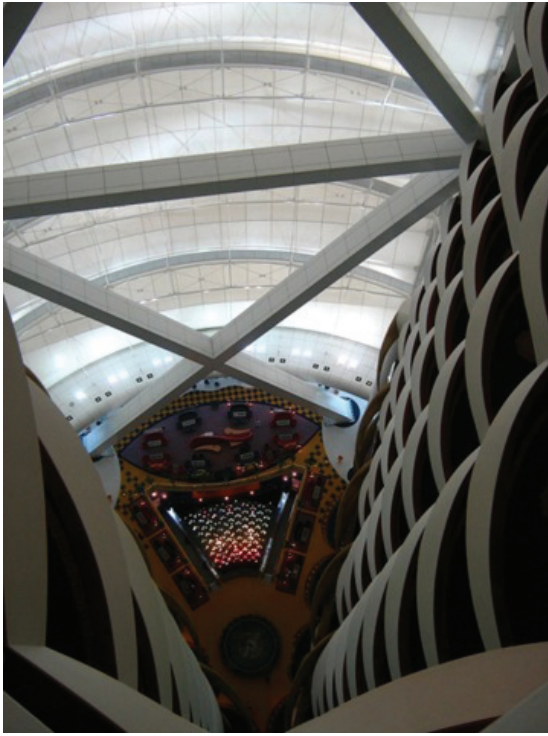


[222] London Bridge Tower, "The Shard", 2000-2012

R. Piano, Londra

Render for the competition, where the continuity of the hall and the roofing for the station is very clear; inside and outside of the tower are separated only by a moving glazed wall, which can be completely opened therefore liberating the first floors to a completely free trespassing.





[223] Burj al Arab, 1995-1999

WKK Architects, Dubai
In this ultra-avveniristic building, which rises from the sea like an enormous kite, this very kite is applied as a true covering for the atrium that runs throughout the whole height of the building. The canvas covering blocks solar rays, allows transpiration but provokes enormous thermal inefficiencies that led to a strong struggle to not modify the project.



[224] Manitoba Hydro Place, 2005-2009

KPMB Architects, Winnipeg
The main atrium, as explained, is used as a regulator for inner temperature, and allows every office to have natural light and filtered air, incredibly increasing the energetic performance and giving the workers a cozy communal space (this atrium was often used as conference hall).

Atria and gardens are useful for the built environment, for architectural wellness and for technical advantages everytime more used in any new project; the tension towards height teases the human limits and makes us proud of our city when something like an high-rise enters its network; our industrious spirit is boosted by its presence and our environmental awareness is made more strong, due to the very material effect we can immediately feel.

In conclusion, the high-rise is something capable of attracting and enhance social wellness in countless ways, and it's the possibility of it to transform and adapt itself in being an extruded part of the city, to create a true vertical mobility system, that makes it the final frontier of integration between building and context; this capability is what better counters the dangers brought by the shifting from an extended society to a denser one (which the word seems to chase), such as building rebuilding and managing the city of tomorrow.

The skyscraper is the new piazza, the new medieval tower: important for economy means important for the city, and important for the city means important for welfare and life quality in its surroundings, intended in any possible scale.

Beware: all of this is potential.

My thesis doesn't want to say that all we're doing is good. What I'm trying to report are the better examples, or the most significant ones to show how the high-rise could be the best solution for the questions asked by the society of today and tomorrow.

It's planner's duty and responsibility to work so that this potential shows and works best in any new building.

Cass Gilbert once said that "the skyscraper is a machine that makes the land pay", and that's what we absolutely have to avoid; in my vision, the skyscraper is a machine that gives the land value in the broader sense, where economic revenue is just one of the secondary drivers.

Building high is a necessity, not a fancy way of demonstrating power.



[225] International Commerce Centre , 2002-2010
KPF Associated, Hong-Kong
As already said, this building represents the new course of a neighborhood all oriented on it, and the new course of Hong Kong. Not only oriented throughout propaganda of itself or the city, the towers looks at its liveability, offering spaces (as this atrium, that connects also visually with the facade that becomes its roof) wide, open, bright and protected for visitors, workers or simple citizens. This very hall is also the entrance of a commercial centre located in a near building outside.

