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The Post-Industrial City: New Economies, Spatial Transformations and New Landscapes

Επιμέλεια
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Περιεχόμενα

Transformations in Architecture:
Do They Outline a New Paradigm in Urban Landscaping?

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Περίληψη

Μετασχηματισμοί στην Αρχιτεκτονική: Σκιαγραφούν νέα πρότυπα αστικού τοπίου;

*Στη σύγχρονη εποχή των Η/Υ και της κοινωνίας της πληροφορίας, η προβληματική και ή έρευνα στην αρχιτεκτονική φαίνεται πως έχουν σημαντικά επηρεασθεί. Τα ηλεκτρονικά πολύ-μέσα και ο αρχιτεκτονικός σχεδιασμός μέσω Η/Υ δεν φανερώνουν μόνο ένα διαφορετικό τρόπο αναπαράστασης του χώρου αλλά πολύ περισσότερο ένα διαφορετικό τρόπο σκέψης, δημιουργίας και υλοποίησης των χώρων και των αρχιτεκτονικών μορφών. Οι νέες αντιλήψεις, τεχνικές και διαδικασίες του σχεδιασμού σπάζουν τους καθιερωμένους κώδικες της σύγχρονης αρχιτεκτονικής και εισάγουν νέους. Στο πλαίσιο αναζήτησης μιας ενιαίας αρχιτεκτονικής θεώρησης, το άρθρο αυτό παρουσιάζει σύγχρονα αρχιτεκτονικά έργα, που πρόσφατα ολοκληρώθηκαν ή βρίσκονται υπό κατασκευή, και ανατρέπουν τις καθιερωμένες μορφολογίες του αστικού τοπίου: α) την "**τοπογραφία**" –δηλ. τη σχέση ανάμεσα στο κτίριο και την τοποθεσία–, τις "**επιφάνειες**" –δηλ. την ορατή "επιδερμίδα" του κτιρίου– και τα "**υπερ-έργα**" –δηλ. τις υβριδικές μεγα-κατασκευές που αλλάζουν ριζικά τη δημόσια και την ιδιωτική ζωή στην πόλη. Όσον αφορά στην "τοπογραφία", η επιφάνεια της γης μοιάζει να μετακινείται και να επεκτείνεται σε σύνθετες καμπυλότητες μέσα από τα κτίρια. Οι σύνθετες αυτές γεωμετρίες, δανεισμένες από τις φυσικές επιστήμες, μεταλλάσουν την καθιερωμένη διάκριση μεταξύ αντικειμένου (κτιρίου) και τόπου. Όσον αφορά στις "επιφάνειες",*

η παλιά διαλεκτική ανάμεσα στα φέροντα στοιχεία και φερόμενα στοιχεία (φορτία) εγκαταλείπεται προς χάριν συνεχόμενων επιφανειών που διπλώνουν, καμπυλώνουν ή στοιβάζονται. Τέλος, τα πρόσφατα "υπερ-έργα" αντιπροσωπεύουν νέα πρότυπα για τις μητροπόλεις, απαλείφοντας την παλιά διάκριση ανάμεσα στον ιδιωτικό και το δημόσιο χώρο. Όλες αυτές οι αρχιτεκτονικές μεταμορφώσεις συμβάλλουν στην ανάδειξη νέων τύπων αστικού τοπίου.

Λέξεις κλειδιά
Ψηφιακός αρχιτεκτονικός σχεδιασμός, αρχιτεκτονική τοπογραφία της πόλης, υπερ-έργα, νέες αρχιτεκτονικές μορφές βασισμένες σε επιφάνειες, αναδιπλώσεις, ροή, εξομάλυνση.

Transformations in Architecture: Do They Outline a New Paradigm in Urban Landscaping?

