

SARAH STANCIK

Undergraduate Portfolio

2016



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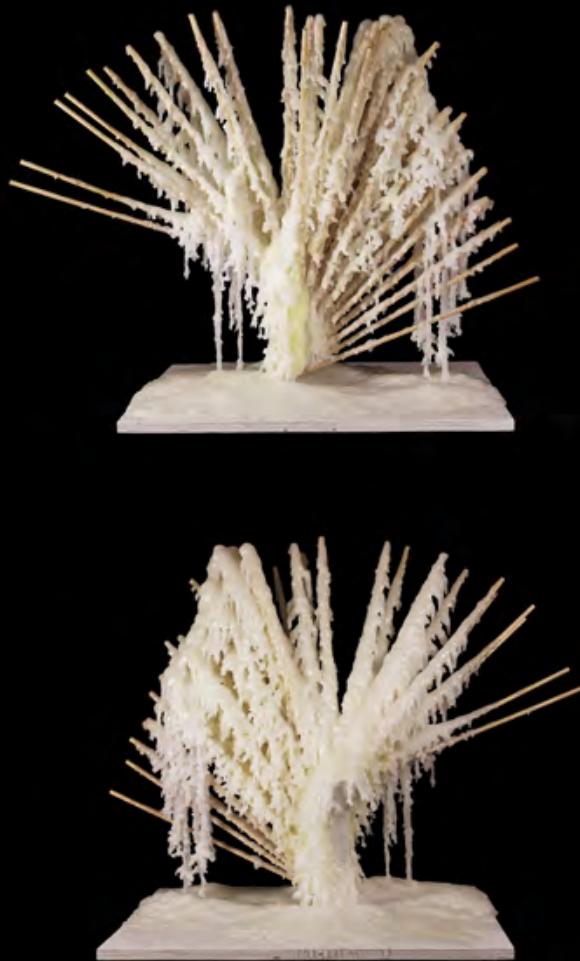
ACUPUNCTURE

Prototype -- Igor Siddiqui

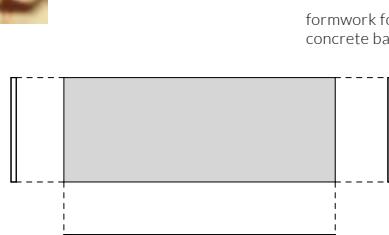
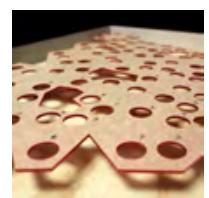
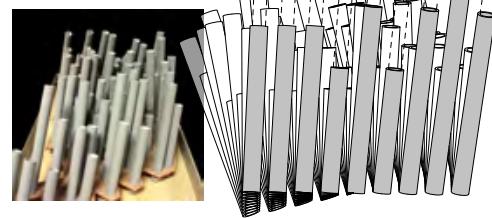
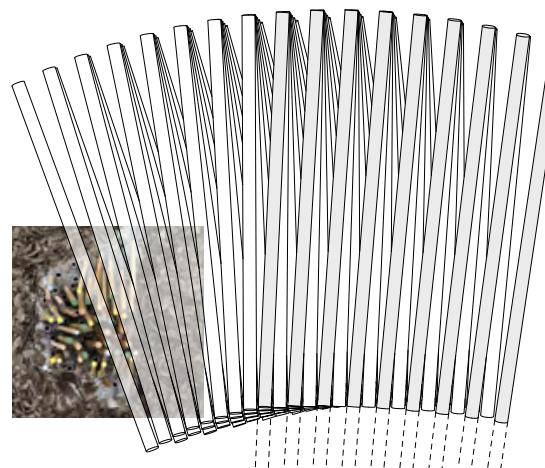
Fall 2014

In an age of digital fabrication, 3D printers allow for mass customization of product parts. However, this manufacturing technique has limitations due to the setup needed for production. Common fused deposition modeling restricts the dimensions of printed pieces by the size of the printing bed. To bypass this problem, designs commonly breakdown larger objects into modular components.

