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THE YENI GEZI FOOTBRIDGE IN THE HEART OF A METROPOLIS UNDER TRANSFORMATION A BRIDGE BETWEEN HISTORY AND DEVELOPMENT

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Abstract: *In the next months, a segmental arch pedestrian footbridge designed by Prof. Enzo Siviero will be built to replace the old, and already demolished, Gezi footbridge in the heart of Istanbul. The Yeni Gezi, that translated from Turkish means “new” for the term “yeni” and “trip” or “journey” for “gezi”, has a key role in the big process of transformation in this part of the metropolis. The Yeni Gezi footbridge has been designed in wood with a strongly technological use of steel. The use of wood has cultural reasons; in fact it is a material very close to the Turkish culture which, during the history, has been widely used in the works making up the character of historical Istanbul places. The use of natural materials has been encouraged by the presence of a water tower in stone as a testimony of a result reached in a historic technological age. The new footbridge was designed with the aim to give a sign of tangible and intangible continuity between the historical past and the living present using wood with the potentialities offered by nowadays technology.*

1 INTRODUCTION

The Yeni Gezi footbridge project is located in the heart of Istanbul, core of urban transformations, and aims to be a sign of historic and physic continuity in the system of values which form this urban landscape. From this basic principle have been defined the reasons for the shape and materials of the footbridge.



Figure 1: Location

The design of the pedestrian walkway in Gezi Park, with those made for the Istanbul Park in Kazan (Tatarstan, Russia) and in the Şirinevler area in Istanbul (Turkey), is an experience design which combined a depth technologic study with an anthropological approach developed by A. Stocco in the research field of the University of Nova Gorica, Graduate School.

These projects, then, have been developed by a design team which has operated in a synergistic way in order to implement, in each projects, the several inputs coming from the anthropological and the technological study.

For the aim of this paper, in the case of the Yeni Gezi Footbridge, the intention is elaborate how anthropological aspects were treated and in which way the choices related to the technological ones were made.

The footbridge, in general the bridge, is a connecting element, a passage, and then a transition element which arises as an urban fact between places. A fact which participates in the shaping of a part of the location where it is placed.

The footbridge was treated as composite technological structure capable to act as a communication element between places, in its anthropological meaning, referring to the peculiar identity elements of that territory, without interrupting or altering the overall perception of the landscape where the new structure is inserted.

In this sense, the historical character of the places identified through the perceptual components shall be considered as a fundamental part of the footbridge concept design becoming intelligible tangible element towards people who live there or who simply are going through.

2 HENRI PROST AND ISTANBUL'S REDEVELOPMENT

The old Gezi footbridge which was demolished in order to give room to the Yeni Gezi footbridge was one of the elements belonging to a very wide redevelopment urban plan designed by Henri Prost in 1936. After a great professional career growth abroad and in France, starting from 1924, Prost was consultant for the Turkey government. In 1936, Prost was officially invited by Mustafa Kemal Atatürk to develop a plan for Istanbul's redevelopment, and he stayed there for fifteen years.



Figure 2: Taksim promenade

At that time Prost had understood the size of the transformation process in place in Istanbul and he had understood that the price to pay, for an urban development which would meet the needs of this City which lives with an incredible activity like Istanbul, is the ongoing transformation process. A transformation process able to maintain the functions already present in the social texture.

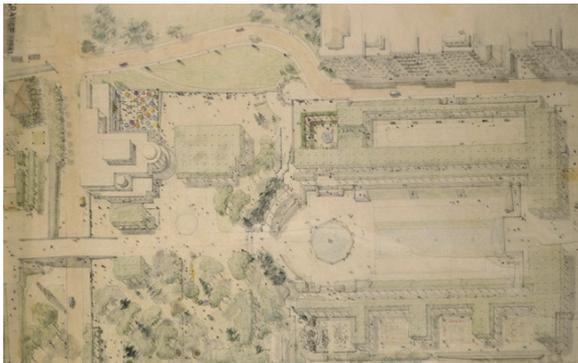


Figure 3: General plan of the Henri Prost Istanbul's redevelopment

He decided to make drastic cuts through the network of historic Istanbul's neighbourhoods defining transportation corridors, avenues and promenades. Alongside these elements he planned parks and monumental squares.

Prost's planning work is distinguished by a planning approach in which the protection of historic and natural sites around Istanbul and the technological infrastructure demanded by a modern metropolis are policies developed simultaneously.

