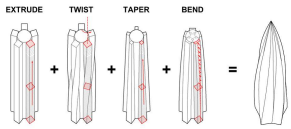
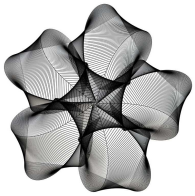
www.archivolta.com.pl

Archivolta 2(58)2013
Summary Review





Piotr Piotrowski
The Flame of the North pp. 10-14
Lakhta Center by RMJM, St. Petersburg, Russia , 2010-2012

Only 9 km away from the historical center of St. Petersburg, filled with low rise buildings of the highest architectural quality, a new candidate to the title of the highest, and certainly the most technologically advanced European skyscraper is starting to rise from the ground. A pentagonal, spirally twisted structure shoots up towards the sky aiming at a height of 463m, leaving the current European, London based leader - The Shard by Renzo Piano, far behind with only 309.6 m.
The history of this fascinating building reaches back to the year 2006, when a small group of the finest architectural studios were invited to participate in a competition for designing new prestigious headquarters of a Russian oil & gas tycoon - Gazprom. Having beaten such famous architects as Herzog & de Meuron, Daniel Liebeskind and Jean Nouvel, RMJM - a practice well known on the British Isles, becomes the winner.
Undeniably, the most eye-catching and important element of the entire Lakhta Center complex is inevitably the tower building. The architects called it a Spire due to its slender and dynamic form. This complex shape is tightly wrapped with a skin of a double façade, which is one of the most technologically advanced in the world. It is also the highest double, ventilated façade in Europe. Lakhta Centre project, apart from its remarkable, twisted tower will feature a planetarium, a shopping center, a concert hall, a conference centre, a cinema, restaurants, a health center, a swimming pool, a fitness center and luxurious flats and penthouses as well as an external amphitheater with an audience capacity of 1500. The entire complex will be surrounded by green landscape - parks and gardens, which cover over 30% of the site's area. The completion of this spectacular building is planned for 2016.

NOBEL of Architecture – Priztker Prize 2013 pp. 16-17
(ed.)

Toyo Ito (born 1941) has been announced as the Pritzker laureate for 2013. Ito is the thirty-seventh recipient of the Pritzker and its sixth Japanese recipient.
The Pritzker Prize is presented annually to a living architect in recognition of contributions to both humanity and the built environment through architecture. Ito will receive a $100,000 prize and be presented with a bronze medallion in a ceremony on 29 May in Boston at the John F. Kennedy Library designed by I.M. Pei, the 1983 Pritzker Laureate.
The Pritzker jury applauded Ito for his ability to synthesize many architectural languages and functionalities in the expression of one personal "syntax," inspired by the organic structures found in nature and the sensual nature of the human user.

Calling him a “creator of timeless buildings,” the Pritzker Jury further praised Ito for “infusing his designs with a spiritual dimension and for the poetics that transcend all his works.” Among those works, the Jury singled out his Sendiai Mediatheque, whose innovative use of structural tubes “permitted new interior spatial qualities,” TOD’S Omotesando building in Tokyo, “where the building skin also serves as structure,” and Tokyo’s Tama Art University Library, Meiso no Mori Municipal Funeral Hall in Kakamigahara-shi (Gifu) as particularly inspiring.

Andrzej Koźlik

Global Center w Chengdu. World's biggest building pp. 20-23

The 100-meter-high New Century Global Centre in Chengdu is a symbol of the spread of China's boom, 500m long and 400m wide, big enough to hold 20 Sydney Opera Houses, according to local authorities. With 1.5 million square meters of floor space —more than that of the world's tallest building, the Burj Khalifa in Dubai - the structure will comprise three elements: the New Century City World Center, the Central Plaza, and the New Century Contemporary Art Center. It well house two 1,000-room five-star hotels and 300,000 square meters of shopping centers encompassing an ice-skating rink, a luxury IMAX cinema, game arcades, and a 20,000-capacity marine park with 400 meters of "coastline" and 5,000 square meters of "beach" replete with a "coastal town," a fisherman's wharf, and hot springs. The Hadid-designed Contemporary Art Center is designed to be the largest and most comprehensive arts and cultural center in West China, with a 30,000-sqm museum of contemporary art, a 12,000-sqm exhibition hall, and an 1,800-seat grand theater.