Architects have historically designed stools to test ideas of fabrication. With this stool, Acupuncture proposes that one component of reasonable size could be used to generate a larger product with the same level of customization throughout. It takes the approach of constructing a product outward rather than building within a scaffold. One precisely-made plug translates the accuracy of a digital model into the entire physical output as an extension growing out of a base. Initial studies use a small 3D print to support wood dowels coated in wax. Subsequent iterations of the stool recreate the accuracy of a 3D printer with minimal machine aid. In the final iteration, the plug changes to layered sheets with drilled holes, altering the placement depending on the digital definition, and extruded PVC supports an extension of dowels to form a seat.



early prototype with 3D printed plug





HIDE/REVEAL

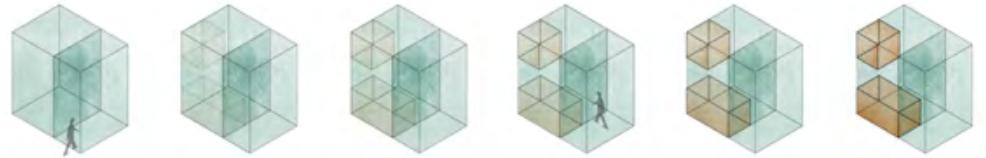
Technical Communications -- Matt Fajkus

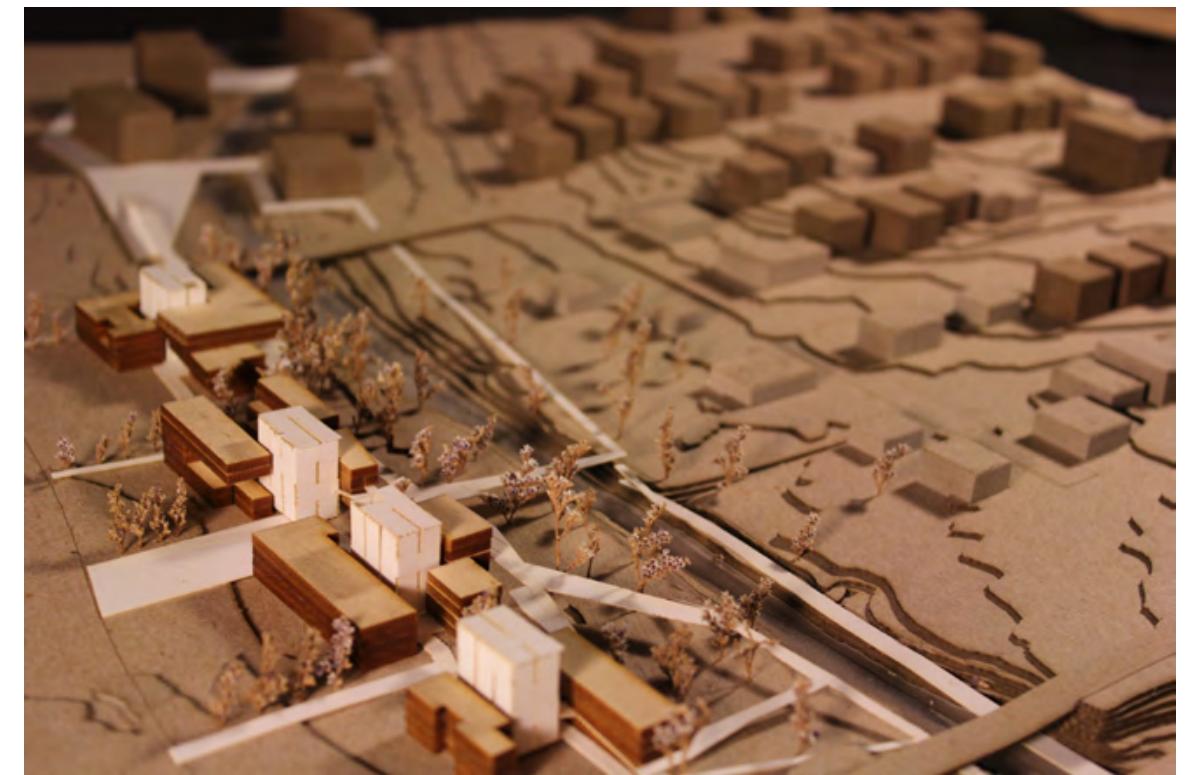
Team member -- Saranya Kanagaraj

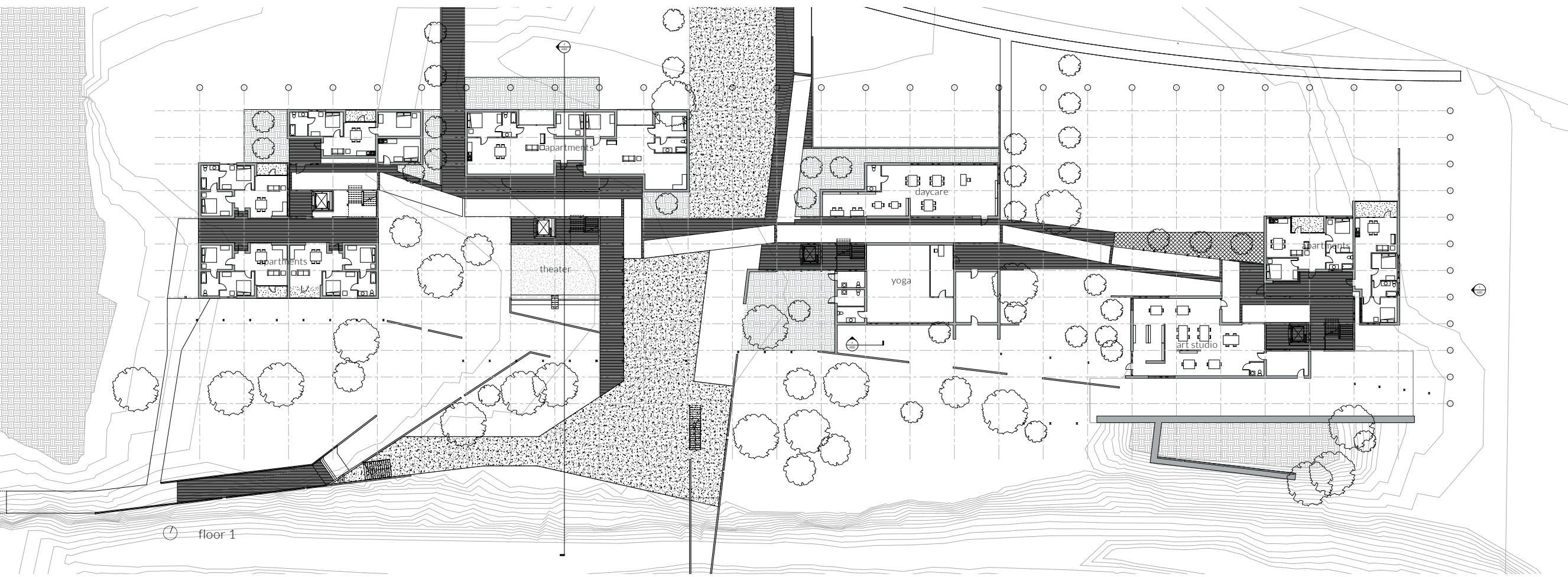
Fall 2015

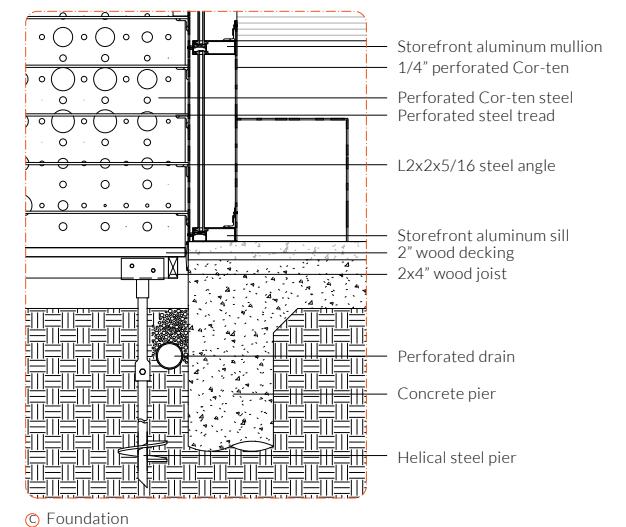
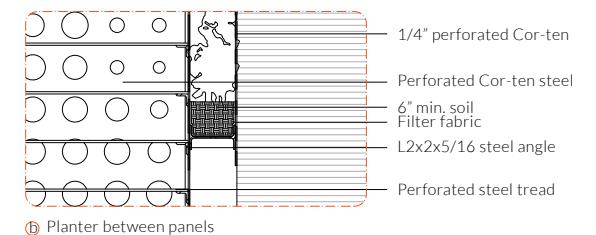
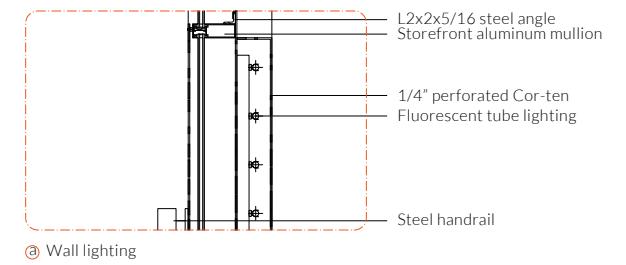
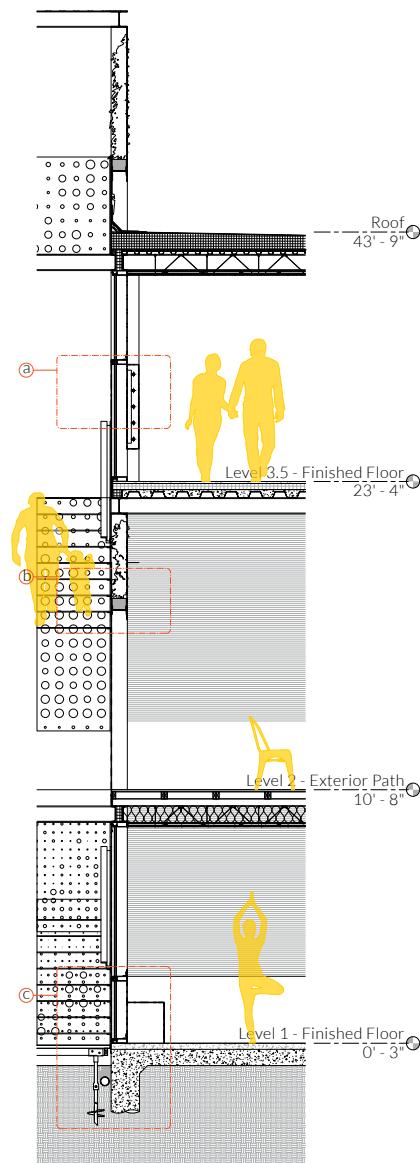
Access and visibility of a space change over time based on the scheduling of programs and visitors' locations. Hide/Reveal uses this fact to mix a series of "third places" - familiar hangouts other than home and work - into a new retiree community along a major walking trail in Leander, TX. Apartments and bed-and-breakfast rooms share transitional space with programs that sustain the social, physical, and mental well-being of residents and visitors.

