

INFRASTRUCTURE

Far from being limited to large-scale technical structures such as highways and airports, infrastructure as a term has come to encompass a variety of structures of different scales performing different functions. The modest experimental Makoko Floating School in Nigeria investigates the potential of a floating structure to accommodate both the functions of a school and the daily lives of a group of children – an experiment not without risk. On the other hand the Tabiat Bridge in Iran is a massive piece of infrastructure intended more as a public space of leisure than as a bridge in the traditional sense. Infrastructure is increasingly becoming a critical public amenity. This is clearly the role of the Casa-Port New Railway Station in Morocco, a building of clarity that serves as a symbol of civic pride and of mobility.

Tabiat Pedestrian Bridge

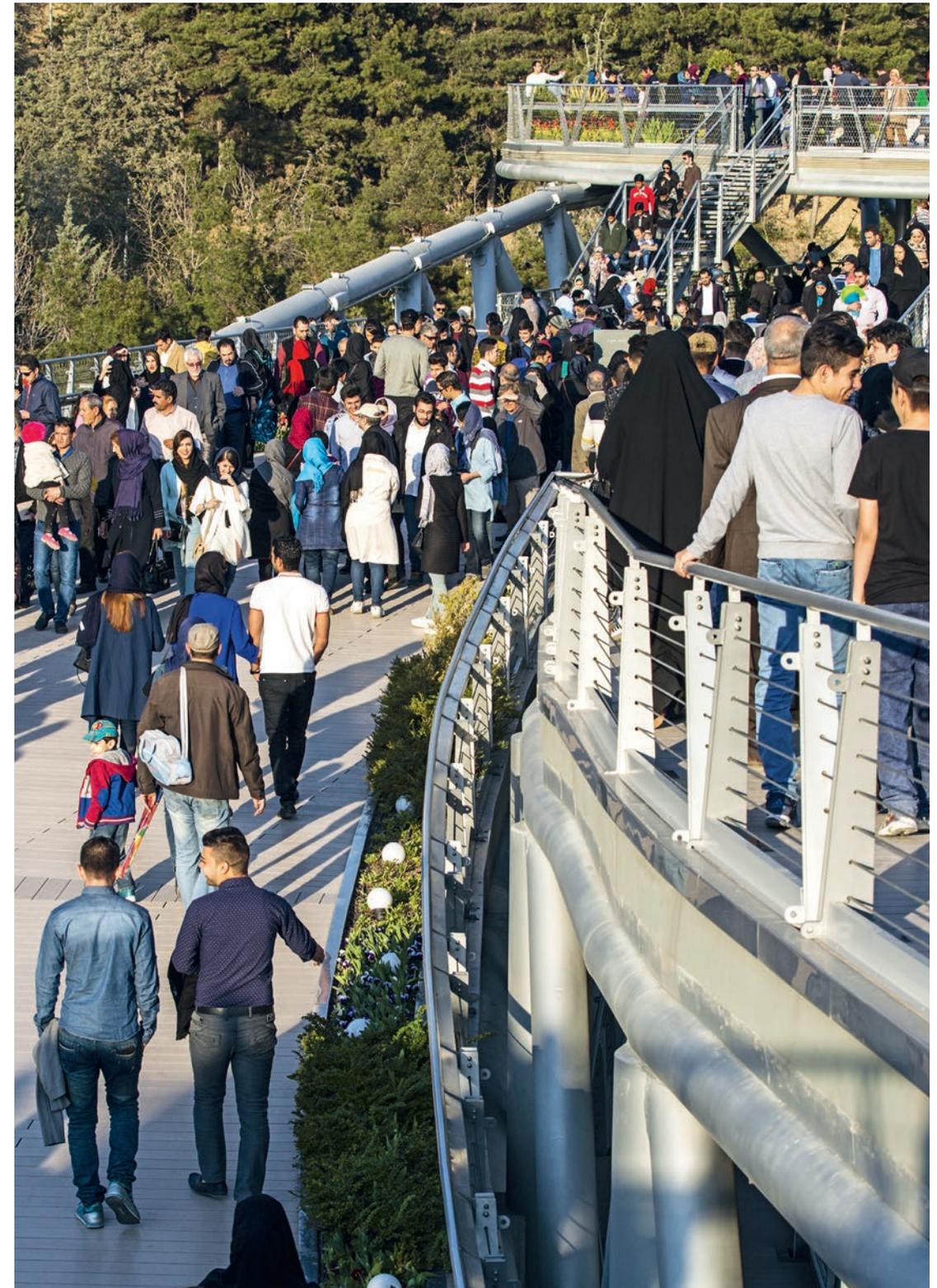
Tehran, Iran

Tabiat Pedestrian Bridge spans a busy highway to connect two parks in a city with a very dense urban fabric and mostly utilitarian architecture. More than a point of connection between two discrete green zones, the bridge is a popular gathering place for the people of Tehran, offering numerous seating areas over its three levels and restaurants at either end. Like many such green spaces within urban areas, it has come to serve as a locus of identity for the city and its inhabitants.

