New urban contexts for architecture. Infrastructure zone as platform for new kind of public space

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Due to city fragmentation, urban growth and simultaneous demand for flexible and multifunctionally programmed buildings- there is new kind of context the architecture nowadays has to deal with in modern cities. Architecture territory spreads on sites which have never been considered before: infrastructure nodes, postindustrial brownfields, highways surroundings, underground garages and passages, bridges and viaducts, roofs and of existing buildings, rail tracks, etc. In this paper- basing on chosen realized projects and design concepts- were analyzed relations between architecture and such uncommon "aggressive" context.

Infrascape, infrastructure, modern architecture, parasitic architecture, cross-programming

I. Introduction

Nowadays there is a need for 'infinite' architecture. Buildings and structures should be in state of constant change in order to match dynamic processes happening in modern city: its fragmentation and ephemeral character, vivid cultural context, mobility and interlace of infra, urban material and landscape. Furthermore urban sprawl (Fig. 1) creates an exponential growth of continuously moving masses- housing, working and recreation are situated far apart, so everybody is continuously on the move. With the intention to deal with horizontal expansion density urban development seems to be a major policy and a central principle of growth management programs used by cities around the word. One way to create density is stacking programs, structures and volumes, still leaving necessary unbuilt voids. All this leads to creating more challenging and dense contexts for currently realized projects.

Fig.1 Typical consequences of urban sprawl

II. Public street≠public space

Mobility and high-car dependence are signs of modern life style. As a result car traffic takes over the city. Streets and many old squares which in the past were part of public realm became just necessary links to get from point A to B. Street is no more public as it's used mostly by cars instead of people. In well-known Nolli plan of Rome from 1748 private spaces such as dwellings are rendered as black solids and public spaces such as streets and squares, church interiors as white. If we would draw Nolli plan of contemporary Rome, there would be much less white voids than before- the heavy-traffic streets would have to be rendered as solid blocks. Part of public realm was taken.

III. Integration

"After the representative age with the subsequent post war concept of 'The Black Box' (Modernism, representing urban programs in clearly defined volumes) we gradually enter an era where representation fades and is going to be replaced by integration"[8].Integration of architecture with existing and already defined city core. As a result, activities have to be able to overlap and buildings must be able to adapt to different programs over time (Bernard Tschumi's cross-programming concept [6]). *"If there is to be a 'new urbanism' it will not be based on the twin fantasies of order and omnipotence; (...) it will no longer aim for stable configurations but for the creation of enabling fields that accommodate processes that refuse to be crystallized into definitive form; it will no longer be obsessed with the city but with the manipulation of infrastructure for endless intensifications and diversifications, shortcuts and redistributions- the reinvention of psychological space."*[3] Infinite architecture of contemporary city has to be integrated and deal with most concentrated, intense and dynamic contexts so far.

Fig.2 „Im Viadukt" in Zürich - 500m long urban meeting place under the arches of the railway viaduct

IV. Overlooked context

Individual building is always seen first as a part of the whole. Every building engages in a dialog with the history, beliefs and needs of a particular place and time. City fragmentation, urban growth and demand for new kind of programs incorporated into existing urban tissue makes architecture territory spread nowadays on sites which have never been considered before: infrastructure nodes, highway surroundings, bridges and viaducts (Fig. 2). On the one hand these spaces are unadapted yet and hard to deal with, on the other hand they set the interesting conditions for vivid architecture of compression and intensification. Rough and uncommercialised territories determine new challenges and strategies for cityscape. The potential urban performance of the unprogrammed spaces is gigantic and could be introduced in wide variety of projects: from small landscape concepts to large-scale developments. Many empty and unused zones can be heavily programmed in order to fill the urban material with diversity and missing integrated services leading directly to higher efficiency and lower costs.

V. Architecture takes the streets

Part of our public domain has been already overtaken by heavy traffic but it still can be given back. Even busy streets- treated as opportunity, instead of as a disaster- could become a friendly environment to accommodate new type of urban life.

Famous 'Westblaak Skatepark' and Restaurant in Rotterdam [5] (Fig.4) - already an icon of the city's cultural identity - proofs that even in the dense cities there still places for recreation or play. It was constructed on underused green area (perceived as an urban void in the central area) in the middle of the Westblaak, a major traffic artery bordering the shopping district. This central location is so effective that it guaranteed the skatepark's success and it is always crowded- both by skates and their audience, especially in summer. The development somehow compensated dramatic lack of useable green space within Rotterdam downtown district - skatepark became there an asset for reinventing the wider city in creative ways to produce joyful, lively and playful urban space.