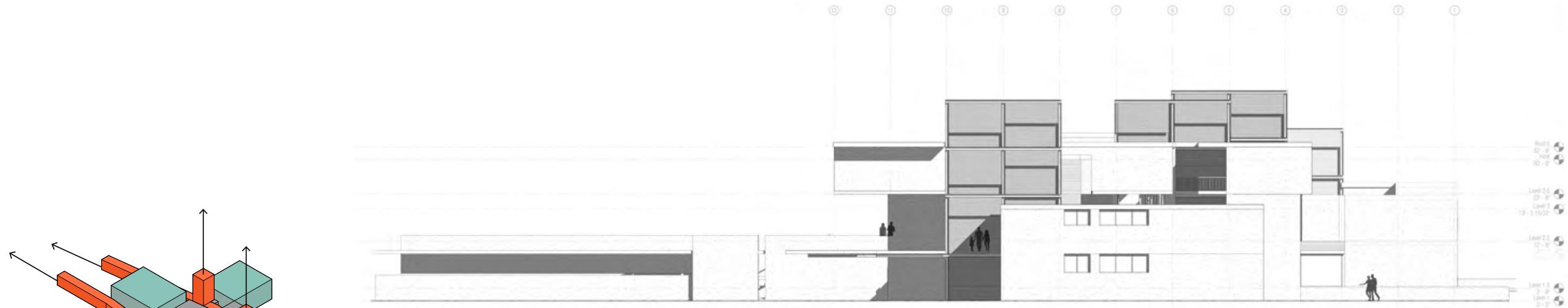
Vertical cores throughout the community act as points of pause that tie the buildings together and promote the comfort of a "third place". Each core, unconditioned and made of double-layered corten steel, structurally integrates into the surrounding programs. The perforated steel panels support small scale additions – seating in the yoga studio, plants along the stairs, mailboxes around apartments. Parallel to the main trail, a secondary path at ground level connects the cores and a surrounding combination of enclosed and open spaces. While residents can access the market, outdoor theater and other programs from either path, having an option provides ease of access that promotes lifestyles of independence as residents age.



