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Contenuti

Pedestrian bridges in the Middle East Technical University

M. Haluk Zelef
H. Okan Çetin
Aslıhan Günhan

This article is about a architectural design studio experience on pedestrian bridges in the Middle East Technical University (METU) in Ankara. While the earlier Turkish universities were located in the centers of Istanbul and Ankara, the idea of a university campus outside the city was first realized in METU. Even when compared with the later examples, it is a unique, pedestrian priority environment from its foundation onwards and this precept has to be kept, although the boundaries of the university is enlarging

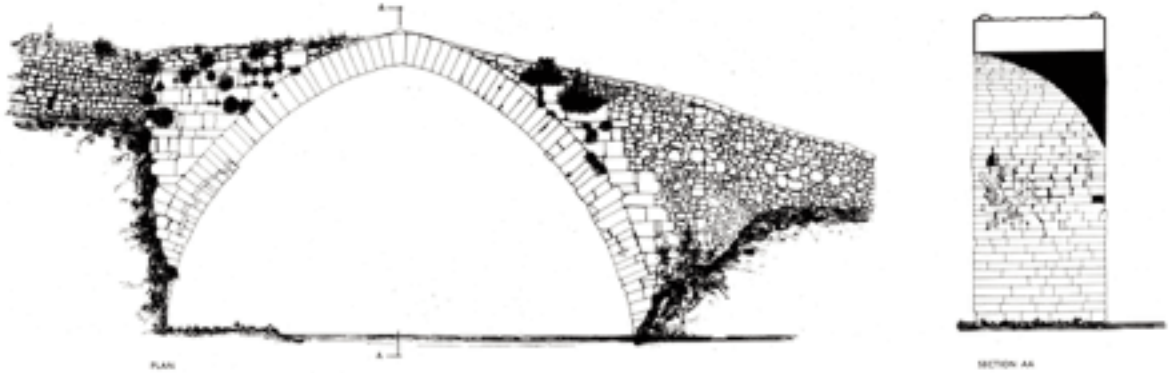
The Campus

Middle East Technical University was founded initially as the Middle East Institute of Technology in 1956. The first group of academics was involved in the planning of the university grounds. Their design proposed locations far away from the existing position of the facilities. Later on an architectural competition for the campus was organized. The first competition in 1959 was an international one, won by a Turkish architect.

Two years later a controversial second national competition was held and the final scheme was designated. METU campus is located in a land of total 4500 hectares. While 1:5 of its area is reserved for the faculties, social facilities and dormitories, the rest is re-forested which was rewarded by the Aga Khan prize in 1995.

The university was sensitive not only to the natural features which even includes a lake, but to the historical assets as well. METU founded a museum exhibiting the archeological remnants (mainly from the Phyrigian times 12th C-3rd C. BCE) excavated mostly from its own grounds since 1962. As the site plan indicates (figure 1) there is a ring road for vehicular traffic around the faculties and the administrative units. The main pedestrian movement is on the central longitudinal axis along the ridge of a hill. The first building, Faculty of Architecture, was finished in 1963 and followed by the others. Dormitories and sport facilities are next to the academic part but separated by the ring road. One problem emerged as the buildings were finished and the total number and especially the population of the students living in the dormitories escalated. They had to pass the ring road of the campus to reach their faculties.

As the years passed, new needs to build new faculties and annexes to the existing facilities, a cultural center and techno park rose. They all had to be built outside the first ring road. Therefore crossing the heavy traffic of the ring road, which could be dangerous especially in the peak hours, became a part of the daily routine of the students, academics and staff. An interesting and a meaningful solution to this problem came from the first rector Kemal Kurdaş in the early 1970s.



2. Karamagara Bridge

The Bridge

In 1970 an area of 680 square kilometers inhabited by 25000 people living on a land known to civilizations since the Bronze Age to the late 19th century, would lie under the waters of Keban Dam, on the Euphrates river. Their imminent loss provoked the METU Department of Restoration and Preservation of Historic Monuments to undertake a documentary survey in 1966[1]. Three years remaining until the dam's completion necessitated urgent interventions to survey and record the historical structures with photographs and measured drawings, that were later collected in the archives of the Faculty of Architecture. In the following years Rector Kurdaş initiated an international cooperation amongst 12 universities and research institutes for the enterprise and raised some funds to go beyond documenting[2]. This survey included four stone arched bridges (Sivdin, XII or XIII Century- Çemişgezek-XIX Century and Alişan bridges) and the oldest and the most elaborately ornate one (Karamagara bridge, V or VI century) was designated to be dismantled and saved from the flood.

