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Selected Works

I material
II enclosure
III objects
Woven

Xin Fu Yuan Cun, Zhejiang Province, China

Activating public space by small-scaled bamboo constructs.
Woven

MENTOR: WeiHua Jiang, Ming Gu, Wang Shi & Li Wenyu
Location: Xin Fu Yuan Cun, Zhejiang Province, China
PARTNERS: Xing Ma, Liu Yuepeng, Yue Gu, Yangyang Wang, Xiaohi Zhao

Xin Fu Yuan Cun nestles in the valley of mountain ranges in the Zhejiang Province of eastern China, a two-hour ride from the city of Hangzhou. For a thousand years, the village has been known as “The Village of Happiness” and when one arrives that is exactly what one finds.

We were brought in to advise the global planning of infrastructure and gathering spaces which would serve the tourism industry. Addressing the lack of open public spaces, we identified potential sites for interventions. Additionally, in understanding the importance of maintaining the village’s identity during this potential cultural shift, we sought to work closely with the villagers. We collaborated with local weavers and furniture makers to design a series of canopies and furniture pieces made of the valley’s abundant bamboo and reedy.

The Canopy

While functional, the woven weaving is integral to the structure’s integrity as it provides immense redundancy that both connects and supports the primary arches.
THE CHAIR

In addressing the lack of public space in the village, we proposed a series of small-scaled interventions. Situated within these sites are a series of chair, which draw inspiration from a number of bamboo objects found in the village: baskets, chairs, fans, fences, tobles, and cooking utensils. In particular, study in basket weaving informed the double-layered design, in which a flexible seat is supported by a bamboo armature. Also, study in the local craftsmen’s methodology greatly influenced the furniture’s detailing. At each site, the chairs would be stored in bins under the canopies, which would protect them from rain and direct sunlight when they are not in use.
THE STALL

A humorous exploration on how the toilet unit could be re-understood led to collaboration with the local basket weavers. Integrated by the structural capabilities of woven bamboo, its lightweight, and its integral connection to the village environment, the unit is a first attempt within the village to use bamboo as construction material.
reimagining masonry

Cambridge, MA

A simple proposition was made to us; do you want to design and build something beautiful with your own hands? Something that may not only be very novel, but more so practical and replicable by many, while ensuring structural stability to its inhabitants? It was with this that we had set out to explore.

Weeks in, we discovered the true meaning of their words. We did not set out to discover yet another interesting form to build, but rather a call to those techniques which enable these geometric variations to exist.

That is the beauty which we seek.
Dancing Bricks

Mentors: John Ochsendorf & Mark West
Partners: Ching-Ying Ngiam & Jae-Tung Lee

"And you say to a brick, 'What do you want, brick?'" - Louis Kahn

Attaining complex geometries by use of the standard brick has so far proven to either extremely demanding of the materials needed to construct a framework or of technology of limited accessibility (such as the robot arm). The research posed the use of cloth in combination with blocked placeholders to provide a simple tool by which designers could attain such geometries. The cloth’s fluidity allows for curves that are resultant of gravitational pulls, while the placeholders enable the composite to act as a guide for the mason’s hand. This research both explored the possible geometries and methods for how to construct structures using this "field of bricks".
Proposed Methods to Stiffen the Formwork

Methods 1-3 propose a reusable formwork, while methods 4 & 5 propose formworks that build upward by vertical expanding:

1. The fabric is tensioned by cables attached to its edges.
2. Similar to #1, with a network of cables running through the formwork.
3. Use of tension rings to provide necessary structure.
4. Spray foam is applied and expanded between the placeholders.
5. Resin is applied to the cloth.

Layers of Construction

a. The tool acts as a guide for the bricks laying as the mason maintains two fingers between the formwork and the bricks; the tool is removed upon completion.
b. The tool is grouted to the brick wall; blue foam placeholders could act as insulation.
c. Sheets of mason tiles are fixed to the cloth and grouted.
d. Continuation of method c, with bricks laid according to the tiles and producing two-finish conditions.
healing Play!scapes

Boston, MA
client: IRISH Foundation
program: childhood cancer community center & residencies

We built forts out of pillows, flew over the world on brooms sticks, saw the world in saturated colors, and asked questions. 
our curious minds unafraid, The world was a playground.
Situated beside Lara Anderson Park in Brookline, the proposal is a study of landscape as a typology for architectural design of a cancer community center and residential facility for childhood cancer patients and their families. Organized in three essential sections, the building is composed of two curved bar buildings which frame a dynamic landscape form that moves up, becomes a part of, and continues through the building to connect the two primary clusters of vegetation on the site. In effect, the park is pulled inward, becoming accessible to occupants throughout the year.

