

ACTIVATION OF PUBLIC SPACES – CONTEMPORARY STRUCTURES IN THE PUBLIC SPACE AND THE IDENTITY OF THE PLACE

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ABSTRACT

Public space is believed to be an essence of the city [1]. The image of the city is on one hand depending on its compositional structure, architecture that is a basic tissue of urban space but also depends on the non-visible aspects of space such as unique mode and identity. Those factors are above all related to the inhabitants and activities that take place in public space.

The unique identity of the city space is developed during the years of it's constant process of creation. The structure of the city is being organized, altering, expanding or shrinking, and within this structure the architectural elements of different origin blend together to form a merged tissue, to create a new identity. The system of the city is being defined by the buildings, that create boundaries of urban enclosures that provide space for human activities. Sometimes the place itself is so meaningful that it requires no additional structures to become vivid. Nevertheless there are spaces that tend to be neglected, out of use, empty.

The aim of research was to identify novel structures that were designed to activate public space. Basing on the study, the group of examples was chosen in order to show the possibilities of shaping parametric design using different materials. The method of research was analysis aimed at showing the potential of parametric design in shaping small architectural forms in public space and contemporary trends in activating urban environment.

One of the means of putting the life back to existing spaces of the city is providing innovative constructions to offer a new type of use for public

space. One of the most famous interventions like that is Metropol in Seville a roofing that was completed in 2011 in piazza della Encarnacion in Seville. Observation deck designed by the German architect Jürgen Mayer and Arup with the dimensions of 150 by 70 metres and an approximate height of 26 metres was considered to be the largest wooden construction in the world at the time of completion. [2] It was also one of the breaking points in history of parametric design [3]. The structure became one of the most significant and recognizable landmarks in the public space of Seville, giving the place a new identity.

The multi-curvature structural form of high complexity refers to the Baroque - its harmony and fusion of the arts and the sciences, the structural 'truthful' efficiency of the Gothic, which nowadays is experiencing a revival under the premise of the parametric approach, of virtual scripts, and formal organicism (understood as evolutionary mimicry). In this sense, the Metropol Parasol is part of the existing historic context of the city, developed by the subsequent eras and their style. It re-defines the complete dependence on the square of the fabric of the city (effect, action, space), the separation of below (matter, function) and above (manner, vision), of tectonics and textures, of movement and stasis, of knotting and folding, of light and shadow, of thick and thin, of topologies (multiplicities of geometry and methods) and infinity (convolutions and illusion). [4]

The construction of Parasol became the commencement for many parametric designed objects in public spaces where the wood was chosen as the main material. In Varna, Bulgaria the street library designed by Downtown Studio. The architects wanted to address a problem of decreasing interest in reading that has been displaced by the use of electronic devices, so they proposed an attractive structure in the public space. It was built from 240 CNC-milled timber pieces fitted together into a curvaceous pavilion that provides shade, seating, and room for 1,500 books.[5]

The CNC technology was also used in another pavilion, designed by architect Nick Gelpi in the MIT campus in Massachusetts. (fig. 1)The purpose of the completion of the UNFLAT was to demonstrate *an architectural role reversal across its surface. On one elevation, a soft skin is hung on a structural frame, on the other elevation the skin becomes structural lifting the frame from the ground, inverting the normative structural hierarchy in an act of tectonic confusion.*[6,7] The basic idea of creating this form was to show how a two dimensional plywood board can be turned to a spatial element. It was displayed during the Festival of Art, Science & Technology (FAST) accentuating the axis leading towards the entrance to one of the campus buildings.



Fig. 1. UNFLAT Pavilion, (source: <https://www.parapractice.net/unflat-pavilion>)

Another example of an innovative structure design in public space using wood is Pauhu, a temporary pavilion for the Tampere Architecture Week. Functioning as an open stage for free expression and performance, *Pauhu pavilion aims to highlight interaction as one of the most crucial subjects in our ever more privatized and secluded cities* [8] Designed by Toni Österlund and Lisa Voigtländer it was completed in 2015 it aimed at increasing the possibilities for interaction between citizens themselves and between architects and citizens. The construction of the outer shell is simple wooden frame, that was cut out in order to place inside a parametric vault of flat, un-bent rectangular plywood strips, that appears to be doubly curved (fig. 2).