Another project that took advantage of concrete jungle in order to create new urban quality is 'A8ernA' in Koog aan de Zaan. The new road crossing Zaanstad town produced a brutal cut in the urban tissue creating a challenging context for any kind of architectural development. Furthermore progress in traffic system has resulted here in a radical separation between the Church and the former town center. NL Architects project restored the connection between both sides by activating the space under the road. Instead of a disaster, the remarkable (because of its cathedral-like spatial quality) space under the road was considered as an opportunity. New type of urban life was accommodated there: skate bowl, soccer field, basketball pitch, parking, the covered square with the supermarket, little shops, fountain, a mini-

marina, 'panorama deck' and 'river' In an unexpected way the elevated highway offers the opportunity to reconnect the village to the source of its existence.

Fig.3 Lack of public space within the city
due to infrastructure expansion

Fig.4 "Westblaak Skatepark"
and Restaurant in Rotterdam

Fig.5 „Living Bridge" project in Hamburg Hafen City

Completely different type of project dealing with incorporating new functions into the traffic system is 'Living Bridge' concept for Hamburg Hafencity by Hadi Teherani (Fig. 5). His proposal is 'a city on the water'- 700-meter -long development in form a five-story bridge spanning over the Elbe River and including luxury

apartments, shops, parks and other businesses. There are many other similar concepts, like 'art-' and 'recreation-' bridges (all taken inspiration from their historic prototypes, f.e. 14th century market place bridge Ponte Vecchio in Florance) but 'Living Bridge' – if only will be approved from logistic and political point of view- would be the world's largest such development and could than fundamentally change the way we think about infrastructure.

VI. Reclaiming the landscape

Dramatic lack of pleasant useable greenery within dense city centers can be also solved by introducing landscaping to challenging and dense contexts, like degraded infrastructure zones. Interlace of infra, urban material and green areas leads here to reclamation of landscape.

Example here is The High Line project (Fig. 6) in New York City – design for converting the old elevated defunct rail that runs 30 feet above Manhattan to a public space. Architects have fantasized about the High Line since at least the early 1980's, when Steven Holl first completed a theoretical proposal to build a "bridge of houses" that straddled the elevated tracks (Fig. 4). Finally in 2004 Field Operations and Diller, Scofidio & Renfro has been selected to design a master plan that would transform an abandoned section of elevated freight track into a public park [1]. The first two sections the three-section High Line are now completed; the third has yet to be approved. The designed walkway includes more than 100 species of plants that were inspired by the wild seeded landscape left after the trains stopped running. The design includes several squares, sitting and focal points, a giant outdoor movie screen, visible from the street and a public swimming pool with an elevated sandy beach. It is considered as one of the most thoughtful, sensitively designed public spaces built in New York in years. On the other hand it still provides flexibility and responsiveness to the changing needs, opportunities, and desires of the dynamic context- the proposal is visibly designed to remain perpetually unfinished. "The (…) design succeeds in preserving the High Line's tough industrial character without sentimentalizing it."[4]

Introducing landscape program over the infrastructure was also the main topic of "Olympic Sculpture Park" project [2] in Seattle. The context here was a vast industrial brownfield incorporating a drop of more than forty feet from street level to the waterfront, sliced into three by active railroad tracks and an arterial road. Weiss/Manfredi Architects proposed in such context exemplary strategy of civic placemaking. The industrial brownfields context was approached here by rediscovering it and its potentials to become part of an urban landscape by suggesting additional infrastructures, uses, and public activities. The concept was a complex "artificial topography" of unfolding planes reconnecting the city with its neglected waterfront. As a result Seattle gained a "park building" fusing architecture, engineering, and landscape architecture. In terms of context, on one level, the Olympic Sculpture Park can be seen as a affirming the conflicts and tensions generated by Seattle's simultaneous development of industrial and postindustrial profiles. But on another, it creates an unprecedented urban space allowing for new encounters and interactions.