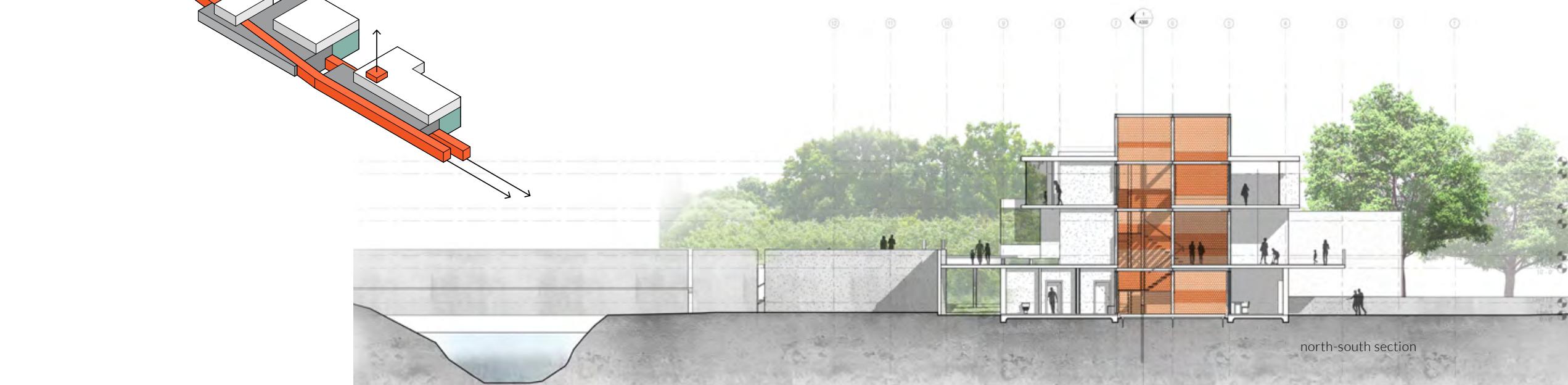




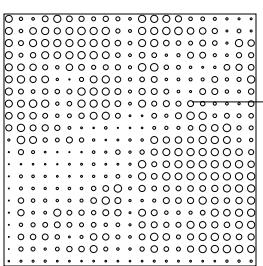
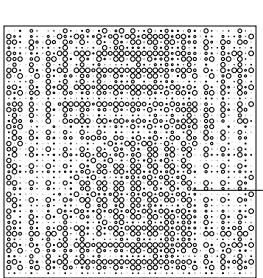
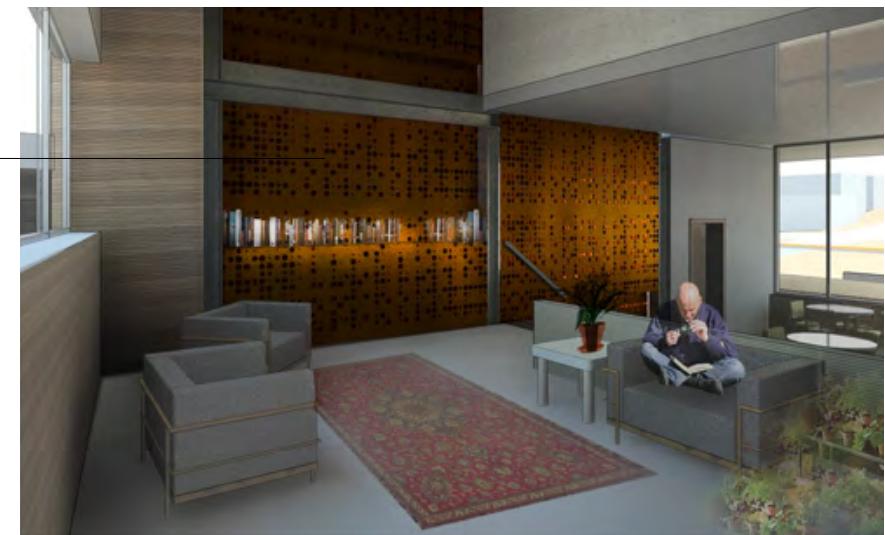
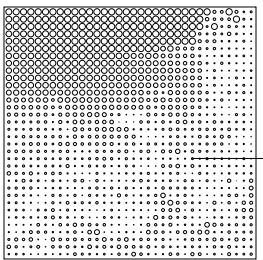