The tree-shaped columns that support Tabiat Pedestrian Bridge echo the forms within the adjacent parks. Their locations were also carefully chosen to minimise the need to fell trees. And where the bridge meets Abo Atash Park, the structure is left open in three places to allow the trees to grow through it, creating the sense of one continuous green space.

Given the complex curving form of the three-dimensional truss, each of the steel elements had to be cut in a different shape, and this was carried out partly by CNC machine and partly by printing the unrolled shape from the 3D model. The tubes were cut, sandblasted and painted with primer in the workshop, then delivered to the site. During the whole process of construction, the flow of traffic on the highway continued uninterrupted.

Rather than focusing on the experience of those viewing the bridge from afar, the design is characterised by an inward-looking approach: the sequences of spaces are all centred around the users. The various deck levels are connected by continuous ramps at the bridge's southern end: the decks themselves are covered in Resysta, an imported fibre-reinforced hybrid material made from rice husks, common salt and mineral oil. The same material – which is both recyclable and weather-resistant – was used for the seating.





Citation

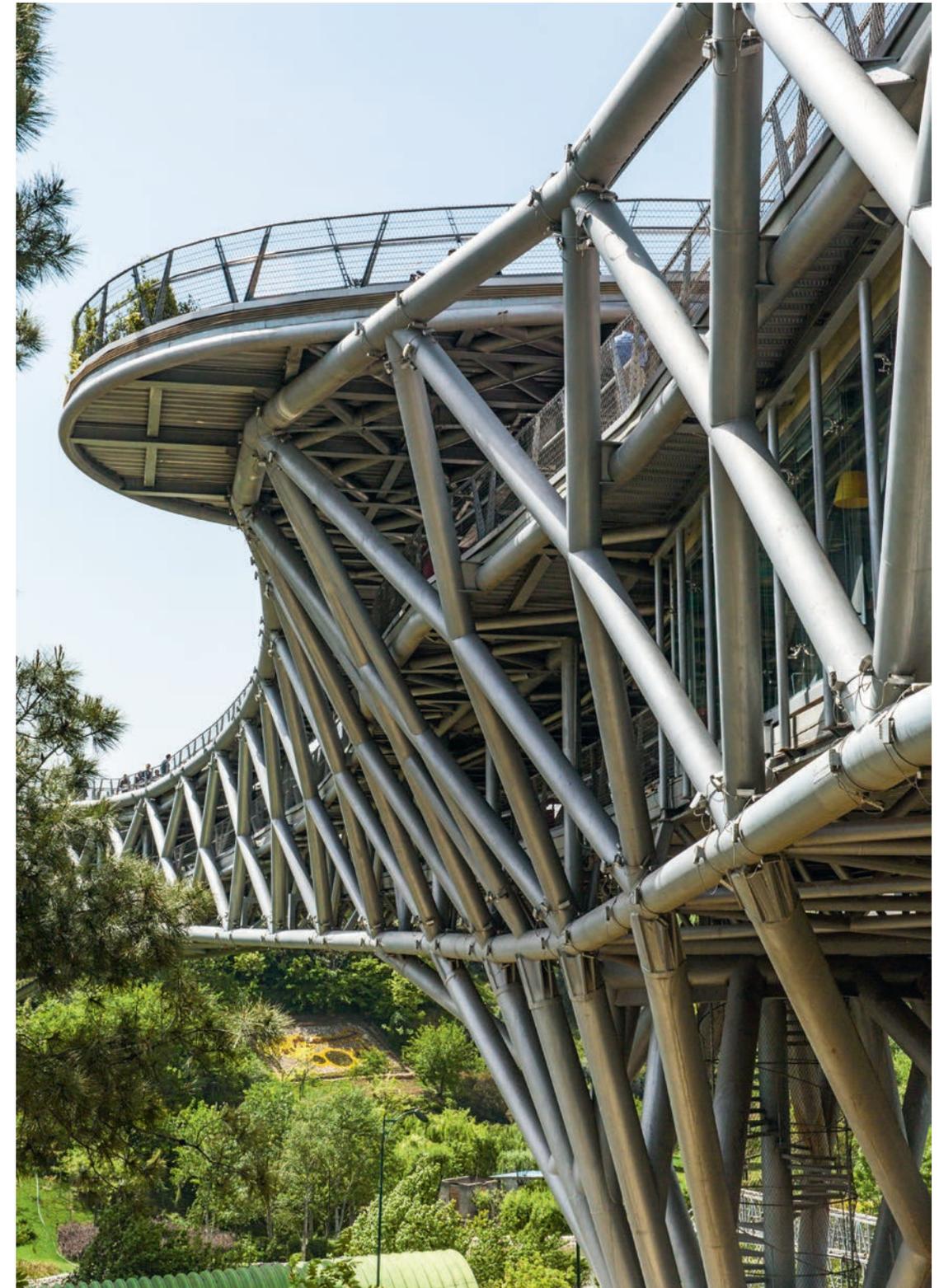
Tabiat Pedestrian Bridge is a breath of fresh air in an otherwise austere and haphazardly built area of Tehran. The challenge of connecting two parks separated by a highway is met with an approach that is exemplary in the context of an infrastructure project, not just in Tehran but perhaps anywhere in the world.

