

*Between the Lines.
Overlapping sites hybrid strategies.*

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Abstract

The complexity of soils and subsoils of today's cities are facing a proliferation of surfaces belonging to the flows and the system of territorial networks. Streets, squares and public spaces in general are replaced by infrastructures, intermodal hubs, or shopping centers.

It is necessary to (re)develop an interpretive strategy for these places, giving light to the experimentation of new public spaces that are included in the infrastructure itself.

Therefore, the future land's use decisions should opt for a new idea to place the infrastructure nodes as an emblem: places linked together in a complex articulation of soil/subsoil volumes, to be transformed from spaces subjected to urban land, to spaces (dis)placed in a reciprocal relationship. Building underground spatial relationships would create new links with the spaces of the city and new points of view shortened in an unitary project of overlapping sites.

Keywords: Multi-layer city, Hybrid sites, Hubs, Nodes, Networks

1. Introduction

The history of architecture is full of examples of layered buildings, starting with Leonardo's vision of the city on multiple levels, and it is rich in numerous projects and utopias for fragments of underground cities, sometimes intended as a prosthesis, others as extensions of the surface itself. The contemporary city is becoming increasingly complex, the understanding of the places evolves and their interpretation is required for each application in architectural future. Currently it seems difficult to establish a direct relationship between building type and shape of the city and plausibly over time it will become more and more difficult to understand (Bugatti, 2010).

The "action of planning" within the interstices and marginal sites leads to the composition of a new articulated "landscape". It is a physical and virtual environment that includes defined urban cores identified by a center and a variety of urban systems defined by multiple polarities. This is the space of *interference* of new strategic points that triggers a sequential connection process. Those sequences are able to propagate the influence on an extended territorial scale (Di Franco, 2008).

The "city of the fragment" is now broken up into urban gaps without identity. The explosion of information, communication, and mobility has fragmented the contemporary city in overlapping and juxtaposed figures (sometimes disjointed and isolated), which are not able to find an identity.

The fragmentation of contemporary cities can be read as an opportunity: interstitial spaces, in-between areas, marginal sites, forgotten infrastructures, are the sites that the city offers to an action planning (Romei, 2015). One of those “actions” is planning and playing with multiple layers.

2. Methodology

Where we are and what we have

The city today is discontinuous, fragmented and dispersed, and it created urban systems that do not just stop at the "old town", but it has its roots outside the urban agglomeration at a regional scale. The town system has a variable city-density, as well as its geometry defined and constantly changing. It expands and concentrates itself, sometimes without any interruption (Bugatti, 2010).

Existing issues

- Abandoned Historic City Centers and deterioration of neighborhoods.
- Lack of public spaces and green areas.
- Non-use of existing surfaces and underground spaces, such as mezzanine floors of the subways and car parks.
- Closed level City unfavorable to communication and circulation of citizens with contemporary needs.
- Urban Sprawl

Objectives

- Promoting the (re) design of the in-between spaces, as a resolution to the problems of space, groups and society: create new places underground in the metropolis' pattern.
- Reevaluating areas in state of urban, architectural and social decay.
- Promote urban redevelopment and new sites of information and aggregation.
- Create a strategy of overlapping sites linked to (re) create a network between the city and the city to decongest it.
- Obtaining a more livable environment;
- To remedy to the lack of space in the metropolis in favor of a new way of building with less impact on the environment with the aim to cover the difference between historical and contemporary areas (border issues).
- Create connective tissues - urban multiple layers - to maintain the aspect of the contemporary city intact.

3. Keywords and tools

It is necessary to briefly introduce some keywords that may be useful to understand the application fields of this thesis.

Ground and space, have always been a big drawing board for designers. The fields of application of architectures that will later be shown are developed between space and between soil and subsoil, between sky and water. The main intent of some of the case studies chosen is to fit in unusual spaces, places in a state of decay, to foster an active urban development act to improve the social conditions of citizens. These conditions also improve the built space-saving with the increase of public spaces and green areas.

Lines, designed as outlines, are another field of application of the new hybrid and layered architectures. Lines can be understood as the interstitial spaces, borders, perimeters to existing architectures or they can simply be inserted in urban contexts.

The line can be edge, border, interface. It recalls the first step to create a space: drawing a line on the ground. The border may also be understood as a city landmark. A *diaphragm*, an area of changing in which the dense built city becomes widespread.

This diaphragm, especially in European cities, becomes a place of study and interest for this thesis' proposal. In this space of change it is possible to find the major areas of social and urban deprivation lacking in services and public utilities. In the same fragment of city, residential areas are not often full of cultural events and meeting spaces; those lacks are making these areas mere parts of a "bedroom community".

The concepts of lines and diaphragm is easily associated to the concept of *fold*. In the folds of space it is possible to find new places to build. Folding architectures are useful to build with less environmental impact.

The *layer*, or stratification is another tool of this research. By stratifying spaces, it is easy to create an almost endless web of dynamic flows of communication, people and cars. The layering leads again to saving space.