The old footbridge, now worn out by time and by poor maintenance, was no longer able to absorb the new requirements coming from the continuous transformation process in place and that is why Istanbul Municipality has decided to replace it with a new one, located in the same place, able to gather and to respond to current needs and, as Prost's thought was, able to maintain and strengthen the functions already present in the social texture.

3 THE YENI GEZI FOOTBRIDGE IN THE HEART OF TRANSFORMATION

Trying to give continuity to Prost's thought combining the valorisation of historic and natural sites - as well as combining the valorisation of tangible and intangible values present in Istanbul places - and the need of even more performing technological infrastructure, this new footbridge tries to be, in a silent but concrete way, among several questionable other urban transformations, the most appropriate tangible reply.

In the next months, a segmental arch pedestrian wooden walkway will be built to replace an already demolished crossing link in the heart of Istanbul.

The Yeni Gezi, that translated from Turkish means “new” for the term “yeni” and “trip” or “journey” for “gezi”, has a key role in the big process of transformation of this part of the metropolis.

The new Gezi footbridge is located very close to one of the major centre of life in Istanbul: Taksim Square. From this square, major metropolitan hub, a significant flow of people reach the important and nearby headquarters of the Istanbul Technical University.



Figure 4: Old footbridge and its damages

The path between these two poles goes through the urban park designed by Prost. Even in the original design, in this context, there is a lack in the continuity of the park just in correspondence of a two-lane street bearing heavy traffic and placed under the plane of footpath.

The two side of the park were connected by the very scratched concrete structure showing different damage points with partial material lost. The structures crossed the total distance

with three spans: a main central one and two laterals. The piers were constituted by a series of four pillars, in concrete, supporting the structure of the deck.



Figure 5,6: Footbridge context with the old footbridge demolished

In accordance with the City transformation needs it was decided to intervene in the cultural heritage valorisation of the urban texture implementing a structure able to incorporate Prost's vision, thus including simultaneously historic and natural issues, as well as technological aspects.

The first input project was to use materials very close to the Turkish culture.

The wood was a material widely used in works built in the core of Istanbul and the Wooden Houses are one of the most important examples. The predominant use of natural materials was dictated also by the presence of the characteristic water stone tower as testimony of a reached technological age.

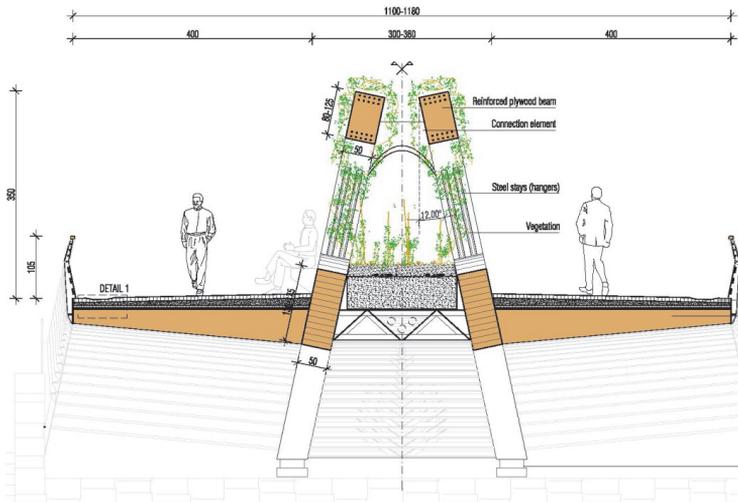


Figure 7: Footbridge cross section

The slender shape of the segmental arch is made by a structural section of laminated wood reinforced with steel bars. The new footbridge was designed with the aim to give a sign of tangible and intangible continuity to the connection between the historical past and the living present using wood with the potentialities offered by nowadays technology. In

addition, from a functional standpoint, the footbridge offers two possibilities allowing the continuity of the pedestrian path and the continuity of the park as a green area. The paving stone and vegetation accompany the person in the stroll through the park and do not stop at the footbridge thus having continuity.

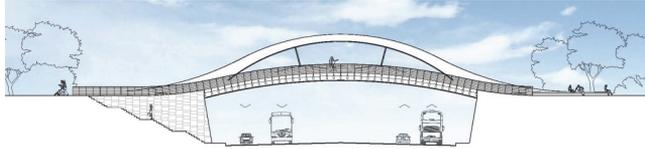


Figure 8: Elevation of the footbridge in its context

The central pair of arches, observed along the path, lifts up and gives room to a green and fresh greenery placed on the grass, until where the couple of arches finds its place again, and offers itself as a seat.

