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LIBRARY OF TACIT KNOWLEDGE
If explicit knowledge is sanctioned by academic institutions and widely represented in libraries today, the production and exchange of tacit knowledge is currently outside the consideration of the library institution. The library of tacit knowledge should codify and legitimize not only text-based, academic knowledge but also other forms of knowledge produced by the community. By translating an existing thriving network of infrastructure - ranging from oral, informal to virtual - to a physical space, the library makes a statement of legitimizing bottom-up information as well as enables traditionally recognized forms of knowledge exchange.

The space for storing collective knowledge is going to be lively, chaotic, and it visually conveys the social negotiations at play. The library is largely divided into two types of spaces: the stacks and the perimeter. If the stacks offer an adaptable plan where the users of the library can arrange and station their topics of interest in a flexible way over time and not fixed to a particular medium, the perimeter is a highly authored zone that wraps around the stacks where tacit knowledge is produced, recorded, and accessed.

The inserts within this perimeter, varying in vertical scale, footprint, and degrees of openness, offer a variety of spaces suitable for workshops, community meetings, or media production and consumption (watching archived videos, for example). These inserts, by pushing into the stacks through an internal membrane, also variate space in proximity to the public functions and create different conditions within the stack.
LIBRARY OF TACIT KNOWLEDGE

Instructor: Florian Idenberg
Fall 2018 Options Studio
WANDERLUST & INTOXICATION

The material scarcity of Valle de Guadalupe is obscured by the region’s abundant and growing winemaking businesses. Its reputation as the leading wine producer in Mexico and recognition in the international market have brought a surge in the wine tourism in the region. Yet the culture of tourism is shifting—it is moving from a desire for conspicuous consumption to a desire for experience—and the rise of a local wine harvest festival (Fiestas de la Vendimia) is a testament to this movement.

However, wineries in the region tend to be self-similar. There is a scarcity of spatial experience not only in the lack of accommodation spaces but also in the homogeneity of the boutique culinary and wine-drinking typologies. This project proposes a social condenser that celebrates experiential abundance rather than material abundance to help the region transition from its current extractive economy to a (more sustainable) economy of experience.

The primary goal of this project is to create a diversity of architectural experiences and atmospheres using a minimal amount of materials. Glass Fiber Reinforced Concrete is sprayed onto a flexible fabric. Unlike conventional rigid formwork the form of the fabric can be parametrically varied while maintaining a simple and materially efficient construction. Three framework typologies (point based, line based, and frame based), combined with the fabric conditions (tight, loose) create undulating thin-shell structures illustrated on the board. Depending on anchor points of the fabric formwork, these thin-shells may be continuous walls, or creates slit-like openings for circulation. The foundation rings closely follows the undulation of the shell structure above and keeps the recesses thermally conditioned with radiative cooling and heating using a simple solar powered heat pump. This makes possible thermal, haptic experiences, encouraging people to touch and rest on warm or cool surfaces. Daylighting can be controlled by the orientation of the top aperture and the treatment of the thin shell concrete itself. Using the tops of recycled wine bottles as light guides, different gradations of translucent concrete can be achieved. Depending on the time of day and the season, the shell may take on various atmospheric characters and interact with the light in both austere and exuberant manner.

The project seeks to produce wine yes—but also an abundance of spatial conditions through which visitors of this winery can wander. Entering through the slit in the façade curtain wall, the visitors are dazzled by the play of light. The spaces are stumbled upon, rather than directed to. The visitors may venture into the light filled restaurant or venture into the darker fermentation rooms, and then slip out into the outdoor courtyard guided by a breeze, and back into a cone shaped banquet hall. The visitors are also encouraged to rest in the recesses, temporarily, or perhaps over the night. In short, the visitors are intoxicated by wine, conviviality and space.
WANDERLUST & INTOXICATION

Instructor: Sheila Kennedy
Fall 2018 Core Studio
WANDERLUST & INTOXICATION

Instructor: Sheila Kennedy
Fall 2018 Core Studio
WANDERLUST & INTOXICATION

Instructor: Sheila Kennedy
Fall 2018 Core Studio
WANDERLUST & INTOXICATION
CERAMIC ACCIDENTS

This “accident machine” rethinks our teleological conceptions of human-machine interaction and proposes a chance-based (and gravity-based) design process in which slip (liquid clay) is deposited on plaster molds. Following a machine designed by Studio Joachim-Morineau, our machine adds valve control and multiple options for speeds, rotation, and flow through the software interface. We designed the chipboards, the object itself, the molds, and the software to create this project.

In collaboration with Dalma Földesi
Additive manufacturing (AM) has expanded possibilities for materialising structures that achieve their strength through intelligent, but complex geometries. This paper articulates one of several novel design-fabrication strategies optimising FDM as a technique for producing self-supporting structural scaffold, whose strength is built up gradually by additional application of structural material layers. The approach leverages computation to synthesise the advantages of traditional and additive manufacturing: force-explicit equilibrium-based design methods are used to derive complex doubly-curved and compression-only forms that respect the limits of the scaffolding material, and can be digitally fabricated and assembled into durable structures without the need for intensive labour and formwork requirements.

