

Competition Elective Research Essay; Sustaining Public Gathering Spaces and Forests

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“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.

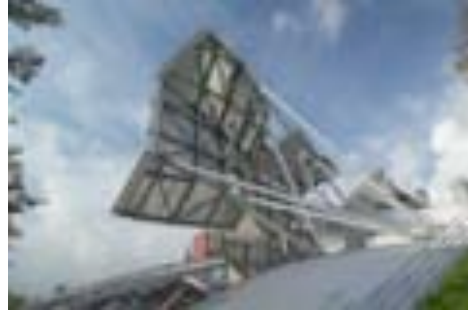
Public parks play a vital role in today’s urban landscape by providing grounds for human interaction with each other and the built environment. The human animal is naturally curious and is fascinated with watching others. Thus, public spaces such as parks located with in the context of large urban landscapes are destinations for a great number of people who wish to escape their hectic lifestyle of the modern city and watch others do the same. An example of such a park is the beautiful Stanley Park located on the northwestern coast of Vancouver city. The one thousand acre tree covered park is constantly buzzing with human activity and is accessible to any city dweller who wishes to experience enjoy Western Canada’s wilderness without having to stray outside of the city limits. Although this is such a large and well-used Public Park it provides almost no opportunity for one to go observe others because much of the activity is concentrated at the shore where people are busy navigating the paved paths. There are very few locations with in the park itself that encourage people to assemble and interact. This challenge to create such a place with in the landscape of the Vancouver Park would be the founding principles of our design of the bamboo music pavilion and I sought inspiration and precedence with in a certain architectural project, which exhibits a knowledge and understanding for the way in which humans interact with each other and how that can be enhanced by the built environment.



A project that comes to mind is the Pritzker Pavilion Designed by world-renowned architect Frank Gehry. The structure is located in Chicago’s famed Millennium Park, which is a large plot of land located on the city’s lakeshore.



Accommodating several pavilions, art sculptures and public gardens the park acts as threshold between the busy retail district of downtown Chicago and the rocky shores of Lake Michigan. The titanium clad amphitheatre houses a large indoor stage area enclosed by an operable glass façade that can be retracted during performances. The remaining part of the pavilion is heavy steel structure meant to support the great titanium sails that project sound outward from the stage and give the pavilion its unique appearance. In fact the rear elevation of the pavilion resembles the kind of structure one might see supporting a highway billboard and that is exactly what this pavilion's secondary function is – a billboard to draw attention to a place of communal gathering. The appearance of the building is very iconic and is positioned in such a way that many can catch a glimpse of it while walking through several of the busy downtown streets. It was meant, as a place for people to gravitate to and this intention is evident in the twisting titanium clad bridge designed by Gehry to connect to existing pathways in the adjacent park side to the pavilion's site. Finally the main feature of the pavilion is the seating area which is a sports field sized grass plane enclosed beneath a soaring steel structure from which lighting is suspended. The space is meant for people to gather and it is extremely welcoming. I myself have been within that space when it is full with people and it feels as though you are with in an enormous outdoor living room. This is the kind of sense that our design of the bamboo pavilion is meant to evoke. Taking cues from Gehry's pavilion we decided that it was best for our pavilion to adopt an iconic form, which would capture the attention of passers by and spark a sense of curiosity within them to explore the structure. The innovative application of bamboo in the cladding and the structure of the pavilion define it as this kind of iconic structure. Where Gehry's pavilion exposes the seating area and welcomes those passing by to have a seat we decided that an effective way to encourage an exploration of the space would be to completely enclose the pavilion with a cladding constructed by stringing a series of bamboo canes together to create a fence like structure which would ultimately be applied as a facade which one could see glimpses of activity inside, between the canes of bamboo. The interior of the pavilion was designed with the Pritzker Pavilion in mind we decided to create large bamboo trusses that would create a more intimate atmosphere with in pavilion, which would also act as structure to support the canvass membrane that would protect the audience from the weather, which is often damp in Vancouver. Like Gehry's pavilion our building is open and inviting. There are no doors to enter the structure, and therefore it is completely opened and exposed to the elements in hopes that those in the park will use the stage space and the space beneath the seating that is supported by the random placement of structural bamboo columns as a location to sit and seek relief from either the sun or the rain. The promotion of these kinds of activities will also encourage more people to gravitate toward the structure and use it as a means to interact with one another



and the surrounding environment. Aside from seeking precedence within an architectural project such as Gehry's, which explores fascinating, takes on what a public gathering space is it was also important that we complete research on the innovative ways in which bamboo can be assembled to create a structure such that our design moves beyond the conceptual constraints of a product of a design exploration and becomes believable.

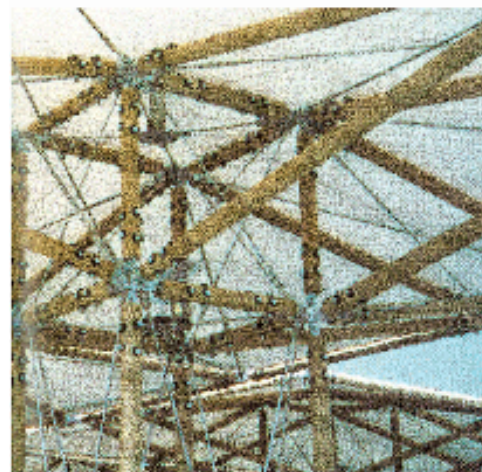
The use of bamboo as a building material has been a topic of debate for the past decade and the source for variety of experimentation by the likes of several world-renowned architects. Renzo Piano is just one of these architects and in 1997 he applied his interest in the design of technical details to a series of experiments referred to as "Experimente mit Bambusverbindungen." These experiments led to the development of

a series of connection details fabricated from aluminum, which allow the bamboo canes to be fastened together much the same way steel structural components have been assembled in modern buildings for years. Piano explored the possibilities of combining aluminum and bamboo to create strong easy to assemble moment connections which would allow bamboo canes to be considered as a structurally sound and sustainable option in contemporary



construction practices. These connections inspired us to develop the connection types we employed in the bamboo trusses and structural bamboo columns, which support the seating of the pavilion. Like the connections developed in Renzo Piano's workshop our connections take advantage of the hollow properties of bamboo canes by designing a custom steel piece which can be inserted into the hollow end of a bamboo cane and then fastened with a small mixture of concrete inside and bolts on the outside. This kind of connection allowed us to connect the bamboo canes to the concrete slab that is stepped to create a seating arrangement. This allowed us to express the structure of the seating area in the way that would define the space beneath the seats as a place of rest and shelter for park-goers. These bamboo connections are not uncommon to the world of architecture and they can be seen applied in Japanese architect Shoji Yoh's project Bambusdacher in Fukuoka. In this context Yoh establishes a space

by using several of these steel connections to create an umbrella-like canopy roof structure. Like the aforementioned fastening system the connections we employed for the columns are all pin connections which is an extremely efficient choice since the columns are all placed at random angles and there are so many of them. This would mean that the bamboo could be shipped to the site in specific lengths, cut to the size required, fastened to the steel connectors, and then the steel connectors could be adjusted to the correct angle via their pin connection. In the end we found that efficiency was indeed the



desired design strategy when it comes to dealing with bamboo because bamboo is such a sustainable and bountiful construction resource it only makes sense that the additional elements that go into the construction of a bamboo buildings have similar characteristics.

Thus the resulting structure is a public assembly space constructed almost entirely of bamboo designed with practicality in mind while exploring innovative theoretical and technical concepts that are addressed in modern pavilion design.

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