



Places and Technologies 2015

# KEEPING UP WITH TECHNOLOGIES TO MAKE HEALTHY PLACES

Nova Gorica, Slovenia, 18.–19.6.2015

# PT2015

## BOOK OF CONFERENCE PROCEEDINGS

*A healthy city is one that is continually creating and improving those physical and social environments and expanding those community resources which enable people to mutually support each other in performing all the functions of life and developing to their maximum potential.*  
*Health Promotion Glossary (1998)*

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**Places and Technologies 2015**

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**Editors:**

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Nova Gorica, Slovenia



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## “VERTICAL” CITY

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### ABSTRACT

*High-density cities are a regular occurrence today. The growth of urban population will not stop. As the available space is a constant and population is growing and growing, the question of quality of life “in this issue” and whether it is possible to determine the (only) optimum population capacity of given space arises. Cities high population density is forced to use every inch of available land. However, the question is how the given land is to be occupied and with what architecture. One of the consequences of poor design of high-density cities is their spatial congestion. This in itself is not a fact. It is rather an interpretation of space. As a consequence it creates a sense of stress. Spatial congestion is delt with open public green spaces, whose presence positively impacts on human health. The problem is subjecting the land to a solely “green” purpose. If we look at the volume of a given area (not just the surface), the solution appears in the form of vertical designs. By which it is implied that the greenery and functions should be designed vertically.*

*The result of “bad” overpopulated city is a large number of cars. If every household owns a car, the produced negative effect is reflected through several aspects: environmental pollution, economically profitable, endangered human health. The negative effects are manifested on the principles of sustainability. We should strive to reduce the need for individual vehicles and actualization of urban public transport, especially cycling and pedestrian movement. Difficulties of realisation of this concept are the fact that these cities are characterized by large distances. Designing vertically the distance lessens, horizontally at least (examples: Singapore, Hong Kong...). “Good” high-density cities are “healthy” cities with a healthy population. Sustainability is no longer recommended, but obligations.*

**Keywords:** *density, vertical, design, health, sustainability.*

### INTRODUCTION

The fact is that currently applied concepts of life in today's cities do not lead to a healthy, "comfortable" and sustainable environment. Therefore, the new concepts



of cities are being considered, which include regrouping of zones' functions and changes in design methods.

One of the "new" ways of designing cities is the concept of "the vertical city". First of all, the given concept is based on the organization of "local facilities" vertically. The consequences of such an arrangement of functions reflect on the environmental, formal and sociological aspects.

### **ASPECT 1: ENVIRONMENT**

Traffic is an extremely important factor in any urban area. In the cities, which are organized in "today's conventional" manner, transport is a link between other urban elements. Transportation is a feature of every (larger) city. Given the importance, it is almost unimaginable to think of households without a car. Studies have shown that a user who, going to their workplace, travels 30km a day, they spend a larger amount of energy than is needed to heat his house. In context of urban planning, a significant percentage of the overall (urban) territory is occupied by roads (from 25% to 35%). Such organized cities have problems with atmospheric pollution emissions, and inadequate representation of space for movement of cyclists and pedestrians.

If we apply the concept of "vertical city", the horizontal distance is enormously reduced, and, consequently, the need for motor vehicles and the transportation of large areas dedicated to them is reduced. As the percentage of the city's traffic territory reduces, the representation of pedestrian and bicycle paths grows. The basic connection of urban elements are done vertically, and small horizontal distance can be overcome by bike or walking.

The quality of human life (and thus health), is improved by the quality of air that is not burdened with a variety of toxic gases. Also, the reduced use of cars which are replaced with walking or biking, makes individuals more active, which has a positive effect on their health. "Liberated" territories can be "filled in" by greenery, which, in all respects, improves the quality of the environment.

### **ASPECT 2: FORM**

Greater density and the endeavor to achieve an adequate quality of life in such areas leads to the designing vertically. The architectural structure that emerges is a skyscraper.