The system of *nodes and networks* is also very important. Public transport systems are well known as walkway systems, bicycle paths and service systems to the community. Systems, or networks, intertwine and overlap and are connected by an extremity that can be called *Hub*. In some cases the hubs are real infrastructures that emerge from the system. Their peculiarity is to collect on their inside multiple functions. To facilitate the understanding, they can be called even *landmarks*.

Sometimes the same infrastructure becomes new architecture. Train stations, airports, and highways can have a second life or just have other things included, independent functions in their own space. In a forward-looking perspective these *hybrid infrastructures* may be "put to the system" and knitted with all existing others, to create a real efficient network.

It can be easily said that these hubs become *attraction poles* (of people, services, etc.) on a regional scale.

4. *Directions to follow*

The complexity of soils and subsoils of today's cities are facing a proliferation of surfaces belonging to the flows and the system of territorial networks (Bugatti, 2010). Streets, squares and public spaces in general within the generic city, are replaced by infrastructures, intermodal hubs, or shopping centers (Zanni, 2012).

It is necessary to (re)develop an interpretive strategy for these places, giving light to the experimentation of new public spaces that are included in the infrastructure itself.

5. *Applied examples*

Earthscraper

The Earthscraper, designed by BNKR Arquitectura, is an up-side down Skyscraper. It preserves the big presence of the city square and the existing hierarchy of buildings and services besides that square. An inverted pyramid with a central void allows all spaces to be habitable preserving natural lighting and ventilation.

The massive hole will be covered with a glass floor to conserve ground zero's activities that take place on the city square. That also allows the life of the Earthscraper to blend with everything happening on top (Furuto, 2011).

Boston Big-Dig

The "big dig" in Boston was made with the purpose of burying part of the urban motorway network creating an underground space for cars and freeing designated areas for pedestrian use.

The project is one of the most ambitious in the world in the field of underground construction and it replaced a high percentage of urban traffic with new parks (370 hectares) and provided new spaces for the city by reducing the high levels of pollution.

Thus, the inhabitants have returned a large area of green public and social spaces with a simple architectural trick: the excavation.

Eco-City 2020

The architectural studio AB Elis Ltd designed Eco-city 2020 as a proposal for the rehabilitation of the Mirniy industrial zone in Eastern Siberia (Russia).

As found on Evolo (2010), "the project would be located inside a giant man-made crater. The idea is to create a new garden city that will be shielded from the harsh Siberian environmental conditions characterized by long and severe winters and short hot summers. The new city is planned to be divided in 3 main levels with a vertical farm, forests, residences, and recreational areas. One of the most interesting aspects of the proposal is the glass dome that will protect the city and would be covered by photovoltaic cells that will absorb enough solar energy for the new development (www.evolo.us)."

Cloud Citizen

Cloud Citizen is a proposal for a new high-rise typology. The design represents a singular gigantic building complex that aims to create a hyper dense urban center that gives back to the environment (Rawn, 2014). The entire design is by UrbanFuture Organization and CR-Design. They awarded the highest prize in the Shenzhen Bay Super City Masterplan Competition.

According to Rawn (2014) "Cloud Citizen proposes a radically different typology for this new urban center. It is a "continuous metropolis" with public spaces suspended in the air and integrated into the structure itself. The enormous scale of the structure is broken down into smaller units to create a variety of spaces to serve public, commercial, and cultural programs (<http://www.archdaily.com/549665/>)."

Each internal public space connects to a large one. That creates a vast green network for the city that starts from the ground and goes up throughout the layers of the building.

The project includes particular areas for rainwater and solar power harvesting (Rawn, 2014).

F.R.A Floating Responsive Agriculture

Forward thinking architecture gave birth to “floating responsive agriculture” method. That consist in counteracting the projected rise of food demand accompanied by the world’s increasing population.

According to Forward Thinking Architecture studio (2012), “the proposal introduces a unifying urban design strategy based on a network idea which deals with supply needs and integrates connected self-sufficiency into cities. The looping constructs will allow maximum amounts of sunlight to grow crops such as spinach, lettuce, broccoli, and cabbage all year round (<http://www.forwardthinkingarchitecture.com/F-R-A>).”

Barcelona Forum Park

The Parc del Fòrum is located on the waterfront at the northernmost end of the city. The park was built for the 2004 Universal Forum of Cultures. It is a large area which brings together a series of spaces and amenities which host a wide range of events.

This design strategy identifies an area of the discipline of composition whose most recent example in point is represented by the Forum in Barcelona, designed and built as an opportunity for a new urban stratification.

The "landscape" in this case is an integral part of the physical definition of construction: the building is not rising from the ground, but it insinuates itself into the ground. The architecture emerges, generating new levels of living space.

There is a theory of accessible urban elements: squares, esplanades for events, parks, bike paths, places for leisure and sport, places to live, meet and socialize.