The apparent reinterpretation of the original brief, which called for a straightforward connection between two parks, has transformed a 'bridge' into a 'destination'. Inviting people to congregate, interact and appreciate the vista in every direction, the bridge has become a promenade and one of the most successful public spaces in modern Tehran.

The bridge's use of technology and integration of architecture and structure is commendable, particularly in the light of the challenges the team would have faced in the design and procurement stages of the project. Though the jury felt that there was scope for further aesthetic refinement of the structure, it acknowledged that some design decisions may have been influenced by the fact that the bridge lies in an area of high seismic activity.

In spite of this, the bridge displays a structural logic that is at once simple yet robust, orderly yet chaotic, but always functional, provocative and inviting. The physical footprint of the structure is minimised, with respect shown towards the existing trees and topography. The sophisticated layering of the bridge deck, which allows and encourages different activities, is commended by the jury.

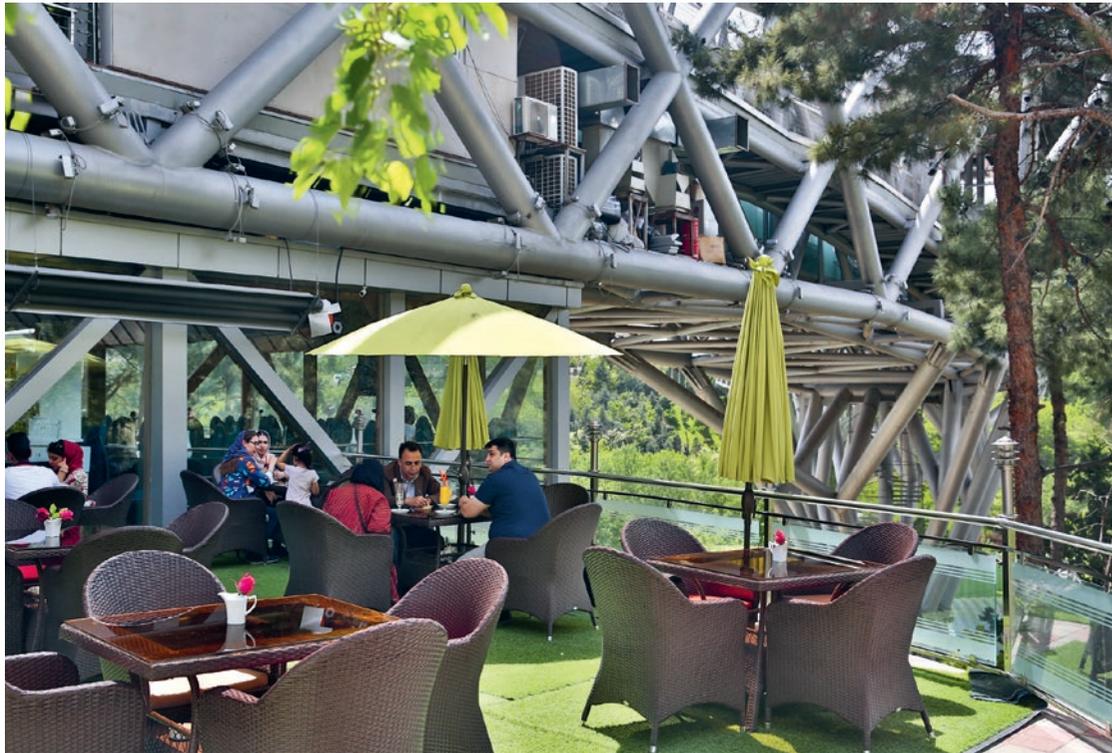
Tabiat Pedestrian Bridge is a successful example of a calculated risk taken by a client, met with the youth and enthusiasm of a group of competent professionals whose work is commendable and deserving of recognition.











Client

Nosazi Abbasabad Co, Tehran Municipality, Tehran, Iran:
 Seyed Javad Mirhosseini, head of architectural department (2008–2015)
 Behnam Atabaki, managing director (2008–2011)
 Ghasem Amouzandeh, deputy to managing director (2008–2011)

Architect

Diba Tensile Architecture, Tehran, Iran:
 Leila Araghian, Alireza Behzadi, co-founders
 Sahar Yasaei, associate
 Mina Nikoukalam, Homa Soleimani, Farhad Elahi, Nader Naghipour, Kourosh Shirani, Adel Mohammadi, Masoud Momeni, Payam Golfeshan, project team