*In our digital epoch and information society current thinking and research in architecture seems to be significantly transformed. The digital means and digital architecture, do not only reveal a different way of representation, but further more a different way of thinking, generating and materializing space and form. These new concepts, techniques and processes of design break the existing codes of modern architecture and introduce new ones. In search for a unifying architectural discourse, this paper examines three aspects of recent and current projects, which overturn previous morphology. Namely: **topography** -i.e. the relationship between the building and its site, **the surfaces** —i.e. the visible skin of the buildings, and **hyper-projects** —i.e. these hybrid mega structures, which mix private and public urban life. In terms of topography the surface of the earth seems to move and extend itself in complex curvatures through buildings. These complex geometries, borrowed from physics, supersede the customary distinction between object (building) and site. As far as surfaces are concerned, the old dialectics between supports and weights are abandoned for continuous surfaces that are folded, curved, or layered. Finally, recent hyper-projects form a kind of paradigm of the metropolis itself, superseding the old distinction between private and public space. These architectural metamorphoses, point to a new paradigm shift.*

Keywords
Digital architectural design, urban topography, hyper-projects, new design schemes, surfaces, skinfolds, organic, flow, smooth.

1.   **INTRODUCTION**

Contemporary cities, in the context of intercity competition to invite mobile capital and tourism try to acquire a distinctive "physiognomy" and place identity in the global urban system. In this respect "built heritage" and "innovative design of space" represent key morphological means for "branding" the urban landscape, as Beriatos and Gospodini remark (2004).

Our interest lies in the innovative design and in particular in the avant-garde architecture of today. Leafing through international architectural magazines, one gets the impression that there is no formally recognized style but simply numerous parallel and sometimes just trendy currents and movements. At the same time, the 9th International Architecture Exhibition in Venice Biennale -the major architectural event of 2004- also gave tangible and vibrant expressions of an architectural pluralism.

In terms of morphology buildings with organic forms and continuous surfaces generate surprise and delight. Even when the form is more traditional –i.e. using Euclidean geometry- one gets the impression that every ordinary or extraordinary building material can be used for facades. Building surfaces seem to become the focus of attention. As Schittich (2003) comments "*our fast moving information age which is characterized by constantly changing fashions and a host of glittering coloured images, seems to have a great impact on architecture. It is fascinating to observe the different ways in which architects respond to these stimuli. Some accept the situation and react with equally colourful screen-printed images or bold, coloured patterns on the surface of glass, or create media facades and illuminated screens. Others rediscover the virtues of traditional materials like stone, wood or exposed concrete to demonstrate the physical presence of a building in a world increasingly dominated by virtual reality*".

Of this architectural plurality one can identify two major trends, each one with different architectural innovations. The first one continues more or less the architectural tradition of modernism in terms of basic principles concerning form and space organisation, the use of Euclidean geometry and the representation of space in the Cartesian grid, and introduces innovations concerning the use of new materials, media facades, new construction methodologies, proposing smart and creative minimalist architectures of high and/or low tech. The second trend proposes a new architectural approach which breaks with all the modernistic codes, introduces new concepts of space and form organization, new morphologies, new materials, new ways of construction, new technologies. Our attention will be focused on this trend.

How are these architectures conceived? What is the source of their inspiration? Is there some unifying architectural discourse, and if so what is its distinctive character? Does it outline a new architectural paradigm?

To answer these questions three aspects of architectural design are selected to be examined because, in a clear manner, they overturn previous morphology: Topography, Surfaces and Hyper-projects. These aspects seem to be decisive parameters which define current developments in architectural design.

2.   TOPOGRAPHY

The principle of engagement between architecture and landscape has always concerned architects. Buildings have been tied to site and its larger context, even during Modernism when this relationship was questioned. The notion that a building alters the conditions of its site and that the site exercises power over the building has brought modernists and advocates of genius loci to the acceptance that both buildings and site are affected in such a way that a third condition is created.

During the 1990's numerous projects aiming at a kind of co-mingling of buildings and site in an inseparable way established new concepts of topography. These concepts range from the "bits" of computer technology to the contours of the landscape and affect not only botanical gardens, quarries, rehabilitated industrial areas of the cities, shorelines and public parks, but also museums, theatres, public markets and even private residences.