As Boston experiences harsh winter conditions for much of the year, outdoor spaces such as the park is less accessible for those undergoing cancer treatment. In response, the center's primary feature is an indoor park space, capable of sustaining vegetation all year-round.
While the flanking bars are programmed to house the residential units, consultation center, and Richi House Headquarters (all of which are more private in nature and generally necessitating more quiet spaces), the section between is dedicated to multiple spaces of play, social congregations of different age groups and sizes, and areas for quiet contemplation in a natural setting.

Projected as a sequence of open spaces, the landscape presents a mediation for children, teens, and adults with the reality of cancer via a range of activities depending on each's need.

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anthropological container

Guadalajara, MX

PERIMETERS
DIMENSIONS
20' x 35' x 20'

PURPOSE
To be a Shetter

PROGRAM
**Enclosure | Anthropological Container**

**MENTOR:** William Tibon  
**Location:** Guadalajara, Mexico

**Active Skin**

Inspired by the movement of air, the skin is designed to be reactive to the primary winds that blow through Guadalajara, MX during different times of the year. The exterior skin is composed of full-spanning, vertical panels of a light fabric tensioned in plan by a system of steel cables and light timber. When impacted by winds from any direction, rotational joints allow the panels to turn in whichever direction that would best reduce the amount of force upon the skin's surfaces. In doing so, the panels direct the mitigated breezes into the pavilion’s interior, producing a dynamic experience dictated by these temporal forces.

**Breatbility**

In reaction to the region’s hot and humid climate, the pavilion is comprised of a system which promotes ventilation. Glass walls on the East and West sides are operable, capable of opening up the interior almost completely to allow breezes to flow through. Wooden louvers make up a raised floor, walls, and the interior ceiling for maximum porosity while providing proficient shading.

**Study of Prevailing Winds**
Deep garnet red, with hints of amethyst and sparks of golden hues make up a full-bodied wine. A play between blueberries and black currants complement dark chocolate and a dry, salty undertone.
CATCH is a winery of paired juxtapositions between that which is seen versus that which exists, but is "unsaid" by the public eye in everyday life.

In reaction to the region's ongoing drought, the winery proposes to take advantage of the existing diurnal temperature swings to harvest dew. A roof canopy of recycled plastic cladding enables evening condensation that is directed to underground cisterns. Composed as a field of funnels, the canopy seems to hover above the ground as its cylindrical bodies enable sunlight to penetrate the complex's shade. The project is about the space produced between the structure of this canopy over the sloping site.

The material palette for the winery comes from the region: granite, pre-fabricated metal walls, steel structure, and multi-hued plastic sheets made from recycled plastic bottles. The vault's structure is made of steel trusses from mills in Ensenada and the granite is sourced directly from the site. The recycled cladding comes from the region's abundant landfills.
The winery’s programs are organized around these physical intersections between the canopy and ground, such that each program has access to the relative volume of water which it requires. The fermentation and barrel storage rooms are organized in relationship to the larger cisterns below grade, while smaller "micro-wineries" are located further up the slope.
object | A Core

MENTOR: Artur Garcia-Ayarz

The project derives from a study of the “core” as an archetype of architectural origins. Understanding the “core” as the datum which runs throughout, organizing spaces and directing circulation, the core is essentially a relationship between mass and void. The entity thus becomes a product of action-reaction forces between the two as it evolves over time.

Tower of Hercules - Rodfüg

Voided Developments

object | An Extension

MENTOR: Artur Garcia-Ayarz

PARTNERS: Ching-Yi Ngai & Samuel Schneider

That process which governs the interaction between mass and void is approached as subtraction and immediate reorganization. As this process proceeds, the character of the mass-void relationship inverts. While the mass holds dominance initially, increasing perforations reciprocate this. As the structure extends upward and outward, the void begins to overtake the entity, to the point that it seems as though the masses are held in space by the void.
In this installation, the two-sidedness of the wall as a producer/ manipulator of sound is explored through the user’s interaction with it. On one side, it is encouraged to touch the surface’s varying textures as resulting sounds are captured and then played back at amplified levels, exaggerating the sounds of these interactions with the wall. The wall’s other surface presents additional toys: a mixer and a series of contact microphones. Interacting with the surface with these disks produce strange resonances across the differing geometries and material palettes. Varying the sounds through their movements across the two surfaces, the users play the wall much as one plays a musical instrument.