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**GREEN
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*Discourse
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Imagination*



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CHINA



FUNCTIONAL ART OBJECT

Low-cost and all natural bamboo pavilions from Germany, representing the country's expertise in sustainable design and building technology, make their rounds in China.

Germany and China launched a three-year campaign "Germany and China—Moving Ahead Together" in 2007 to promote German culture, science, economy and technology in China.

Pavilions made out of bamboo—one of the most versatile and sustainable natural building materials—have been designed to represent Germany's environmentally-friendly architecture and building technology. These bamboo pavilions have been showcased in several major cities around China since the start of the campaign.

Developed by installation artist and designer Markus Heinsdorff together with MUDI Shanghai who did the planning and the construction drawings, the pavilions, which come in varying sizes and types, are built from natural bamboo-tubes and bamboo laminate, covered with synthetic membranes on the roof and different materials for the facades. The pavilions—serving as functional spaces that could also be seen as art objects—represent a symbiosis between natural and high-tech-materials. Heinsdorff created not just the design but also new ways of using steel technologies to connect the bamboo laminate and tubes to a large structure. When necessary, new conjunction parts have been invented and built to keep all the different materials together; new designs and material combinations were introduced.

All pavilions are stringed with membranes and have low roof levels. Some of the pavilions feature a double-wall construction to provide an optimal climate inside the building (produced by shadows and air flow between the walls); some pavilions are completely transparent. The basic pavilion design is modular, and hence, can be arranged individually and adapted to the local conditions. There are woven and flat facades; every facade can be changed in terms of configuration, material and colour. The plaited outer wall caters for clouding and air circulation, presenting a cooling and flexible design, while the inner wall offers rain protection, isolation and natural air circulation. Another type of facade has one wall, is transparent and can screen the pavilion from view and solar glare. All used materials can be fully recycled and dismantled. Every single element can be easily replaced for reparation. As such, the pavilions could either be temporary or permanent installations, depending on the type of use.

Requiring low cost and low energy consumption, and combining high-tech materials with natural bamboo to create different permutations of the same concept, there are no other pavilions quite like these. Moreover, the use of bamboo leads the way to reducing future's wood usage worldwide. – **Markus Diem**