"*The surface of the earth moves and extends itself through buildings that stimulate our delight. Topology and fractal geometry are used to create more complex curvatures than those hyperbolic and elliptical forms of the Baroque, with equal lack of objective necessity or theoretical equivalence*" as Forster (2004a) notes.

Topographically conceived buildings do more than supersede the customary distinction between building (object) and site, they also reveal a different conceptualization of this relationship: the merging of building and site. Their infinite gradients and continuities suggest a new architectural paradigm. From many characteristic examples few will illustrate the above.

Eisenman (2004a) architects mark "*the shift of the new millennium away from the representation-obsessed semiotic culture of the previous century to a new tactile, plastic and mobile culture of affect*". Their project for the "Guidad de la Cultura de Galicia" in Santiago de Compostela, Spain (1999-present) represents a tactile response to a new social logic: that of genetic coding. The genetic sources of their project are the scallop shell –the symbol of Santiago- and the plan of the old city centre. "*The ancient symbol is injected over the medieval centre with its Cartesian figure/ground urbanism and placed on the*

site. The trajectories of the new pilgrimage routes merge with the initial grid and with the site's topography deforming both grid and corresponding streets and buildings, while generating completely new forms in the landscape. A powerful figure/figure urbanism is created: rather than see the project as a series of discrete buildings, the buildings are incised into the ground, thus merging architecture and topography in one landscape" *(see* Figure 1).

Paul Andrew's project for the national grand theatre in Beijing, China (2005) is another example of a tactile architecture of affect whose source of inspiration is again nature. As the architects point out: "*The project features a huge outer shell with a metallic appearance on the outside and a central glass structure shaped like a curtain. The building emerges like an island in the middle of the lake surrounded by landscaped parks. The main access to the theatre is via an underpass under the lake*" (Andrew, 2004). This building is not incised in the ground, but above and under the artificial lake made especially for it *(see* Figure 2).

Figure 1. *Peter Eisenman:*
Aerial view of the cultural city,
Santiago, Spain

Figure 2. *Paul Andrew:*
National Grand theatre of China.
Beijing. Exterior view
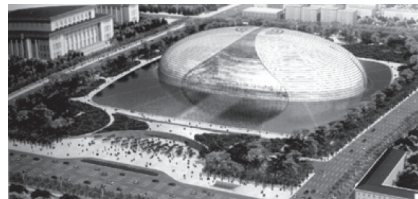
Vincent Gualland (2004) proposed an artificial mountain for a multifunctional centre in Denia, Spain (2002). The geological structure of the quarry –on the micro, medium and macro scales- as they say, guides their main choice: "*a crystalline geometry of hexagons becomes the base or the "gene" that will initiate the process of constructing the skin of the hill. A multifunctional centre with commerce, hotel and cultural activities will function under the hill. A variety of itineraries created on the surface will allow interior access from different points*". Here again a powerful figure/figure urbanism is created merging architecture and topography in the same landscape *(see* Figure 3).

The project of the atelier Jean Nouvel (2004) for the Guggenheim museum in Tokyo (2001) is inspired by the paradigm: artifice-nature, one of the bases of Japanese culture: "*This is the cult of present; the revelation of the fleeting instant; the unconsciousness of*

passing time; the emotion of the season. Nature is a positive counterpoint to the urbanization of Tokyo. The Temporary Guggenheim is a little hill, the hill of season: white-pink in the springtime, tender green for summer, flamboyant for autumn and grey as bark in winter. It shows itself as well by a large totemic mast, which turns three large lit images, slowly. It uses intrigue, mysterious and attractive, in order to become the icon of the new cultural life in Tokyo" *(see* Figure 4). In this example, artificial nature and building become one entity.