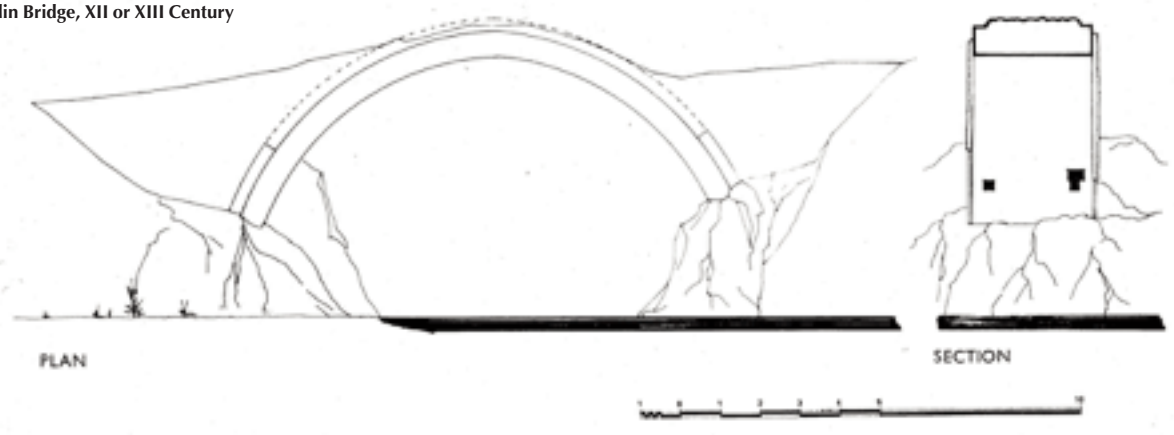
These bridges were me*taphorically bridging between the cultures of the East Anatolia. As if referring to the name of the University, they would unite the different historical periods, cultures, languages. Kurdaş suggested erecting this oldest bridge above the ring road, so that it would serve to the present day students but also to the history of the Middle East[3]. Dated from the Byzantine period there was an inscription on the east face of its arch[4]. Although in the early 1970s, only one point was particularly problematic in the sense of the clash between the pedestrian and vehicular traffic, now we can observe this problem in at least four points that brings to mind the other three bridges under the waters of the Keban Dam.*

The Project

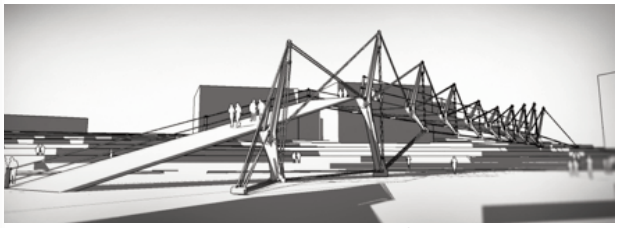
This idea of separating vehicular traffic from the pedestrian traffic was an issue since then. In the second semester of the academic year 2012-2013, third year architectural students were asked to deal with the same problem. Four different spots where this problem acutely displays itself were designated. Students analyzed those sites and made their own selections. They figured out that the structures they are going to design can also address many other issues they face in their daily life while commuting to the faculty, such as the bus stops, newspaper stands, ATM machines of the banks. Besides the structural and constructional issues the physical and social context is a constituent of this assignment. As the university is one of the leading innovative institutions in different fields, including its architecture, which is the pioneering example of brutalist architecture in Turkey, students are encouraged to look for alternative and innovative solutions to this problem.

Long span structures are a part of the curriculum of the third year education in the department of Architecture at METU in order to acquaint students with structural design, which are usually considered as the field of expertise of the civil engineer. Professors of Civil engineers often collaborate with us in these studio exercises. In the recent years students in our section dealt with different examples, such as: A cover of the Roman theatre in Ankara (2010, A traffic node with bus and minibuses stops (2010), A sports Hall for a neighborhood (2011, A shed in an Archeological Site - Milas-Uzunyuva Mausoleum Archeopark Protection Shelter (2013). During the project, students made analyzes of case studies of pedestrian bridges throughout the world. They also observed other bridges on the construction stage such as the one on the Istanbul Golden Horn to have firsthand experience of the construction material, methods and pro-