east elevation



north-south section



ERKENNEN

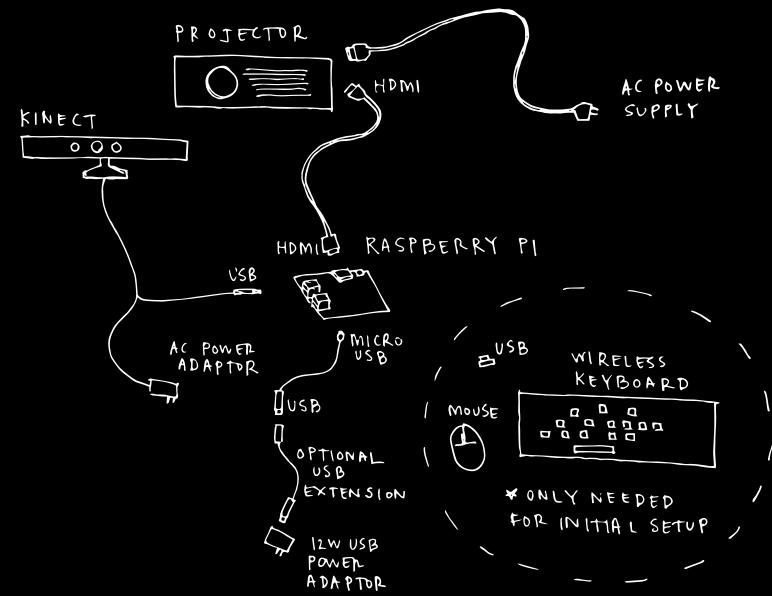
Independent Study -- Danelle Briscoe

Spring 2016

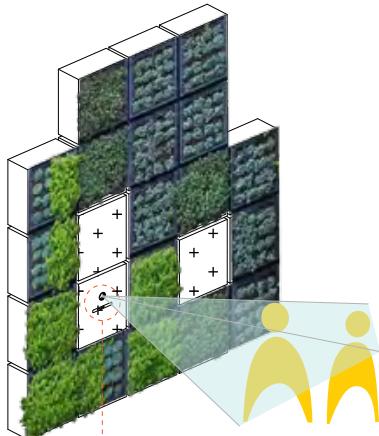
Erkennen, to recognize or to know, refers to the idea that computers recognize and comprehend human signals and vice versa. This study began as an abstract, interactive art installation and developed into a test of the way people communicate with machines. Erkennen serves as a tool that responds to human movement with further information about a specific location, and it records the encounter.

Fit to a cell in UT's Living Wall, a projector and Kinect act as input and output for a computer in the communication loop. While the Kinect reads physical movement, the projector maps corresponding patterns directly onto people in range. Projected colors correspond to the viewer's location, showing the pattern of plant placement in the wall.

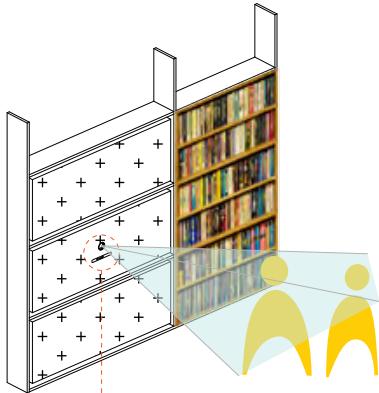
These devices require audience participation to activate an interaction. Recognizing that participants usually create a spectacle of irregular movement in this situation, embedding the hardware into an existing system shifts focus onto the space rather than the action. With a similar setup and adapted projection, the computer could be used in other locations, such as a library, to redefine how people move through space.