Figure 3. *Vincent Gualland:*
　　　　　Multifunctional Centre,
　　　　　Denia, Spain

Figure 4. *Jean Nouvel:*
　　　　　Guggenheim Museum,
　　　　　Tokyo, Japan

3.　　SURFACES

As Kurt Forster (2004b) points out: "*numerous recent projects and buildings are no longer based on the dialectic of support and weight but instead on continuous surfaces be they folded, curved or layered.*" Contemporary designers approach the surfaces of products and buildings like human skin in terms of complexity and ambiguity in form.

　　　As Ellen Lupton notes (2002) "*smooth exchange, flow, continuous surfaces, skin, membranes, and bubbles, signal a paradigm shift in the relationship between human and technology. The rise of digital media over the past decade has changed the practice of design, providing tools for making objects and buildings that resemble living creatures −modelled with complex curves and forms- while remaining distinctly artificial. This new organicism has taken shape most aggressively across the surface of things. The primacy of the skeleton has given way to the primacy of skin.*", which means emphasis on the complexion, the appearance of things. Surfaces are not, as we often depict them, thin membranes that enclose spaces, but have their own depth, becoming dense, complex substances equipped with their own identities and behaviours. New materials react to light, heat, touch and mechanical stress. "*Translucency and mutability have replaced transparency and permanence. The outer envelope has detached from the interior volume. Flexible*

membranes are embedded with digital and mechanical networks. Thin planes of material are folded, warped, or pumped with air to become load-bearing structures".

"*Digital technologies that were used for the design of airplanes, ships automobiles, consumer products and/or cinema animation, have been appropriated by architects to project new "bodies", new spaces, new architectures. Forms designed within the space of the computer are analogous to bodies moving in time. The area of digital technology that has a critical impact on design and architecture is the realm of NURBS-based (Non-Uniform Rational Bezier Spline) 3D modelling programs such as Alias, Catia, Rhinoceros, Pro/Engineer and Maya, which allow architects to work with complex curvatures in real time*", as Alicia Imperiale notes (2002). These programs use algorithmic formulas to allow lines and surfaces to be adjusted and recalculated continually. New surfaces are embedded and developed in relation to the existing surface while a change of scale in a part leads to the rescaling and the recalculation of the entire surface. Rather than conceiving of the form as static, the new 3d modelling software programs, allow the designer to work on the form that is constantly evolving, smoothly registering the continuously changing algorithmic parameters in 3D "topological" surfaces before the designer's eye and through the designer's intervention.

The building skin is transformed to digital skin with organic, hybrid, flow and complex characteristics. Surfaces become continuous, smooth, luminous, flexible, looking more like sculptures rather than buildings. The source of inspiration is nature and especially biology, as one can see in the NOX (2004a) Son-o-house (*see* Figure 5), and the proposal for Pusan, Korea by Xefirotarch (2004), (*see* Figure 6).

Figure 5. *NOX:*
              Son – O – House, Breugel,
               The Netherlands
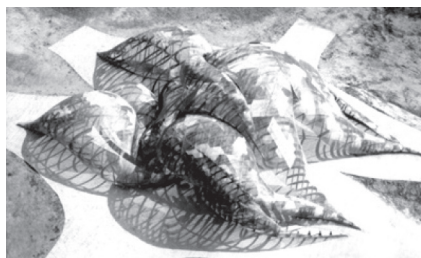
Figure 6. *XEFIROTARCH:*
              Pusan Metropolitan City, Korea
              International competition
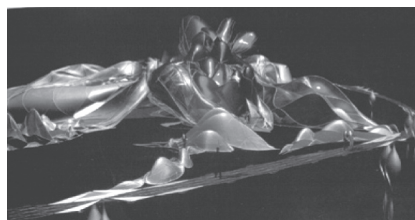
New synthetic materials with new properties are developed by methods like nanotechnology and biotechnology, to respond to the evolution of forms and new cultural demands. These materials besides reliance and plasticity move according to the requirements of the

designer and/or user, react to environmental stimuli, think and repair themselves. They function like miniature computers loaded with the relevant database.