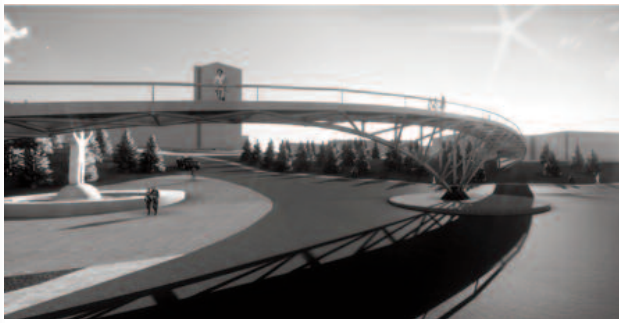
3. Sivdin Bridge, XII or XIII Century



Examples of Student Works

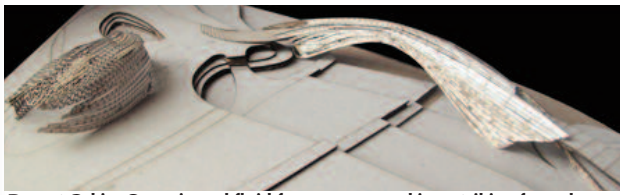


Osman Sümer. Between the heavy brutalist reinforced concrete buildings of the campus, a remarkable, very lightweight suspended structure is connecting the main pedestrian alley with the cultural center on the other side of the main vehicular road. Its visual impact is minimum within the lush vegetation at that particular spot.



Eymen Çağatay Bilge. An arched steel pedestrian bridge between the cafeteria and the stadium, solving structural and constructional problems in different scales.

Onur Kamburoğlu. The suspension bridge is composed of three load bearing columns and tension members and links the cafeteria to the social building. It is a continuous ramp, which enables the movement of the bicycles and the wheelchairs of the handicapped.

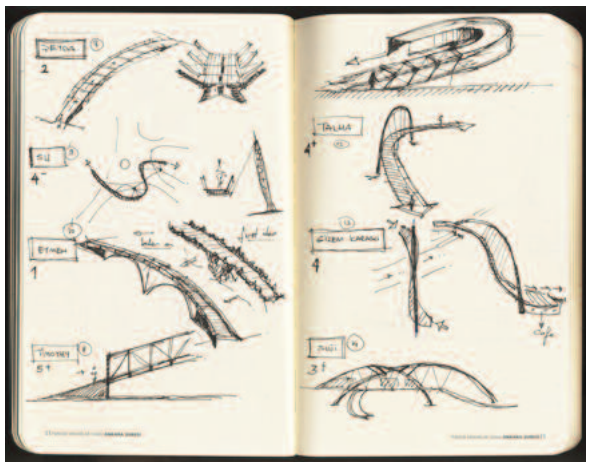


Demet Çekiç. Organic and fluid forms were used in a striking formal contrast with the existing campus. Another shed structure to house the bus stops was designed in close proximity.

Özge Karaman. The bridge is suspended by the tension members from the two piers on both sides of the road. Its ramp is also serving as the shed for the passengers waiting in the bus stop.

blems. Fortunately Professor Enzo Siviero's exhibition on Pedestrian bridges was opened in the Halls of the Faculty of Architecture of METU in those days (Oct.15-23, 2012). He and his assistants Alessandro Stocco and Ulvi Altan kindly accepted to partake in the evaluation jury of the project[5].
Other than orthographic drawings and digital model, students are encouraged to develop and test their projects by using the physical models to have immediate feedback in structural issues. The duration of the project was about 4 weeks. The preliminary stages were recorded to guide the students further progress.

4. Sketches of Okan Çetin)



Conclusions

As for conclusion, although it is a short duration project, students work on a long span structure availed them some basic experience and self confidence for a type of construction, they usually feel estranged.
While they were thinking that it as the task of the engineer *before, after the exercise they thought that they can contribute to the design of a pedestrian bridge and communicate with the other experts with the* same language *in this process.*
We hope when such a bridge will be decided in the near future in the university (or any other place) these students will feel themselves enthusiastic for being a part of the design team. Most importantly, their awareness about the structural and constructional aspects in any design task is raised.
Through this exercise they made an exercise on exploration and application of advanced technologies in giving structural form to spaces, which is one of the basic objectives of architectural education. These projects were evidences of creative skill in giving structural form to the buildings they will tackle in the later course of their education and professional career.

Notes

1. Doomed by the Dam *(1967) METU Faculty of Architecture, Department of Restoration Ankara: METU Press.*
2. *Kemal Kurdaş (1998)* Odtü Yıllarım: «Bir Hizmetin Hikayesi», *(METU Years: the story of a Service) Ankara: METU Press.*
3. *Dialog between Kemal Kurdaş ve Behruz Çinici, CD recorded in March 2001.*
4. *The bridge was dismantled and boxed and donated to the local museum to be erected. It has not been yet rebuilt. Interview with Prof. Cevat Erder.*
5. *Prof. Siviero also gave a talk BRIDGESCAPE on October 15, 2012.*