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CAPITOLO VI

THE NEXT FUTURE

With this thesis I wanted to demonstrate, as far as I could, the evolution of the tower buildings and its typological potential, both as building itself and as an environment element.

Lot of people think, like me, that the tower buildings have not yet completed its evolution. And also, that the current evolution is not at sufficient level, especially its sustainability and the environment that they embodies, and represent.

As I told several times, tall buildings is still too moving between an exaltation of its commercial value, with the creation of some “extrusions” for the maximum exploitation of the space, and a sculptural vision, with the attention only focused on the aesthetic effect.

All of this, has led to the definition of “isolationist” building that we have seen and see in almost all cases around the world: the creation of a pattern that works in any moment and for any situation that in many places it collides with traditions and local characteristics.

Such as Hong Kong, the skyline can certainly become iconic for the city but it doesn’t mean that it’s connected to it.

And it is also true that this kind of tall buildings is also enormously expensive in the energy field.

Certainly, many are doing their most to make it “sustainable”, but often these measurements have proved to be sustainable only for advertising goals, making little differences on the big consumption of a building like the tower ones.

It all led people to believe that tall buildings were the pure antithesis of sustainable con-



[247] Rotating Tower, 2012
approved project
D. Fisher, Dubai

The basic idea of this project is the *dynamic architecture*, a building philosophy that could allow buildings to change, throughout their life, and adapt to eventual changes in their situation. In this specific case, tower configures in a stack of 80 sections which can rotate independently, to form complex figure and turn accordingly to every light necessities of each storey.



[248] Swadeshi Tower,
render

N. Modi e H. Patel per IIT.
An example of different texture and materials with height, this tower thinks about changing from artificial to natural materials from ground to top, without renouncing to a unitary facade.

struction, which, as we have shown, is anything but true: the environmentalist vision focuses on the impact of the single building, which certainly is tall, without mention the benefits of a larger system, such as the city one or the neighborhood one, that gains in every aspect by the introduction of a tower building.

The real challenge for the future, therefore, is to have a more specific typology each time that connects to its place, physically, culturally and as a new environment.

To do this, the tall building must maximize its connection with the climate, the city, and the people who live inside it.

It's also for this reason that often the buildings, while being very performing, are declared unsustainable, and it is also why in this thesis I've told about the environmental benefits at the end: too often the discussion in this direction stops at the practical and physical advantage, energy savings or use of specific materials; it loses sight of the social and psychological value. And that means disconnecting the building from the very fundamental aspects of a city: the people.

Indeed, even if one could give not much importance to aesthetics theme, we also must not give it too little.

An ugly skyscraper, even if less expensive, certainly will provoke a rupture in the urban fabric and a dislike by the citizens, who will disavow it, making it work in the contrary way all of those social peculiarity that a skyscraper can bring.

Rather than unite, it will disperse, transforming the neighborhood into a little, sought after area, and the activities will turn away.

However, who would like to live in a city of big gray cubes?

Sustainability is also made of this.

What is clear now, is that there's still much to do to make tower building express its potential totally, in their contribution to the city, to the density, to the reduction of energy and in the essential social and community area.

That is why, in conclusion, I think it's appropriate to indulge in speculation and to theorize some principles that, in my opinion, after all that I have written, could guide the future development of the skyscraper.

1. Variations in the form
2. Variations in the scale and texture
3. New functions
4. Common areas
5. Insertion of organic "materials"
6. Skybridges
7. Three-dimensional City

1. Or more precisely, variations in shape with the height. The skyscraper shouldn't be monolithic no more, simple extrusion of a rational plant, rather, must change with the height. ^[247] It's not an idea so crazy: indeed, I have used several times the similarity of the tall building with the tree to describe its characteristics, and also here, we return to this comparison: as a tree, to fit into its place, changes, tapers, bends and branches with the height, so the skyscraper must be able to predict changes to its form, to be more and more like similar to a real vertical citizen apparatus.

The change in shape is not only for aesthetics, then: it has a social and physical value; the form should be suggested by the environment in which the building is located, by its particular conditions, and by the functions of the building itself.

The very "view" can be taken as example: every building connected itself visually with other sites through its facades. And in the same way, the views that can be enjoyed from these places, can connect the occupant to more distant parts of the city and place.