The digital design of buildings has produced forms that can be classified as **"folds", "blobs"** and **"boxes".** However these typologies are not stable, since a fold can evolve to a blob and/or a box and vice versa. As Joseph Rosa notes (2003) "*any avant-garde movement becomes more mainstream as its aesthetic characteristics become codified and formalized into defining principals, but the digital typologies of Folds, Blobs and Boxes have distinct characteristics that render them unique*". A digital fold in architecture can be an entire building or an interior space that appears pleated like fabric or smooth with edgeless transitions between surfaces. A smooth fold creates a gentle transition and gives the appearance of a continuous surface that wraps a building or interior space.

A characteristic example of fold (entire building) is Diller's and Scoffidio's (2004) project for the Eyebeam Museum of Art and Technology (2001) *(see* Figure 7). They describe their spatial logic as follows: "*A pliable ribbon divides production from presentation. This ribbon undulates from side to side as it climbs vertically from the street. The floor becomes wall, turns into floor and so on*".

Another fold is the project of Zaha Hadid for the Centre of Contemporary Arts in Rome (2002). She describes it as "walls/ not walls". A critique of museum walls is proposed through the wall's emancipation. The "wall" becomes the versatile engine for the staging of exhibition effects. In its various guises –solid wall, projection screen, canvas, window to the city- the exhibition wall is the primary space-making device. By running extensively across the site, cursively and gesturally, the lines traverse inside and out. Urban space is coincidental with gallery space. Further deviations from the classical composition of the wall emerge as incidents where the walls become floor, or twist to become ceiling, or are voided to become a large window.

Blobs are made of subtle (pliant) curvatures resembling bubbles or drops. As Manuel Gausa (2003a) notes, the most interesting example of a class of topological geometric types that have been developed recently is the "isomorphic polysurfaces" or what the special effects and animation industry is referred to as "meta-clay," "meta-ball" or "blob" models. Their form is asymmetrical, sculptural and organic.

One of the most authentic representatives of blobs is Frank Gehry (2004). His last masterpiece for the "Walt Disney" Concert Hall, combines folds and blobs. The focus of design is the 2,265-seat main concert hall, whose interior and form are a direct expression of acoustical parameters. The wooden walls and the sail like wooden ceiling forms give one the impression of being within a great ship inside the walls of the hall. The exterior is clad

in stainless steel panels. The building's orientation, combined with the curving and folding exterior walls presents highly sculptural compositions *(see* Figure 8).

Figure 7. *Diller and Scoffidio:*
Eyebeam Museum for Art and
Technology, Competition
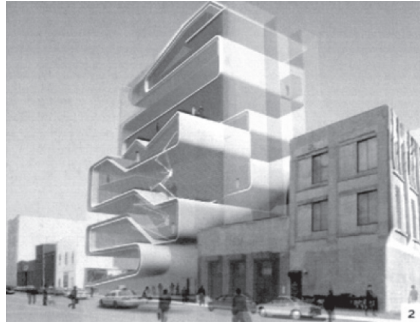
Figure 8. *Frank Gehry:*
*Walt Disney concert hall, exterior,*
Los Angeles

The first digitally produced blob was the water pavilion for Delta EXPO "Water land" 1997, made by the NOX (Lars Spuybroek and Kas Oosterhuis), (2004b) in Zeeland, the Netherlands *(see* Figure 9). The building is a wavy, elongated blob sheathed in stainless steel. "*Its architecture was developed simultaneously with a highly innovative interactive interior with electronic interaction of light, sound and projections that fully involves all the senses in the visitor's experience*".

Digital "boxes" are made by orthogonal forms, which are bent, twisted or curved. These digital manipulations enhance the architect's ability to analyze and respond to the programmatic needs of a project and design a structure that becomes integral to the site. For example, the building can be bent and twisted to take advantages of views, reflect topographic conditions, or conform to prevailing wind patterns.