Jacek Kotz

The two poles of American spaces of consumption pp. 24-27

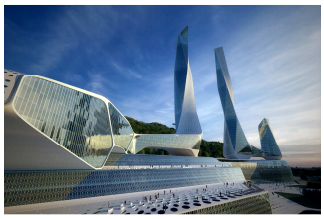
Victor Gruen’s architecture of introversion and Jon Jerde’s space collage

One of the post-fordist cornerstones of the contemporary global economy cornerstone is constituted by the consumption industry represented by monstrous in their scale, malls and shopping centers acting as tourist attractions. *New Century Global Center*, which is now under construction in Chengdu, China, will be not only be the biggest building of this type, but the biggest building in the world.

Architects Victor Gruen and Jon Jerde are among these architects who, through their invention of a few archetypes of spaces of consumption have, in Susan Crawford’s opinion, “have changed the world”. They both proposed ideas which, because of their efficiency guaranteed high and stable profit for developers and thanks to their enormous popularity have had a colossal social impact. The first of them is best known for his regional shopping centers: *Northland Center*, Southfield, Michigan and *Southdale Center*, Edina, Minneapolis, Minnesota, built in years 1954 and 1956, respectively. If the *Northland Center’s* semi-open layout was conceived to include public spaces, the *Southdale Center* represents totally introverted space focused on the two level open central patio, totally sealed off from the surroundings. This last concept reiterated in thousands of shopping centers which spread out across America in the sixties and seventies changed its landscape completely.

The “return to the city”, concept, conceived by developers as a response to the economic crisis of the seventies which broke a stable system of mass production and consumption, supported by an early stage of postmodernism, let Jon Jerde appear on the stage. His *Horton Plaza* constructed in San Diego, California in 1977 is based on completely different assumptions. Jerde designed a complex assemblage of diverse architectural elements organized along diagonal axis which goes along the whole structure. Archetypes of a palace, a tower and a cathedral, inserted in open spaces and viewed from changeable perspectives set by differentiated levels

of stairs, ramps and footbridges are complemented by the color system designed by Deborah Sussman. The entirety creates spatial a spectacle stimulating its visitors, similarly as those to Gruen's centers designed to *shop till they drop.*



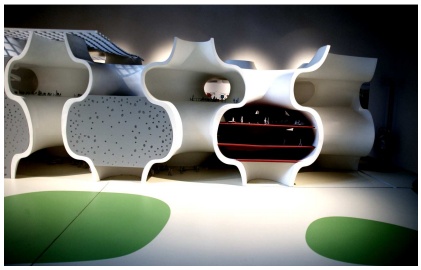
Krystyna Januszkiewicz
Icons of the 20th century. Global City Center Penang, Malaysia pp. 30-33
Hani Rashid + Else Anne Couture, Asymptote Architecture

Situated on Penang Hill the Penang Global City Center (PGCC) is a key component of the 256-acre development site that was formally the Penang Turf Club. The design is centered on the idea of creating a new and powerful image for the city of Penang and the new initiatives associated with the development of the northern corridor of Malaysia. The PGCC includes two iconic, sixty-story towers housing luxury residential units and five-star hotels, the Penang performing arts center (Penpac), a high-end retail and entertainment complex, an observatory, a world-class convention center and a vast public arena in the form of a plinth that serves as an entrance to the PGCC and connects it to the city beyond. The design was unveiled on September 12, 2007 in Penang, Malaysia in a ceremony conducted by the Malaysian Prime Minister Abdullah Ahmad Badawi.

Natalia Malinga,
Eco-cities of the 21st century pp. 35-41
China as the world leader

Efforts to build cities which are environmentally and socially sustainable are not a novelty. More recently, these efforts have culminated in a new phenomenon: the so-called eco-city. The term can be traced back to the mid-1970s, when it was first coined in the context of the rising environmental movement. It is only in recent years, however, that the eco-city phenomenon has become truly global and mainstream, against the background of a majority of people now living in cities and the growing international recognition of the scale and severity of climate change. Thus, China and India are currently at the forefront of eco-city development in Asia, with international projects such as Tianjin Binhai Eco-city and the four eco-cities planned in the Delhi-Mumbai Industrial Corridor with input from Japan; in the United Arab Emirates, Masdar is being developed as a brand-new zero-carbon city to be emulated elsewhere in the Middle East (and beyond); Hacienda Eco-cities in Kenya is promoted as a model sustainable city for Africa; and Växjö (Sweden), Freiburg (Germany) and St. Davids (United Kingdom) are competing to be the `greenest city' of Europe.
The article describes a problems of eco-cities particularly in China where this idea is most popular with citizens. According to the World Bank (Technical Assistance Report No 59012/209), there are an estimated 100 Chinese eco-city initiatives under development. According to a recent study by the Chinese Society for Urban Studies, there are 259 cities above prefecture level that have declared the intention to become an "eco-city" or "low-carbon city".
The Chinese government is developing a new economic model, whose primary objective is to combine the mechanisms of production and consumption for the most effective use of natural resources, while minimizing CO_2 emissions and waste at the same time. Innovative solutions are applied at three levels: by promoting broadly defined clean production projects such as eco-agriculture, implementation of industrial ecology in industrial zones and the development of eco-cities at the regional level. This strategy was tested in seven industrial districts and implemented in 13 industrial parks, and as of the year 2005, in 10 eco-cities and eco-provinces (Beijing, Shanghai, Chongqing, Guiyang, Ningbo, Hebei, Tongling, Liaoning, Shandong, and Jiangsu) under the leadership of the National Development and Reform Commission.