Structural Engineering

Maffeis Engineering SpA, Solagna, Italy:
 Massimo Maffeis, Marco Grigoletto, Loris Frizon, structural engineers

Contractor

Shahid Rajaei Company, Tehran, Iran:
 Mojtaba Keshkar, Hossein Saemi, executive managers

Steel Structure Construction Sub-contractors

Azar Teif Sepahan Company, Tehran, Iran

Mashin Sazi Arak Company, Tehran, Iran

Consultants

Aram Shahriari, mechanical engineer, Tehran, Iran

Mahmoud Abdolhasani, electrical engineer, Tehran, Iran

Pouya Tarh Pars, local structural approver, Tehran, Iran

Construction Company

Azar Teif Sepahan Company, Tehran, Iran

Project Data

Total length of the bridge: 269 m
 Total combined floor area: 7,950 m²
 Cost: 18,200,000 USD
 Commission: September 2009
 Design: September 2009–December 2010
 Construction: October 2010–October 2014
 Completion: October 2014

Diba Tensile Architecture

Diba Tensile Architecture, founded in 2005, was the first company in Iran to specialise in the design, fabrication and installation of membrane and tensile structures. The main idea behind starting the firm was to bring a new specialty to the country's construction industry. The approach at Diba is to integrate architecture and structure with the maximum attention to detail and to the execution of a project, as well as to the quality of the spaces that are created. In 2008 Diba won the competition to design Tabiat Bridge, and since then it has

undertaken larger-scale projects with sophisticated structural characteristics in close cooperation with Maffeis Engineering SpA.

So far Diba has completed over 300 projects on various scales in Iran, structures that are specifically designed and constructed to meet client needs. These include bridges and open-air amphitheatres, monumental structures, building entrances and parking lots, as well as temporary structures such as sunshades, covers and gazebos. It continues to grow in both the design and construction of innovative projects.

Website

www.dibats.com