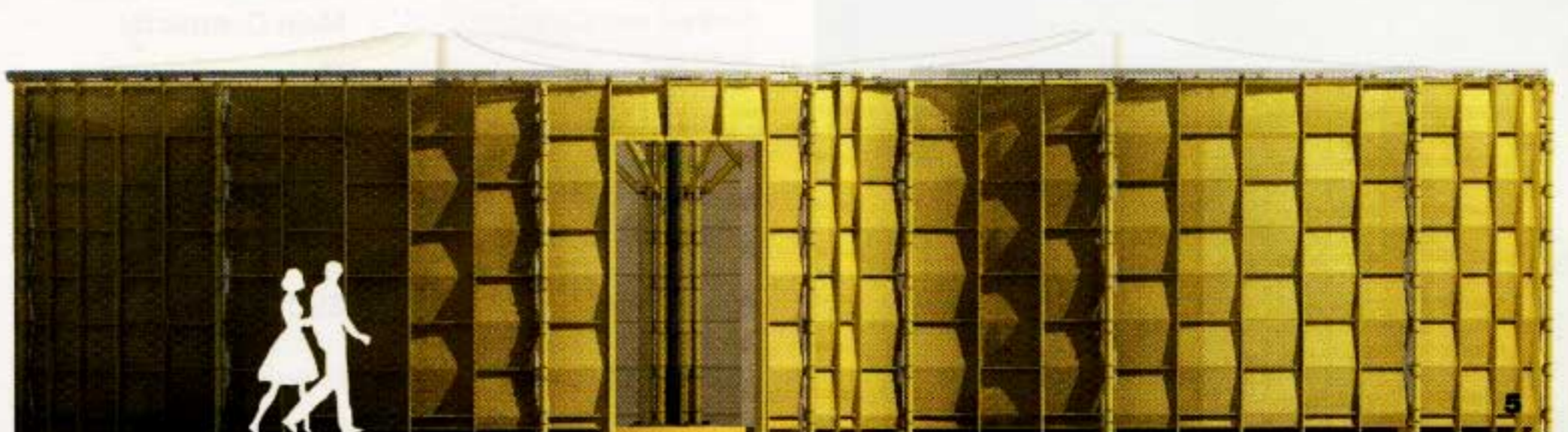
PROJECT DATA

Project Name
Bamboo Pavilions
Location
China: Nanjing; Chongqing;
Guangzhou
Status
Temporary buildings
from 2007 to 2010
Site Area
55 m² to 250m²
Gross Floor Area
1.594 m² (22 pavilions)
Number of Rooms
Each pavilion consists of one room

Building Height
3.6 metres to 5.3 metres
Client/Owner
Federal Foreign Office of Germany
Architecture Firm
MUDI Shanghai
Principal Architect
Markus Heinsdorff
Main Contractor
Shanghai Oriental Expo Services
Co., Ltd.
Mechanical & Electrical Engineer
Shanghai Oriental Expo Services
Co., Ltd.

Civil & Structural Engineers
Schachl Walter G., Cons. Ing.
Architecture (Munich); Schlaich
Bergemann and Partner (Stuttgart);
Tongji University (Shanghai)
Images/Photos
Markus Heinsdorff; Markus Diem

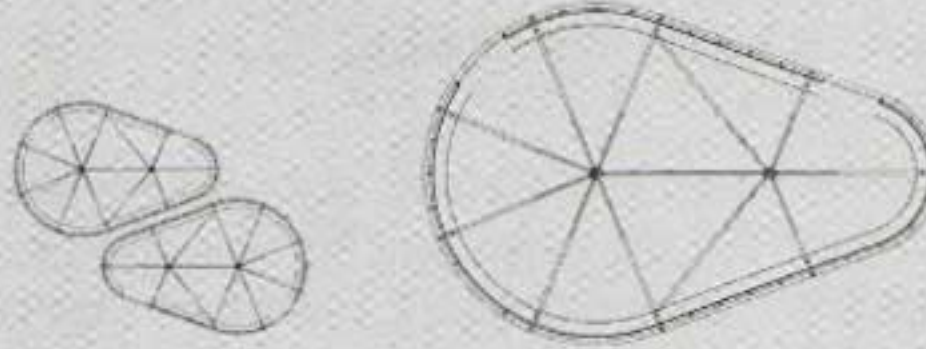
1 & 4 Façade detail
2 & 3 Structure detail
5 Perspective view



PAVILION TYPES

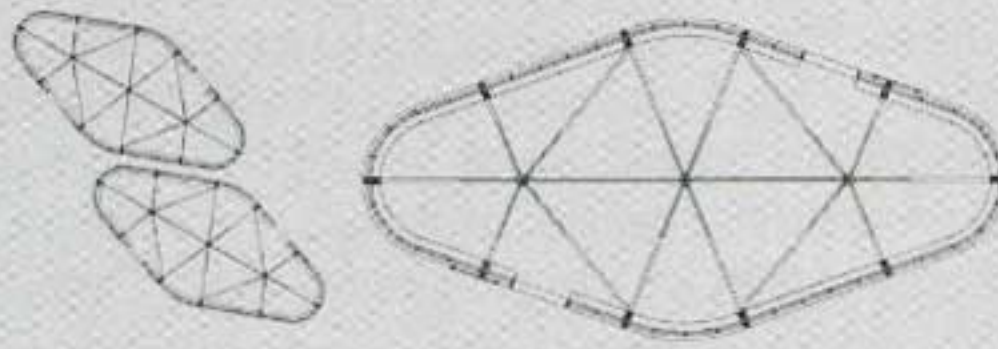
NAVETTE PAVILION

Floor Area: 55 m²
 Pavilion Height (Facade): 3.7 metres
 Roof Highest Point: 4.2 metres
 Facade Layer: Double/ Single
 Facade Style: Flat/ Woven
 Facade Material: Golden Mesh/ Silver Mesh/
 Transparent Foil/ Colour Textile