A characteristic example of a digital box is the Jinling tower for Nanjing, China (2003) by Skidmore Owings and Merril (2004) *(see* Figure 10). As the architects point out "*this project seeks to create an iconic landmark that will position Nanjing among China's most prominent cities*". The tower is divided into four quadrants, which rotate 90 degrees over the height. In plan the tower begins and ends as a square, shifting to an "x" in the middle levels and as the quadrants twist, exposing more perimeter surface. This shift corresponds to the changing of uses: hotel and offices occupying the large square floor plates at the top and bottom respectively, while apartments take advantage of the separation and increased opportunities for view afforded by the x-shaped floor plates.

Figure 9. *NOX:*
Wood Expo, Zealand,
The Netherlands
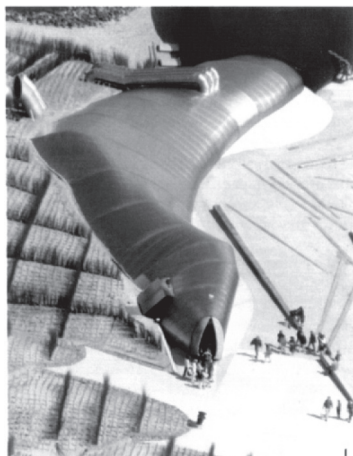
Figure 10. *Skidmore, Owings & Merrill:*
Jinling Tower,
Nanjing, China

4.   HYPER-PROJECTS

Recent projects at nodal points of the metropolis appear to draw on virtually both previous categories: they conjoin site and structural frameworks into new topographies, or when erected as high rise buildings they take forms made of smooth organic surfaces as previously mentioned. As Kurt Foster (2004c) notes, "*their characteristic hybrid of activities, spaces and publics make for experiences that periodically dilate and refocus attention inviting by calculated distraction and gratifying by both their surprises and their neutrality. They form a kind of paradigm of metropolis itself, hence their site tends to be enormous, their internal physiology staggeringly complex and their life parasitic of the city they replicate*".

Maybe the first mega-structure falling to the category of surface and hyper-project is the "Max Reinhart Haus" proposed by the Eisenman (2004b) team for Berlin (1992). This thirty-four-storey building emerges from the urban landscape as a landmark. It is a prismatic form that folds in on itself while simultaneously opening out to infinite possibilities of its urban context. Comprising a range of activities for body and mind —hotel, fitness clubs, office space, a sports and game centre, film and video auditoriums, press agencies, and restaurants it responds to contemporary demand for such media centres. This building, which originates its form from the Mobius strip, presents a unified structure that separates, compresses, transforms and then rejoins itself horizontally at the roof level.

In this way it denies the traditional dialectic of inside and outside and blurs the distinction between public and private, (*see* Figure 11).

Another famous hyper-project falling also to the category of topography is the Yokohama Port Terminal (1996-2002) (*see* Figure 12), by Foreign Office Architects, (Alejandro Zaera-Polo and Farshid Moussavi, 2003). By abandoning the typology of terminal stations they conceived their building as an extension of the surrounding urban space, which was given priority. As the architects point out, "*the building was designed as an interface between two social machines: the public urban spaces and the passengers*" *movement in the terminal*". Thus the space becomes fluid, continuous and multidirectional. The demands of the program are organised in 3D strips, which fold to create cavities for different activities. Through movement in space one gets the feeling that the relationship between the building and ground is constantly changing and their limits are blurred. The urban park on the roof enters the terminal spaces thus breaking the limits between interior and exterior. Ground and structure make an inseparable unity. To achieve this built folded form, FOA employed ship-building techniques to produce massive building sections. From conception to construction, the Yokohama Port Terminal illustrates that invention coupled with digital technology and production can result in a new architecture and in one of the most important built examples to date.