In the technical point of view the footbridge is a tied-arch bridge with the deck supported by a couple of twin inclined arches (8 degrees from the vertical) and converging towards each other at the crown. The cross section of arches is made in laminated timber, with reinforcing steel bars, and this in order to increase resistance and stiffness.



Figure 9: Rendering

The arches have a radius curvature equal to 25 m, with a rise of 6.5 m, they span 37 m. The cross section has rectangular shape with constant width of 50 cm and variable depth from 80 cm at the crown to 120 cm at the imposts. The steel reinforcements are inserted either at top and bottom part of the arch section along its entire length. Each reinforcement is constituted of two rows of five bars each having 22mm diameter.

The tie is made by 2 main beams in laminated timber lying in the arch planes; the cross section has rectangular shape with 50 cm constant width and variable depth from 130 cm to 180 cm; each beam is supported, at the thirds of the span, by a pair of steel hangers having a circular cross section.

The overall bridge width is variable from 9.6 meters at the abutments to 9 meters in the middle; the deck is made of the 2 main beams just described above, and by laminated timber cantilever beams having rectangular cross section; the width is constant equal to 16 cm and the depth is variable from 50 cm to 16 cm at the outer side; the span of cantilever beams is 3.5 m with a spacing of 80 cm between adjacent beams.

In order not to transfer torsion to the main beams, acting as tie, the cantilever ones, side to side of the bridge, are joined by a steel truss structure placed in between.

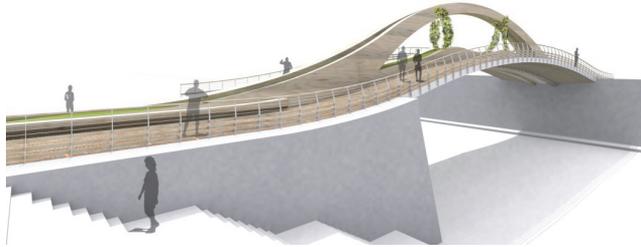


Figure 10: Rendering

The floor is made by an electro-forged welded grating, placed between two stainless steel plates, able to support the porphyry cubic paving load, the compact crowd load and the transit of an emergency vehicle load.

In the space between the 2 main beams of the deck there is a layer of vegetable soil with thickness of about 80 cm.

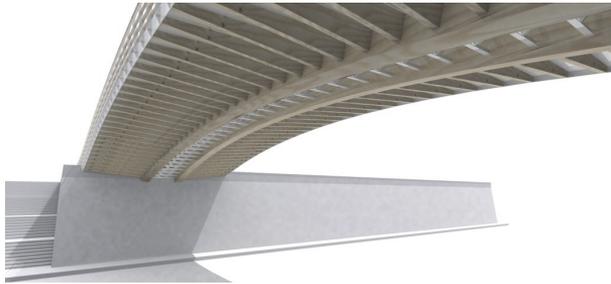


Figure 11: Rendering

4 CONCLUSIONS

The starting assumption is that every place has a cultural value accumulated over time. Nowadays, in an era of relations and globalisation, it is necessary to overcome the idea of history as a relic or as a wreck in order to embrace the idea of significance and historic value by giving importance to the significance, the forms, the materials and the functions of the physical crossing. With this in mind we can conceive the project of the physical crossing as an organism able to escape from the scientific definition of historicity and place of memory, turning to the continuous and renewed recognition of the individual in their own time.

In this way the new place lives in history and stands as testimony of a relic.

The cultural significance that the Yeni Gezi footbridge incorporates is double.

First of all it closely follows the thought of the first designer and planner of the area defining a connection which does interrupt the natural character of the park while responding in a functional manner to the needs dictated by the infrastructure development

of the city. The second, but not less important cultural meaning, refers to the use of materials which are historical testimony of the city combined with advanced technological research.

The result is a physical connection that, on paper, is already part of the cultural meanings which form the perceived part of the urban landscape in which it is inserted.

The lived history will give the final answer turning or not this structure, this crossing, in a place of the urban landscape of Istanbul.



Figure 12: Insertion of the footbridge in its context

5 ACKNOWLEDGMENT

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