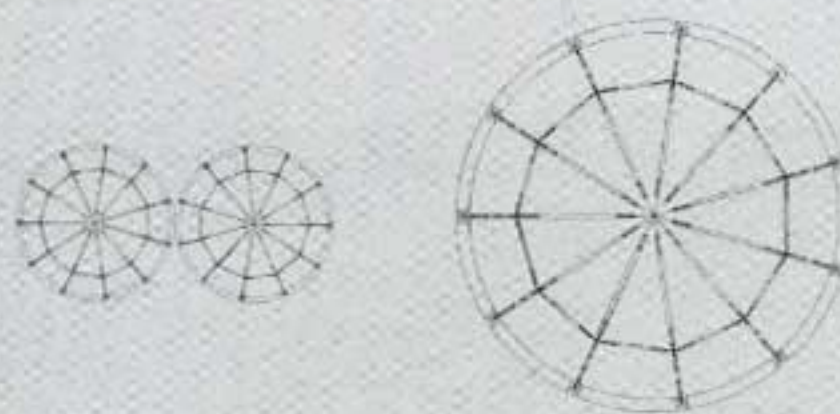
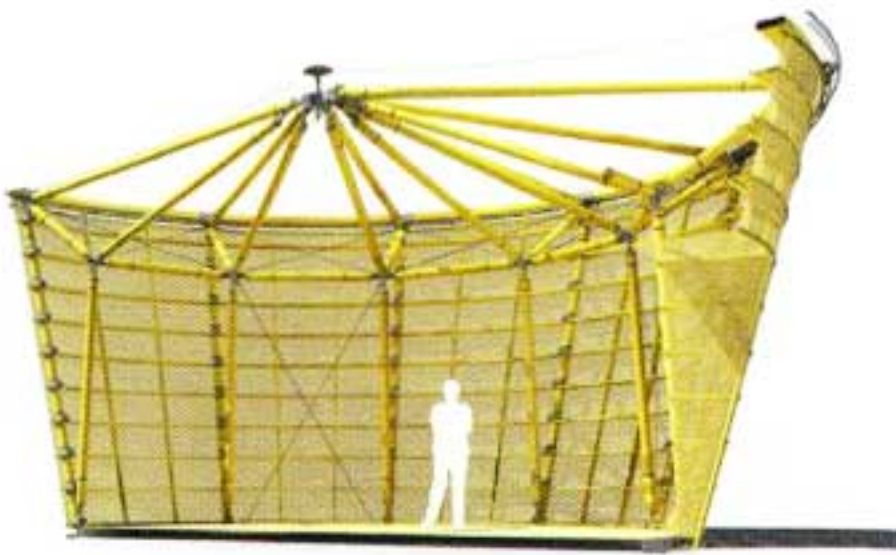
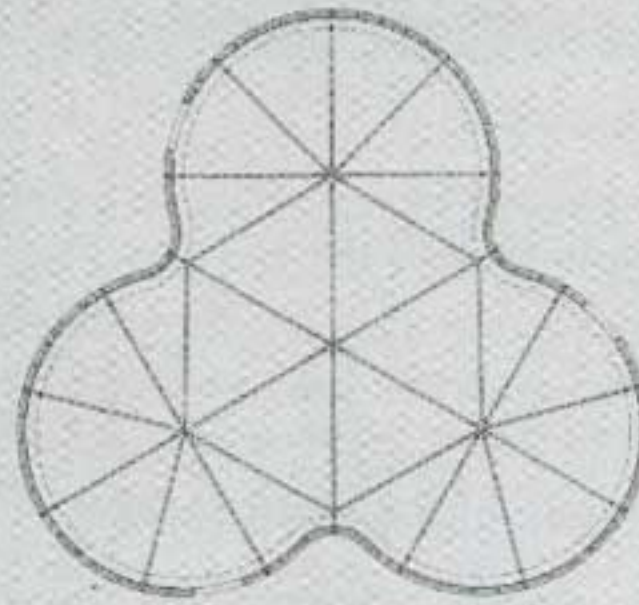
DIAMOND PAVILION