VII. Programming infrastructural nodes

The most advanced relation between architecture and infrastructure would be the development fully integrating both urban and infra layer. The blueprints of the infrastructure system and the building would evolved than simultaneously designed and tight cooperation between architects and traffic engineers would decide about the shape of the cityscape.

In 1997-1998 Monolab made an independent study called 'Infrabodies' into the programming of empty zones along heavy infrastructure. The A20 highway, which functioned as a test case, is the northern part of the Rotterdam Ring- a bundle of infrastructure. The research wasn't approached in accordance with current laws and regulations in order to reveal the potentials. There were chosen six locations in the A20 context which represented typological examples for many comparative situations in Holland. Research put emphasis on intertwining of program and infrastructure in conditions of high compression, as fusion creates new programs and performs best with flexible and variable programming. The main idea behind the concept is that nodes, embedded in existing infrastructural networks, are ideal locations to realize massive programs.
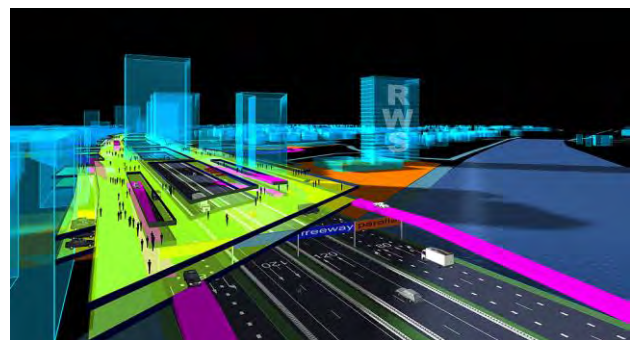

Fig.6 The High - New York City linear park built on elevated former New York Central Railroad spur

Fig.7 „A12 Long Term" Project- visualisaion of „Infra Deck Utrecht"

After that study Monolab Architects researched several similar test cases in Holland, like infrabody 'Compressor Overschie' (Fig. 8) and 'A12 Long Term' (Fig. 7) - long-term view of the highway. "These kinds of sites are difficult to develop, but they force us to learn techniques of concentration and intensification, the tools for urban planning in the nearby future"[9]. The projects proof that the urbanism is loaded with much more potential than we are using these days and that concept fusing infrastructure and urban material with existing landscape is a right way of integrating metropolitan programs. Especially in cases where the visual presence of these programs is inappropriate or not wanted.
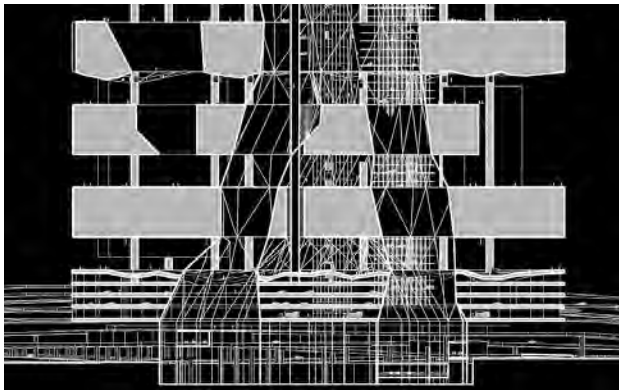

Fig.8 "Compressor Overschie" project- section. Connecting the massive conventional, horizontal traffic flows to the new, vertical, internal systems

Conclusion

Bernard Tschumi in 'Event-cities' [7], explores the relationships between spaces and events. This is apparent in the 'unclassifiable' or 'unprogrammed' space found in the gaps, margins, and in-between spaces included in many of his later projects (Kansai Airport, le Fresnoy in Tourcoingt). These are places in which an infinite number of unplanned events could take place, where life is not exhaustively determined by a functionalist architecture dedicated to the proposition that there is only one set of appropriate behaviors for a specific space. Representation is replaced by integration.

The same strategy could be used in case of exponential urbanism. Many empty and unused zones in contemporary cities can be heavily programmed in order to fill the urban tissue with diversity and missing integrated services. There is huge potential in (cross) programming these spaces as it could lead directly to higher efficiency and lower costs.

New contexts for architecture of contemporary city- apart from physical (infrastructure layer, city roofs, etc.)- are cultural and sociological conditions like dynamic and interlaced life patterns (living/working/leisure) mobile and flexible life style. Density (concentrated layouts of functions) and integration/cooperation of previously separated functions are tools to deal with all these contexts.

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