For this reason, the skyscraper must give attention to these visual connections too: his fortune will come as far as its image, and the images that it offers, will be well perceived by people.

2. The same thing determines the need to differentiate the texture, the external appearance, depending on the different zones that make up the building. Depending on their function, or on the horizons that they offer, they must be determined and highlighted. ^[248]

In practice, it is as if one thought to a building made up of many other buildings one in or inside the other, to form a big and mixed vertical district.

3. The normal approach to the definition of the destination of use of a building must be "fought": we need to change and try to overcome the conventional ideas if you want to increase the usefulness of the typology into possible sustainable cities of the future. ^[249]

It must work both on the type and on the number of typologies that can be integrated, both on their type; we know that a tower building can accommodate perfectly hotel, offices and residential: but why not think to incorporate, for example, sport functions or even agricultural functions?

It sounds like science fiction, it is true, but by now hydroponics farming are a developing reality, and we must not think to the classical fields, but rather to green facades or terraces which are used for urban garden.

Less idealistically, the mixed use can also be encouraged for the simple opportunity to increase the possibilities to establish active implants for sustainability (such as car parks, building support functions and services or, in fact, stations), as well as changes in the aesthetic pattern diversifying the urban form.

And not less important, the ecological footprint decreases also through the design of spa-

[249] Annapurna Tower,
render

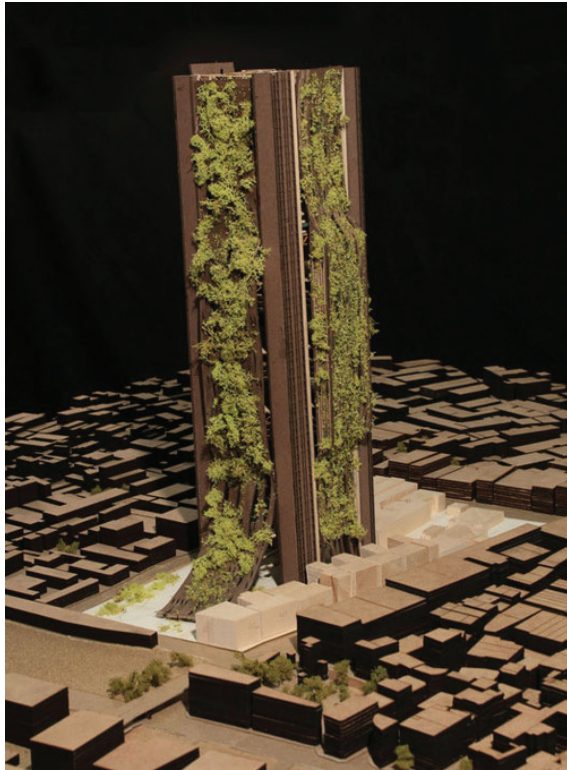
C. Duong e S.Y. Park per IIT
An example, this one, of how the planners try to challenge the common sense of the tower to enhance its usefulness. This building, together with the three residential towers, wants to define a neighbourhood with common high-level common spaces connected with agricultural aspects and mass food production.



[250] TATA Tower,
render

S. Ellesworth e J. Kim per IIT
With this render it's wanted to underline how in the new projects the insertion of public and common spaces is always increasing. Planned to be a parking-tower for Tata, it uses new technologies for energy production that can help the whole neighborhood to relieve its pressure on public energy demand.





[251] Moksha Tower, model
J. Fu, I. Lin per IIT
An example of vegetation as important part of the material choice, internally as well as externally.



[252] Velo Towers, render
Asymptote, Seoul
These towers, Queste torri, which recall rotative engines parts, played on the creation of circular or elongated masses to break the monolithic austerity of traditional towers. With these skybridges, configured like plazas in height, the towers really become a vertical neighbourhood.

ces that are able to occupy more functions, decreasing the expenditure of materials for the construction of any secondary structures or dedicated to these, placing themselves at secure from waste of space and energy.

4. Also this is necessary: you must introduce more open, public and recreational places (internal or external, simple or designed, large or small), rather than linger on trying to have the greatest economic benefits for every square meters of space. [250]

Spaces like these has proved as they improve the environmental indoor quality, which has an impact on the return of income and rents, on productivity, occupant satisfaction etc. In addition, as I've mentioned, the integration of these spaces within the buildings themselves will make the buildings more suited to accommodate those groups and communities often marginalized because of a lack of such facilities, such as children, families, senior citizens. Social sustainability, in short, to an urban scale remains one of the challenges for the future of the towers.