For example, Sino-Singapore Tijanjin Eco-city presents international initiatives taken at the government level. The model of an eco-city developed here with a joint effort of China and Singapore has been implemented, and is currently being reiterated in other parts of China. Ningbo Eco-corridor, Dongtan Eco-city and Chengdu Tianfu District Great City are examples of local initiatives, which are often taken at the level of local governments and community organizations. In conclusion, attention is drawn to the dangers inherent in the ideal eco-city concept - the extent to which it will become the antithesis of a city without traditional features of urbanity.



Krystyna Januszkiewicz, pp.
Natural form-shaping processes, mathematics and architecture pp. 42-51

The models provided by Nature have been an inspiration for building forms since time immemorial. These forms have represented a kind of bridge between men and their natural environment. Today, from Nature we learn about efficient energy and material management, we find effective engineering solutions and structural designs for new building materials. We also learn the ways in which the natural and built environments could best interact with each other.

In order to create designs, as Nature does in its environment, it is important to understand what the emergence, natural form-shaping processes, are, and to know how to use mathematics to describe these processes in the ways which are useful to designers. This means that it is necessary to learn the rules and dynamics of the organization and interaction of natural systems, as well as mathematical laws that describe these systems and can be used to build similar, yet artificial systems.

The article features how mathematics provides operational tools to science in order to create models that are a description of both simple and complex real phenomena. It presents pioneering studies of, among others, Alfred N. Whitehead (1861-1947), D'Arcy W. Thompson (1860-1948), and Norbert Wiener (1894-1964), which gave rise to the creation of mathematical models describing the processes of building forms by Nature. Today, digitization of computational processes led to these complex, often non-linear real processes being described by mathematical models. Computer graphics has become useful when imaging the course of these processes.

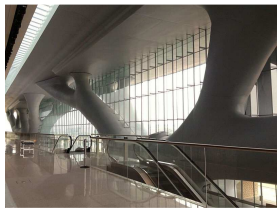
Currently, there is some exchange of ideas and techniques between architecture and other disciplines such as biology, physics, chemistry and mathematics to mimic the identified processes. The focus is mainly on natural processes of formation and adaptation which occur in nature, on the instrumentalization of these processes through mathematical models and computational techniques, as well as on their simulations and digital visualizations.

Hugon Kowalski
Poland's first SARP Poznan ... p. 52

On March 18, 2013 at the premises of the Poznan branch of SARP, Krystyna Januszkiewicz gave a lecture on the use of digital technology in the architecture of the twenty-first century. The lecture attracted crowds of interested people. The premises of SARP were bursting at the seams. It was a rare opportunity to learn about the changes taking place today in the realm of a concept, technique and implementation, under the influence of digital design and fabrication tools.

By presenting spectacular examples, this lecture made us aware of the fact that there is no return to traditional practices in architecture, and there is a growing need for applying more comprehensive parametric and generative design tools. The educational action of the Poznan branch of SARP regarding digital technologies in architecture was not limited only to the lecture. The Poznan branch of SARP, as the first in Poland, organized open workshops where architects

learned the ins and outs of parametric design. The weekend workshops were led by Mateusz Zwierzycki, who for the last few years has studied the possibilities of, and created, parametric tools, which are useful in the design of building structures with complex geometry.
To the president of the branch, Piotr Kostek's surprise, more than 250 people, even from other cities in Poland. applied for the possibility of participation in the workshops. However, housing conditions forced a radical restriction of the number of the participants. The workshop was attended by 26 people. They were students of architecture and young architects mainly from Poznan studios. On the first day the participants got acquainted with the Rhino/Grasshopper environment. On the second day they struggled with a simple task - an attempt to reproduce a form of a structure designed by Renzo Piano, which was discussed during the lecture. Due to the huge interest, which both lectures and workshops enjoyed, the SARP branch in Poznan is planning consecutive educational meetings on parametric design in the near future.