### **Example 1: NODO**

One of the examples of the concept of vertical design that are being developed is primarily aimed at Beijing (and other Chinese cities), where the question of overpopulation is a most obvious one .



Architectural office: ANDO - AndalučiaOffice



**Figure 1: Supertall Skyscraper in Beijing, China.**

(Source: <http://www.archdaily.com/255689/international-mock-firms-skyscraper-competition-proposal-ando-andalučia-office/>)



**Figure 2: Transformable unit.**

The basic idea of the concept is expressed through a unique transformable unit and a static core with vertical communication. The aforementioned units may be residential, business, commercial, public, or with any other function. Regardless of its function, the unit can be disassembled and assembled in accordance with the needs of the community.

The concept is at an early stage of development and technology is (currently) unmanageable, but it certainly shows the pursuit of this type of architectural structures.

### **Sustainability tower**

Sustainability skyscrapers such structures is often questioned. The conventional wisdom is that the towers are energy parasites that survive at the expense of others "urban ecosystems". The term "green skyscrapers" is an absolute contradiction.

### **Example 2: Singapore**

Sustainable "Vertical City" is a new concept of urban Singapore.

Architectural office: Foster & Partners



The most important theme is the sustainability of the project. Planned sustainability is achieved by using alternative energy sources. They are designed following these methods: vertical green spaces, vertical openings with thin solar strips for collecting solar energy, cuts facades are designed according to the influence of the wind, which are directed towards the ground for the sake of the cooling system for the accumulation of rainwater. This example indicates the type of a concept where the skyscraper is a completely sustainable architectural structure.



**Figure 3: South Beach, Singapore**  
(Source: [http://www.arup.com/Projects/SouthBeach\\_Singapore.aspx](http://www.arup.com/Projects/SouthBeach_Singapore.aspx)).



**Figure 4 and 5: Representation of sustainability of this skyscraper**  
(Source: [http://www.arup.com/Projects/SouthBeach\\_Singapore.aspx](http://www.arup.com/Projects/SouthBeach_Singapore.aspx)).



### **ASPECT 3: SOCIOLOGICAL**

The concept of "a vertical city" expresses a number of improvements in the context of ways of life. Primarily, improving the provision of health and financial aspects of the individual. However, significant improvements are taking place in the field of human relations, caused by the layout of facilities in these new structures.

#### **Hybrid buildings**

The neighborhood or a city is an artificial ecosystem regulated by the rules similar to the rules of natural ecosystems. The balance of the mentioned "ecosystem" is conditioned by the number of users and the necessary harmonization of their lifestyle.

The principle of "a vertical city" implies the design of architectural structures with a wide variety of functions - designing hybridly. It is necessary that every structure meets the needs of housing, employment, health, education etc. Placing all of these functions vertically in skyscrapers, horizontal space can be given to the nature and recreation. This is the principle of "functional islands".

It forms common "machinery" with "maximum" options. Each user has the ability to create their own way of life in a given structure by selecting certain options. Members gather around shared content and interaction of people from different sociological backgrounds occurs. This system enables people with various neighborhood livability, finally leading to urban and sociological diversity.

### **CONCLUSIONS**

"Vertical City" is a concept that provides a healthier environment, it creates bigger green surfaces in cities and it forms intense interpersonal relationships of diverse population. A number of people are fascinated by the given concept. They believe in the "life of vertical" and "green skyscrapers".

However, there is a group of people who do not believe that "vertical city" is a concept of the future life. A certain proportion of the total population still gravitates towards "the American dream" which means living in a house with a garage for two cars. Due to the problems of overpopulation, which appears increasingly, this kind of housing is becoming unreasonable, unsustainable and ultimately, impossible.

The concept of "a vertical city" might not be the only way of life that will free the future of nowadays problems. However, well-designed "vertical city" is a sure and viable option of living in overcrowded environment.





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