5. Simple as the title, it is necessary that the vegetation becomes an important part of the building, both internally and externally. [251] The presence of vegetation will increase the quality of the environment, both locally (acting also as a system for the control of air and lighting), both urban scale (social place, perceived as pleasant and attractive, but also as a real "vertical wood", by controlling air quality).

6. From the speech of the city is easy to understand: it seems a contradiction that cities continue to become more and more dense, higher, and the only way to connect its parts remain always and only the ground floor.

The flight stopovers have the potential to enrich both buildings and cities, improve (not less important) the possibility of evacuation, reduce energy consumption, allowing the vertical and horizontal moving, and therefore also becoming common, public and community areas [252] also from this we understand how the tall building by now, shouldn't be considered as a "stand-alone", an icon closed in on itself, set on a two-dimensional city, but a three-dimensional district simply extending also in height, compared to the surrounding framework.

7. If the cities are aimed to a concentration of the population in a single territory, through the constructions upward, it is necessary that they are able to replicate the equipment and the ground complexes also in height; with this, are not exclusively restaurants, bars, banks, newsagents and every kind of services, also it means the entire apparata of parks, squares and sidewalks, schools and all other civic functions. The ground floor must be regarded as an essential part of the city and duplicable too, and that needs to be duplicated when you want to build upward: as mentioned several times, not to replace the space of the ground, but only to support it.

PROJECT INTRODUCTION

After this analysis of the type, we come to the project.

What I wrote until now was thought to be leading to a very simple conclusion: the high-rise is the only reasonable solution for the city of the future.

With this I certainly don't mean that the future city will have to become a Blade Runner-like metropolis, clustered with enormous building raising to the clouds without any respect to the ground floor and their surroundings; What I mean is that space is running out. It's impossible to think about a spread city of the future, because the Earth is finite and the population is constantly increasing. It can be argued that the growth is not in the city, as I shown, but in the developing country, but it would be a false problem: if history taught us something is that the man is a social animal and is naturally brought to be together in a same, safe and comfortable place. The city is therefore the natural arrival point of the social living of the man.

Being the city natural, is obvious that the growth will slightly , if constantly, be happening in it, and the problem will be fundamental in the future. And we know that an high-city can't be the only solution, because the human being is more comfortable in a more natural environment, with open spaces and width of view and breath. Thus, the solution would be to compress the volumes while not negating the open and public face of the city.

The fact is that the high-rise, until now, never really tried (as a type) to fight its imposing figure, and really its capacity of concentrating quality space was always looked at only from the economical point of view. It is, indeed, true: the high-rise does have an imposing figure, and in the common imaginary it can't be fitted in any part of the world; only the rich, the wealthy or the egomaniacs can really think at the building as a good thing.

That's what my project is ment to contest.

In my project, indeed, the will is to show how an high-rise, if well planned, can really be a good solution for the city: if the project of the high-rise in play tries to follow the points shown in the "future past" chapter, it's not utopian to do something good. On the contrary, if planned with the common comfort as main goal, the building will be able to oversee its figure and give the city a central point without occupying every inch of free space, that can be left to the people. Until now, therefore, this would have been where everybody would've stopped and started to think at the architectural level, without caring anymore to the surrounding and the common space.

Here's instead where the open space has to merge with the architecture.