Mateusz Zwierzycki,
Digital evolutionary tools pp. 54-61
and their uses in the process of forming the spatial structures

The research of natural structures and mechanisms conducted by multidisciplinary scientists all over the world has provide new ways to define geometry and it's behaviours. Tranlating this knowledge into digital models driven by notions of morphogenesis, emergency and evolution enables architects to use them in the design process.
The article describes a particular method called Evolutionary Structural Optimization (ESO) and a few of it's variations, which incorporates concepts observed in a real-world (contrary to the virtual one) evolution process. This method has become well known after Mike Xie and George P. Steven (both RMIT) have developed it in the early 90's. The basic principle of the ESO is to discretize a volume (or area), define forces acting on it and carry out the FEM analysis. With the data obtained from the analysis, the ESO algorithm performs the deletion stage, which aims to remove the material which is "least useful" in constituting the structure.
The ESO method produces an attractive, organic forms which are structurally efficient, consequently soldering the form and structure into unity. This fact led Arata Isozaki & Associates to use the ESO method in the new Qatar National Convention Center project. It has produced an original (even baroque), yet functional form covering the center's main lobby. It is the first time ESO was used in this scale, confirming it's foundings and scalability.

The best architect designer products pp. 66-68
52 Salone Internazionale del Mobile
Milan 2013 (Press Release)

From 9 to 14 April 2013 in Milan took place Europe's largest home furnishings fairs. The 52nd edition of the Salone Internazionale del Mobile was held under the banner: “Interiors of Tommorow” and focused on new trends in using the residential and commercial interiors. This year's edition was accompanied by Euroluce lighting exhibition, held every two years, and Salone Ufficio office furniture, as well as annual Salone Satelite, or curatorial selection of young designers. More than 2,500 exhibitors from five continents presented their products, which included items designed by world-renowned architects such as Zaha Hadid, Masimiliano Fuks, Toyo Ito, Jean Nouvel and many other well-known from front-pages of architectural journals.
At the same time, outside the exhibition area, Furio Salone was organized, an event known as the Milan Design Week, which included over 600 additional exhibitions featuring international achievements in the field of design. Toyo Ito, the winner of the Prizker Prize 2013, along with

architect Akihisa Hirata, presented here an experimental installation which was supposed to be a manifesto of fluency in the relationship between people and Nature. The structure made of wood representing the movement in which "roads, people, wind and flowing water form a unity" was an essential element of the exhibition "Lexus' world vision".
In Salone Euroluce, attention was drawn by collections of LED lamps based on gallium nitride (GaN) technology, which provide up to five times more luminosity than conventional LED lighting. Verbatim unveiled the latest series of Velve™ modules, which use the most advanced OLED technology, with dimmable light and color adjustments. SaloneUfficio included office furnishing products. The Promoter invited Jean Nouvel to participate, who under the project "Office for living" examined modern possibilities of building office space and created an arrangement of future office space. Nouvel's designs are characterized by special attention paid to color and lighting, and the objects are characterized by simplicity.
A popular area of the fairs was SaloneSatellite, where the products were to give an answer to "Craftsmanship & Design. Together for Industry". The slogan "Together for Industry" confirms that the digital technologies used in the design and fabrication today are closer than ever.
The approach of architects to design a piece of furniture is a bit different than that of industrial designers. The space and the environment in which the furniture will be used and viewed are important. Individual details are therefore analyzed through their spatial effects, according to the individual philosophy of space organization.

Red dot for Massive design p. 69

The chair *Structure* designed by Przemysław "Mac" Stopa has a clearly organic shape. It combines elements of classic design with the forms that exist in nature. It has been designed for Tonon, the Italian furniture manufacturer.
The shell of the chair is covered on the outside with a three-dimensional triangular pattern, which gives an impression of texture and movement. Made of polyurethane foam of low density, smooth surface of the inner side of the seat is contoured to ideally fit the body, providing maximum seating comfort. The dynamic four-legged base of the chair is available in two attractive options: chrome or brushed, with steel or wooden legs, in warm American walnut or European oak. The seat is available in eleven colors. The chair *Structure* was also presented at the IMM 2013 in Cologne, and placed on display at the Salone Internazionale del Mobile 2013 in Milan. The chair *Structure* was awarded the Red Dot Award 2013 in the category of Product Design.