

SSEF 2006: Crossing The Divide
CROSSING AS DESTINATION –Kenneth Wong
20174082

“The works of the past always influence us, whether or not we care to admit it, or to structure an understanding of how that influence occurs. The past is not just that which we know, it is that which we use, in a variety of ways, in the making of new work.... The typology argument today asserts that despite the diversity of our culture there are still roots of this kind which allow us to speak of the idea of a library, a museum, a city hall or a house. The continuity of these ideas of type, such as they are, and the esteemed examples which have established their identity and assured their continued cultural resonance, constitute an established line of inquiry in which new work may be effectively grounded.” The Harvard Architectural Review. Volume 5. Precedent and Invention. Between History and Tradition: Notes Toward a Theory of Precedent. John E. Hancock.

Public parks play an important role in maintaining the physical and emotional balance of a city. Parks are spaces that allow people to enjoy activities that the streets may not be capable of accommodating. Bikers and joggers can take a break from smog and traffic and enjoy the scenic park views while exercising around others, who may read or picnic by a tree, taking advantage of the cooling shade. The abundance of vegetation in city parks improves the surrounding air quality and promotes strong soil conditions. At night, the visual atmosphere is much less polluted with light and is in many ways, a convenient pause from an urban lifestyle. Bridges are erected wherever connections over unnavigable areas exist. Usually, their function is simply to link a gap and is used merely as a tool to get to the other side quicker than an alternate route. But is that all bridges are intended for? Perhaps bridges can be inhabited like a park. Considering this idea as the thesis for the bridge, inspiration and precedence was found in two very unique architectural realizations.

In Europe, two existing structures formed the precedent of the competition entry bridge. These two are the Mur Island Project, Graz, Austria, by Acconci Studio; and the Millennium Bridge, London, by Norman Foster. It was by fortune that I came across the Mur Island Project while researching and soon came to understand the potential of designing program on a river. In the Mur Island Project, Vito Acconci of Acconci Studio was commissioned to design an accessible artificial island that would accommodate specific programs. The result is a forty-seven meter long steel sculpture that spirals into a steel mass



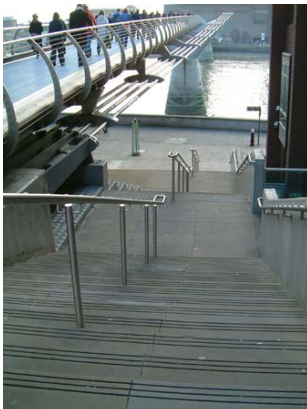
where the two rectilinear bridges meet, resembling a seashell. The shell is separated into two: one half is unsheltered and is an amphitheatre with blue wave-like continuous seating. Adjacent to the open theatre is an enclosed area housing a café allowing for visitors to be more intimate with the river. Between the two programs is a children's area complete with a rope maze and slide. This project set the tonality for the pedestrian bridge, where the theater, café, and lounge are taken over the river as a bridge. In the same way, the proposed pedestrian bridge adopts this method of resolving programmatic issues and



suggests that a public park may perhaps be suspended over the Humber River. Taking this thesis as a starting point, a unique structure to support this program was necessary since comfortable open space was needed to achieve a successful park like environment. The aesthetic aim was to maintain an intimate relationship to the surrounding landscape through structure. As a result, the steel skeleton was not permitted to be

excessively tall but rather, closer to the deck of the pedestrian walkway such as to serve two purposes, both continuing the horizontal datum of the bridge, and functionally fulfilling its purpose.

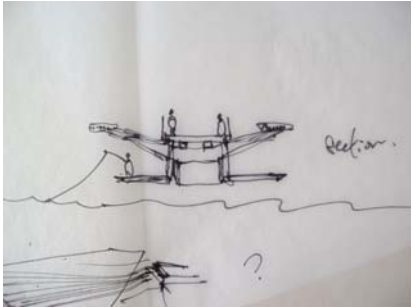
The Millennium Bridge project by Norman Foster was a critical aid for me during the process of design development particularly in trying to transform the solar shading into an articulated structural expression. The suspension cables that flank the pedestrian walkway are connected to and support the walk. The Millennium Bridge mimics the structure of a traditional suspension bridge however maintains a low



profile amongst the skyline by diminishing the intermediate pylons. The cables take the weight of the bridge and distribute it amongst the anchored concrete pylons and are fastened at the end by a steel and concrete base. Considering this, the proposed pedestrian bridge can act in the same way- through suspension of a frame, which hangs on the cables and directs the load to the ends. The difference is in the lack of intermediary support pylons, which are not permitted in this case since the rules require a single span pedestrian bridge.

Stretching over the Humber River by Humber Road, the proposed pedestrian bridge allows people to take their public park

experience over the waters. The program consists of three circulation routes: the first, a simple walkway that navigates across the river, and the others, shaded circulation platforms that flank the walkway over two meters below. These platforms are joined underneath the walkway, creating a continuous space that encourages passage between the two areas- in the same flow as the river underneath. The inhabitable platform can accommodate activities such as picnics and fishing but its open plan allows for flexibility in program according to usage.

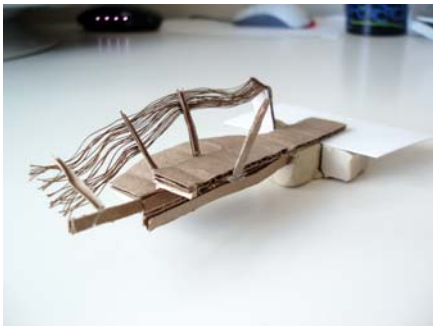


A series of investigations through sketches and models helped create the foundation for the final bridge form. From the initial sketches, the intention was that for the pedestrians to be able to utilize the bridge as an open space, with two or more levels that would enable flexibility in program and circulation. One possibility was to create a single pedestrian deck and another below

connected by ramps. The lower deck would be attached to framing which would hang on two horizontal box girders like a coat hanger. For further support, the lower deck is suspended by cables, which anchor to the ends of the bridge. This hybrid structure merges the suspension system of the Foster's Millennium Bridge in London, and a traditional beam and deck bridge with simple supports.



The method of anchoring the suspension cables to the ground was an issue during the schematic design. Again, the Millennium Bridge was examined as well as selected Calatrava Bridges. A simple solution was to lift the cables



possibly and drape them over steel pylons that point out at each end. The cables are then pulled over and secured to concrete foundations that are placed in the landscape. At the same time, the concrete base supports two parallel steel box girders that support in addition to the suspension cables. At regular intervals, steel U frames are positioned to bear the weight of the bridge and transfer it onto the cables. The U

frames are connected to steel L frames, which transfer loads onto the horizontal box girders, effectively relieving the load from the other.

The resulting proposal is one that allows pedestrians to take their park experience over the Humber River. The lower platform is a stage for various activities like jogging, fishing, reading, or even picnics. At the same time, a comfortable environment is created through the structural components of the bridge.

Works Cited List

Tzonis, Alexander & Donadei Rebeca. “SANTIAGO CALATRAVA The Bridges”. Universe, 2005; New York, USA.

<http://www.publicartonline.org.uk/case/mur/images.php?img=6>

<http://www.acconci.com/view/162/index.html>

<http://cms.graztourismus.at/cms/beitrag/10030644/328181>