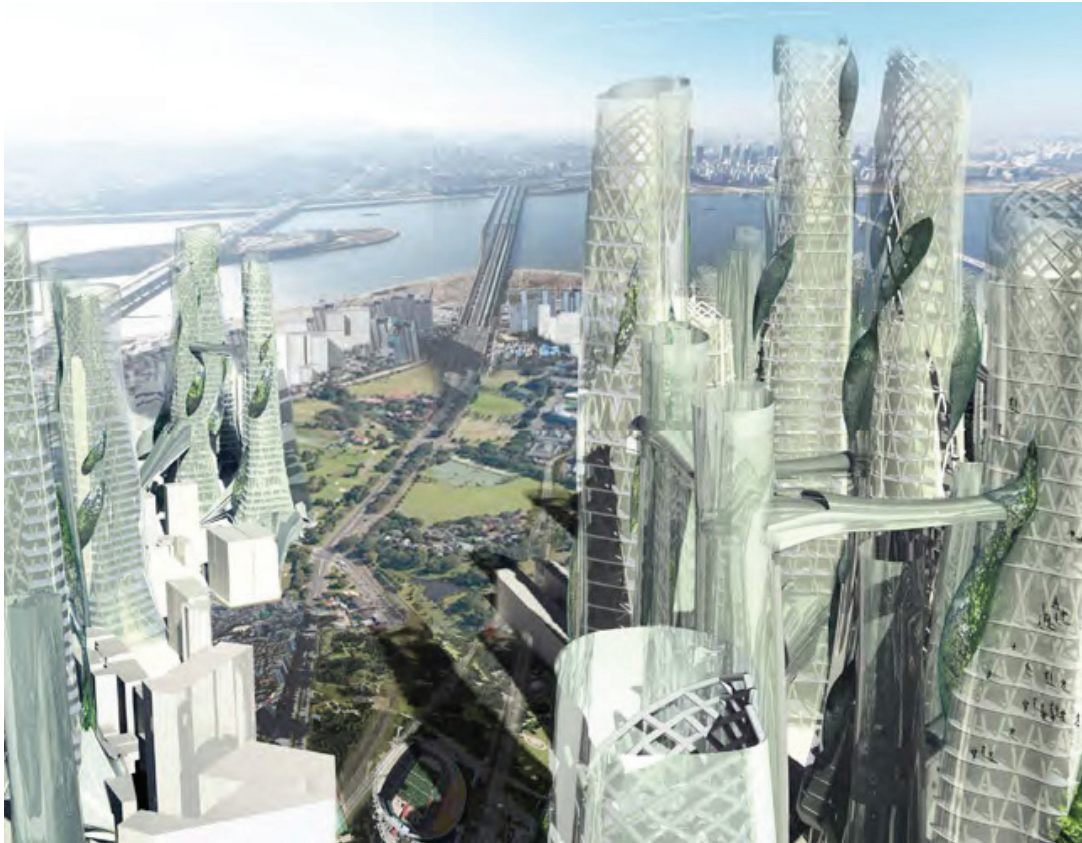
The high-rise is by nature a standalone, and the only way to counter this tendency is to bring the public space, the people outside (which therefore doesn't live into the building) towards the inside.

Why is this? Because making the inside of such a building something that can be experienced by everyone makes it much more connected with its ground floor and makes it felt like something part of its city. With this I mean in a psychological sense. If the connection outside-inside is continuous, it's being perceived no detachment between building and cityscape, allowing the building to become an extrusion in the third dimension of something usual for the citizen (as the public space is). The last problem that now arises is how to avoid the gated community of "insiders" possibly created by the excessive compression of these inside public spaces in a single point (maybe the lower part) of a building. If in fact, for example, the public is concentrated only in the bottom part, all the other storeys would be dedicated, theoretically, to other and more private activities like tertiary and residential. This would define a one-way access to this other areas, basically having no success in the integration process. The solution is to scatter these public facilities all throughout the building, maybe thinking about different access on different storeys for different functions.

The goal is to create a really heterogeneous environment where no part is too detached from the other, where the vertical extrusion is not just economic exploiting of the same ground conditions, but the composition of a complex neighbourhood developed also in height.

Making all the parts of the construction interconnected with a main skeleton of public paths that runs throughout the whole height opens its use in every hour of the day and in everyone of its parts, to everybody.

That's what it should be done and what I tried to do in my project: the building has to be planned in an urbanistic way before thinking about it architectonically; for the building to become a part of its city, it has to be planned from the beginning, in all of its parts, as if it was an artificial hill, a lot of ground space in vertical, a big area where to compose a good neighbourhood, not only like a box to be filled with functions.



[253] Succulent City, render
A. Coughlan, K. Henderson,
E. Kostyukova per CED.
In a totally organic vision of a
city, tower become founding
element of the system,
becoming its buildings, its
infrastructures, its spaces;
the buildings are become the
city itself.

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