Figure 11. *Peter Eisenman:*
Max Renhart Haus,
Berlin, Germany

Figure 12. *Alejandro Zaera &Farshid Moussavi*:
Sea terminal,
Yokohama, Japan

UN Studio (Berkel and Bos, 2004) in their master plan for the station area of Arnhem, the Netherlands (1996-2007) propose a coherent plan, which comprises 80,000 m² of office space, 11,000 m² of shops, 150 housing units, a new station hall, and a parking garage for 1000 cars and 5000 bicycles. The station area forms the main entrance to the

town (*see* Figure 13). This accentuates the need for good connections to the old centre and good urban quality for the people, who work, wait, change buses or trains, meet and shop daily. As the architects note, "*the Arnhem transfer zone focuses on finding overlapping areas of shared parameters and common values. The shared element is pedestrian movement, which concerns every party involved in the redevelopment of the location. Movement studies are therefore the cornerstone of the proposal*". This study was possible because of the algorithmic software that the team developed. The main visual attraction of the Arnhem Central is the Terminal Hall which rises, bends and folds onto itself to create an event space that is experienced by almost everyone who traverses this complex. To generate this digitally feasible form the architects used the analogy of the "Klein bottle" diagram to conceptually integrate the multiple conditions that fold through the public space, generating one singular form for Terminal Hall.

Usually museums are considered to be well guarded, close places which open to the public for certain hours during the day and sometimes certain days during the week. Nevertheless, as we have already seen in the proposal of Zaha Hadid for the "Centre of Contemporary Arts" in Rome, the urban space is coincidental with the gallery space. The same applies for the "Musee de Confluences" by Coop Himmelblau (2004) in Lyon, France (2001-2007). The architects present their project as follows: "*Mutations of form, penetrations, deformations, simultaneities, breakdowns and variability have an effect on architecture. The resulting architecture is characterised by the interactions, the fusion and mutation of different entities constituting a new shape. This museum provides access to the knowledge of our age. Stimulating a direct and active use, it is not a museum site but also a venue in town. The architecture hybridises the typology of a museum with the typology of an urban leisure space. As an extension of the park located on the southern top of the island a new urban space formulates itself; a landscape consisting of ramps and surfaces merging the inside and the outside in a dynamic sequence of spatial events*" (*see* Figure 14).

Figure 13. *UN Studio:*
Station Area Arnhem,
The Netherlands
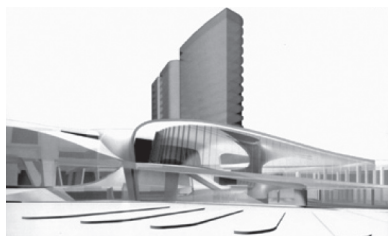
Figure 14. *Coop Himmelblau:*
Musee des Confluences,
Lyons, France

5. CONCLUSION

The examination of topography, surfaces and the complexity of hyper-structures of recent architectural projects, buildings and urban landscapes illustrates a new conceptualisation of space, form and order and a new architectural discourse that overturns the existing codes of modern architecture.

In cultural terms, as Alicia Imperiale notes (2002) "*There has been a movement away from dialectic relationships, from the opposition between surface and depth, in favour of an awareness of the oscillating movement from one into the other*". Merging "figure-figure" topographies, folding between exterior and interior surfaces, hybrid multi-functional hyper-projects signal a paradigm shift from previous architectural language.

The impressive global dispersion –as presented in the 9th International Architecture Exhibition of Venice Biennale- of implemented architectural projects that strained to be labelled as "liquid", "merging", "folding", or any other architectural manifestation of "hyperspace" points to the fact that digital topographies are not a reflexive matter, a play of words concerning only the academia or the architectural press, as Lois Papadopoulos (2005) notes. It seams that this plurality of outcomes has already constituted a new architectural paradigm, which in sort time acquired a significant share of the built universe.

The passing over from the "deconstructive" thought of Jacque Derrida to the "differentiated" thought of Gilles Deleuze, transformed previous concepts of space and time. Architects have appropriated many terms and concepts from Deleuze's (2003) work "The Fold": *affiliation, smooth and striated space, folding and pliancy*. The incorporation of these terms, which Deleuze developed to describe baroque aesthetics and thought, into architectural practice has led to significant changes in how buildings are thought of in relation to the environment. The Deleuzean thought has promoted smoother transitions and interactive exchanges across surfaces through serendipitous, temporary links that exist within buildings and sites. The fold is ambiguous, being figure and non-figure, somehow formless.