An integrated form-finding method was devised to simultaneously optimise the design variation in the shell’s corrugation depth, and in the density of its internal tessellation as printing path—while incorporating fabrication and assembly considerations, such as panel planarisation, and the strength and ductility of the printed material. The feasibility of the novel assembly process is demonstrated with the construction of a bridge measuring 5-metre in span.

- excerpt from the abstract for IASS Annual Symposium 2019 paper submission

In the bridge design I was responsible for proposing the initial design, generating tessellation density optimisation, and assembly layout.

In collaboration with Xiang Wang, Kam-Ming Mark Tam, Dalma Földesi, Hyerin Lee, Anna Vasileiou, Youyuan Lou, Chun Peng Su, Xiao Zhang, Zain Kasan, Gene Ting-Chun Kao, Liming Zhang, Hua Chai, Philip F. Yuan, Philippe Block
Our bound house seeks to recover forms of encounter that are otherwise socially abject, suspect, or disdained. Folds, slits, and orifices supply means of meeting at the threshold of intimacy and discomfort, either through their momentary occurrence or in the queasiness of their slight possibility. Our room registers multiple, displaced bodies and transmits those movements across its depth, overlaying degrees of connection, from the physical touching of an anonymous backside, to the bumping into another’s face, to the jostling of some other presence at a distance.

In collaboration with Stratton Coffman, Aaron Powers
This exercise explores the bias of certain views in the axonometric projection and translates it to a physical artifact. By collapsing lines together, an axonometric drawing can be abstracted to a point where it no longer informs an object's spatiality. This obsession to obscure any spatial information carries over to the physical realization by using the line of projection to thicken the surface into a three dimensional form. The resulting artifact has an extremely flat reading on one view (top); when positioned in another view, the artifact reads in an equally obscure reading of its spatiality (bottom).
This project challenges the permanence of architecture by proposing an alternative relationships among enclosure, building and landscape. Rather than imposing its presence as a permanent installation, the lightweight structure responds to changing needs of a seasonal performance theater. The surface appears to hover in mid air, spanning hundreds of feet using existing trees as its support. The presence of such dynamic and expansive structure blurs the boundary between enclosed and open space. In this new context, the existing buildings and landscape acquire new meanings; houses become symbolic objects housed under a new roof, and the landscape becomes an inhabitable interior space.

Pneumatic systems offer various degrees of flexibility and structural integrity. Three types of initial studies show distinct potential of pneumatic systems for flexibility. The initial setup explores combination of cell deformation and airflow control in defining form and degree of rigidity. This was developed further into a hybrid system with an auxiliary structure with elastic cables to counteract compression force of the inflated cells; this allowed for structural integrity that was lacking in earlier studies.

One of the discoveries during the iterations was that the pneumatic cells in an non-uniform diagrid exert a torsion, thereby eliminating the need for a secondary structural system. Below are series of empirical studies that demonstrates inflation behaviors of nonuniform diagrids. The parameter for testing included concavity, hole size, global rotation, and the effects of discontinuity(slits).

The structure serves multiple purposes - climate control including air purification, sensory stimulations such as lighting and speaker units attached to each of the cells, and global shape-shifting with inflation to control visual and physical access within the enclosure.
CLOUDS

Instructor: Lisa Iwamoto
Fall 2014 Studio
CLOUDS

Instructor: Lisa Iwamoto
Fall 2014 Studio
This project aims to integrate various aspects of the building performance—its environmental impact, social implications, and efficiency in a coherent, unified formal gesture. The design process involved collective research on the various case studies of building performance and incorporating the knowledge into the representative ‘conceptual cut’ that reveals not only the strategies to address environmental concerns but also the overall organization of the building as a whole.

The project ‘good food’ serves housing of the urban agriculture movement that seeks to localize food production, consumption, and research in the urban areas. The main goal of the urban agricultural movement is to bridge the gap between the city dwellers and food, both conceptually and physically. By organizing the programs into staggered solids and opening up a large void toward the busy intersection, the building achieves a strong public visual presence and invites both visual and physical interaction.

The facade is composed of three layers: the color-coded wall surface, perforated metal panels, and a glass frame. The colors on the wall surfaces reveal the four groups of programs at a close range. The panels have degrees of transparency depending on the orientation and fenestration. The panels rise beyond the colored walls to serve as a common boundary of both the solids and platforms—a decorative shading device for the former and a balustrade for the latter. The glass frame delineates the boundary between the interior and exterior, thereby creating a tertiary condition: garden and terrace.
GOOD FOOD
GOOD FOOD

Instructor: Gerard Creedon
Fall 2013 Studio