Floor Area: 72 m²
 Pavilion Height (Facade): 3.7 metres
 Roof Highest Point: 4.2 metres
 Facade Layer: Double/ Single
 Facade Style: Flat/ Woven
 Facade Material: Golden Mesh/ Silver Mesh/
 Transparent Foil/ Colour Textile



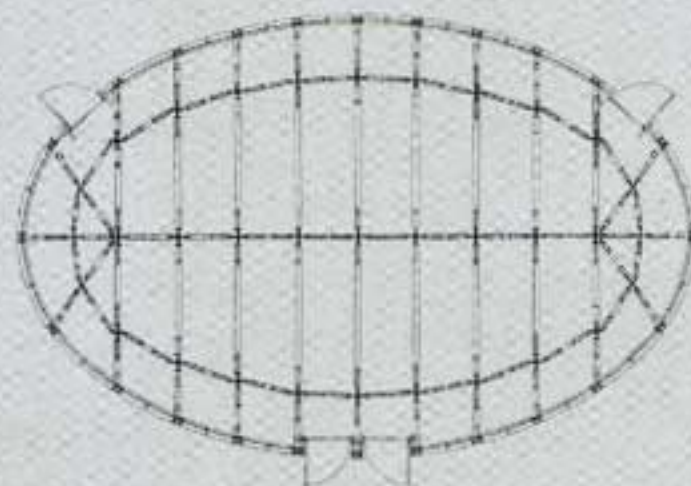
LOTUS PAVILION

Floor Area: 142 m²
 Pavilion Height (Facade): 3.7 metres
 Roof Highest Point: 4.2 metres
 Facade Layer: Double/ Single
 Facade Style: Flat/ Woven
 Facade Material: Golden Mesh/ Silver Mesh/
 Transparent Foil/ Colour Textile



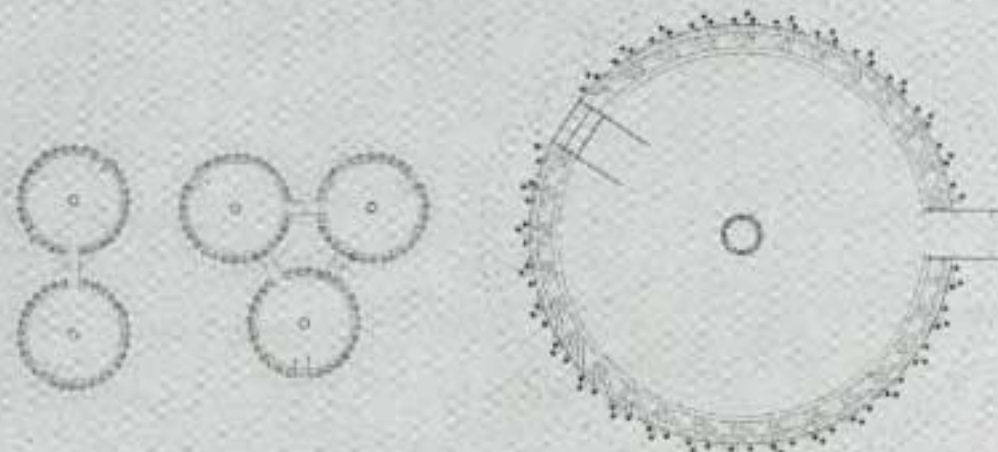
DOME PAVILION

Floor Area: 36 m²
 Pavilion Height (Facade): 4.1 metres
 Roof Highest Point: 4.7 metres
 Facade Layer: Double/ Single
 Facade Style: Flat/ Woven
 Facade Material: Golden Mesh/ Silver Mesh/
 Transparent Foil/ Colour Textile



CONFERENCE PAVILION

Floor Area: 121 m²
 Pavilion Height: 3.7–5.1 metres
 Facade Layer: Double/ Single
 Facade Style: Flat/ Woven
 Facade Material: Golden Mesh/ Silver Mesh/
 Transparent Foil/ Colour Textile



CENTRAL PAVILION

Floor Area: 69 m²
 Pavilion Height: 3–4.7 metres
 Facade Material: Textile