On the other hand, the design of smooth form has been facilitated by 3D modelling software. From this point of view, the use of digital technologies had a liberating effect on architectural form. Organic architectures that register the infinite variations and mutations from their evolutionary growth can be turned to buildings. As Alicia Imperiale remarks (2002), "*these sinuous curvatures and warped surfaces wrap around the inhabitants like a second skin. The elision between the inhabitant and the architecture, between the object and the user, the landscape and the building is symptomatic of our time*".

Either as form or as process the **fold** is the unifying main characteristic of the new architectural discourse. This new design strategic takes its distance from the Euclidean

geometry and the distinct volumes of modern architecture and uses the topological perception of form with continuous curvatures as its ultimate expression.

As a result the old dichotomising divisions which, for long years, were paradigms of our ideological and disciplinary baggage: interior/exterior, solid/void, building/site, figure/ground, support/weight, natural/artificial, public/private, order/chaos, determinate/indeterminate, formal/informal, particular/general, open/closed, etc are abandoned and replaced by fusions, mixed actions, and principles associated with the capacity for hybridisation and transfusion. "These fusions of former dichotomies", as Manuel Gausa (2003b) remarks, "do not seek to construct through contradiction compositions but rather through interactions capable of reconciling –of making coexist- in the same hybrid framework twin phenomena, the more paradoxical the more, apparently, impossible".

The focus of attention is centred on the surface, either made of building materials, or ground –in the case of landscape buildings. As Alicia Imperiale (2002) comments: "*when using NURBS-based software, one creates an object by connecting one surface to another. The surface, skin, and interface of architecture is emphasized, instigating a more technical, performative, programmatic, and environmental way of thinking, one that has its roots in the language of building. Yet there is a superfluous character of interior space that results from placing so much emphasis on the design of the architectural skin and its supporting structure. While the design of sinuouous architecture theoretically seeks to smooth distinctions between the exterior and interior, this division is actually heightened. There is a risk of the architectural interior becoming merely the leftover space of a highly articulated blob exterior.*" This criticism does not apply in the examples presented above and for most of the avant-garde architecture, but it could apply when these new architectures will become widely implemented by the mainstream of architects.

Another criticism could refer to the relationship between old and new urban landscapes in metropolitan or smaller cities. The examples of blobs, folds or digital boxes of the avant-garde architecture were proposed, or built on prominent sites and acted almost always as landmarks in the cityscape, with renovating and very appealing effects for the cities that acquired them. What kind of relationship between old and new would be created if blobs folds or deformed boxes were multiplied in great numbers in an existing urban landscape?

The desire to make a smooth architecture ties into a broader cultural discussion. The concepts of smooth exchange, flow, continuous surface, skin, membranes, bubbles, are ever present in contemporary culture from animation to economics. Three-dimensional digital modelling software plays a great role in this discussion. It can be used to design a handheld consumer object or an urban-scale intervention. This sliding scale in digital continuum

equalizes previously distinct cultural artefacts. What results is a strange fetishism of the consumer object, an emphasis on the intimate interface between technology and the living body. As Imperiale (2002) remarks: "*it is the moment where the terror of the technological is softened through smooth contours between our hands and the objects we use and the architectures and urban surfaces that surround us*".

However, the new generation of architects does not feel at all the terror of technology. On the contrary, as Neil Spiller (2005) writes, "*most of them, want that the viewers and users of their design interact, inform and respond to the designs given to them*". They want to understand the multi-scaled ecologies of our world and work with them. Their aim is to achieve a sustainable, healthy world with technology and not without it.

Since the merciless quest of form is always the condition on which architecture bases its existence, let future search for forms have an ecological concern. In an age when raw materials are becoming scarcer and problems of growing CO_2 emissions are increasingly apparent this approach provides scope for design that is keeping with our times without the danger of degenerating into mere formalism.

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