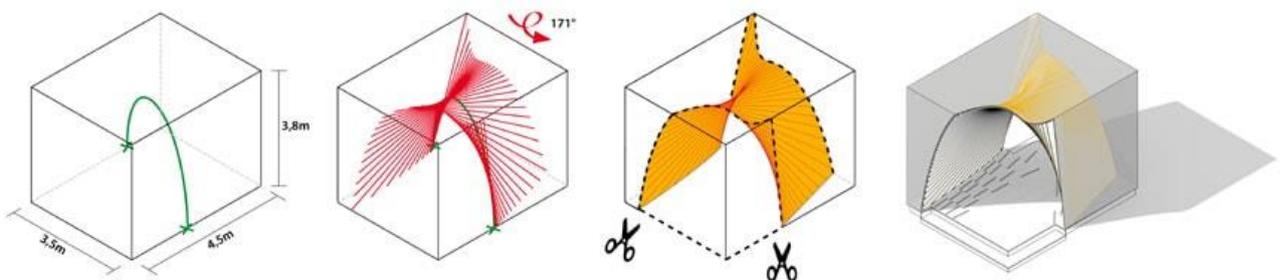


Fig. 2. Pauhu Pavilion, (source: <https://www.inexhibit.com/case-studies/parametric-3d-modeling-for-the-pauhu-pavilion/>)

The aim of constructing Origami Pavilion was to introduce a novel approach to the construction of self-supporting thin-shell folded structures based on the ancient technique of folding paper. The architect Tal Friedman used the sheets of thin aluminum to form folded parts that became both a load bearing and covering elements of the structure. [9,10] It was shaped as a gateway, inspired by traditional Japanese Shinto architecture, supported by two columns widening towards the top that smoothly blend into a three-dimensional roof.



Fig. 3. Origami Pavilion, (source: <https://talfriedman.com/origami-pavilion>)

The advance in parametric design goes along with the development of the innovative construction systems. One of the examples of the structures planned for the activation of public space is the NAWA pavilion. Designed by Oskar Zięta in 2017 it was placed in Daliowa Island in near of the strict historical center of Wrocław. *NAWA is an ultralight, durable construction made up of 35 FiDU steel arches.*[11] It's reflective surface creates a vivid portal in the city space that constantly changes in time along with the lighting variations.

Over the recent years the technology of plastics was developed that it allows to construct self load-bearing structures. One of the examples may be the *Parametric pavilion* in Monterrey, Mexico designed by Alejandro Rodriguez Design with Tecnológico De Monterrey. The material used was 195 components to a flat surface to be laser cut, and then folded to generate the pyramidal shape from a single piece of 3-millimetre Coroplast based upon the structure of PVC pipes [12].

Peace Pavilion designed by Atelier Zündel Cristea placed in the Museum Gardens in Bethnal Green in London is an innovative construction that brings attention through the unique organic form. The use of white colour strikes out from a background created by the greenery of the park. The structure is approximately 4 m high height and 62 m² in area, *designed entirely with durable lightweight materials and inflated with approximately 47m³ of air is made of Clear 500my HvHt PVC, Preconstraint 902S marin fabric, polished Aluminium and wood* [13]. The design was chosen in an international competition and is to popularize the idea of peace together with harmony, silence, pureness, kindness, happiness, appeasement, calm, reconciliation, serendipity, tranquility.

Most of the described structures are temporary so they serve particular purpose of making a short term change in city space in order to activate it. The small forms through their unique technologies, despite the size may be important elements of public space and may cause interest of the inhabitants and tourists, making them more likely to walk, explore and engage in the city making processes.

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