City Of Culture

The City of Culture of Galicia has been designed by Peter Eisenman. It is important because of its conceptual and plastic singularity, in fact the project has been considered as a city itself.

The concept has been inspired by Compostela's old centre and by the five medieval pilgrimage routes that lead to the central cathedral. The architect transferred this grid to the mountain summit passing through the entire project site. So, the original project is formed by six buildings that are connected by streets and one central square inspired by the scallop, which is the symbol of the pilgrimage (Amery, 2011).

6. From examples to new theories

The new "overlapped" architecture is located in front of the natural landscape especially in the topography and in the transformation of the soil in which the elements of nature, water, earth, trees, etc.. become a new field of construction. Therefore it is necessary to recognize the change of identity with which we are confronted. In contemporary cities, for example, it has been long sought to re-establish a relationship with nature (Rocella, 2011).

Thanks to experiments oriented to technological innovation, it is possible to use underground spaces to build museums, hotels, research centers, laboratories and malls, bringing sunlight and ventilation as in a standard building (above the ground).

The contemporary needs of building underground are based on different reasons such as the lack of urban space and the desire of expansion of existing buildings. However, the most important thing that building underground produces is preserving the identity of the surface while hiding the structures and at the same time giving back public space (on top).

Frequently today's architectures are reduced to containers of space. Instead, it would be good to utilize different elements, even if they do not seem to fit together, and unify them into something new and unique: crossing over multiple ideas into hybrids (Rosenfield, 2014).

So, future decisions on land use should opt for a new idea to place the infrastructure nodes as an emblem: places linked together in a complex articulation of soil/subsoil volumes, to be transformed from spaces subjected to urban land, to spaces (dis)placed in a reciprocal relationship (Bugatti, 2010).

Building ground/underground spatial relationships would create new links with city spaces of the city and new points of view shortened in an unitary project of overlapping sites.

New central infrastructures (nodes) are necessary to reverse the territorial trend which distributes equipment and standards uniformly and without any hierarchy.

The structural nodes and the new networks connected to the ground by more overlapping layers, should be the result of a process that digs and inserts urban interiors and creates architectural, social hierarchies and relations between the exteriors above and below the ground level (Rocella, 2011). Nodes and networks play an important role in the development of public ground and underground spaces: they are no longer seen as unrelated areas from the dynamics of the city, but as spaces able to establish new connections with the urban and social context (Bugatti, 2010).

7. *Contemporary users*

The transition to post-industrial digital age has changed the notion of time, extending the semantic sphere to include concepts such as concurrency, overlap, expansion and contraction, and the same is true for cities.

In the era of technology and *prêt-à-porter* work (Bugatti, 2010), it's possible to do experiments on new housing models allowing hybridization of public and private spaces, between home and studio. Slowly, thanks to new technologies, we are witnessing a widening of the virtual public space, and therefore, it is natural to imagine the need for a "new living real space" (Bugatti, 2010).

The contemporary city is a complex organism, dense, multi-polar, super layered space on multiple levels which give the endless possibility of personal and virtual relationships.

8. *Strategies*

Towards a possible future

In the cities, usually, the ground floors of the buildings are occupied by public functions, the second storeys as Business / tourist levels, and levels used for living.

This principle is based on a vertical zoning that produces cities at closed levels, which tend not to communicate between them (Bugatti, 2010). The public and private sectors are governed by the properties, as indoor public spaces are for exclusive use.

According to Bugatti (2010), to reverse this trend it would be necessary to adopt open models that can promote the circulation of users, responding more directly to the needs of contemporary life.

It is necessary to design new spaces of relationship to identify the place itself and its inhabitants, regaining possession of the spaces in-between (Giacomini, 2004), giving new functions, where possible, of a public nature. In this way, you make the ground/underground part of a "system" of public place.

9. *Expected Results*

- Semblance of less built town. More social, public and green space
- Establish a true "network" of social, economic and architectural communication, in favor of a city lived in all directions and on all levels; improvement of the connections and links, to avoid car congestion
- Multilayer City to remove the effect of the ghost neighborhoods by creating areas experienced at any time of the day.
- Designing the blank spaces in the city: in-between space, borders, *terrain vague* (Metropolitan, parking, etc.).
- Encourage in a commensurate manner to social services the proliferation of commercial spaces and overcome urban congestion and the emptying of the historical centers;
- Facilitate the achievement of social and commercial areas by distributing and channeling flows to less exploited parts of the city "above and / or below" not much used to avoid the inevitable environmental and social degradation.

10. *Conclusions*

Finally, it is possible to say that what one misses most in the contemporary cities are those elements that can connect the parts, that can build a story that wanders between the buildings (Morteo, 2006), and a Multi-layer strategy can help architects and urban planners to redefine and solve those issues.

Overlapping sites hybrid strategies should opt to operate starting from the microsystem to the big scale, to link and solve issues of contemporary metropolitan living.

Lewis Mumford (2007) said that the historical city is developed horizontally; the city of the Modern tried the way of verticality; the contemporary city is multi-layered.

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