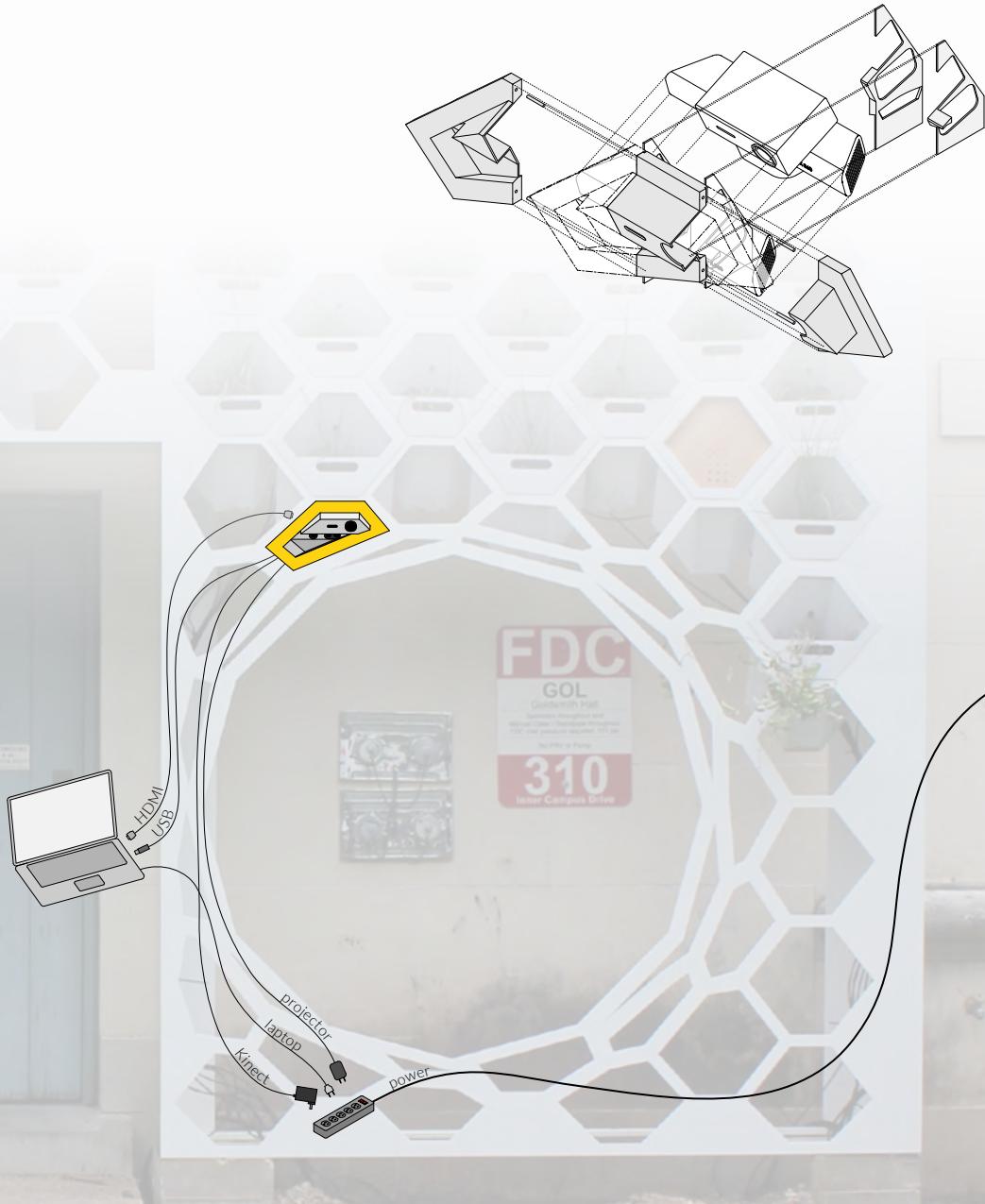
initial hardware ideas using ARM devices



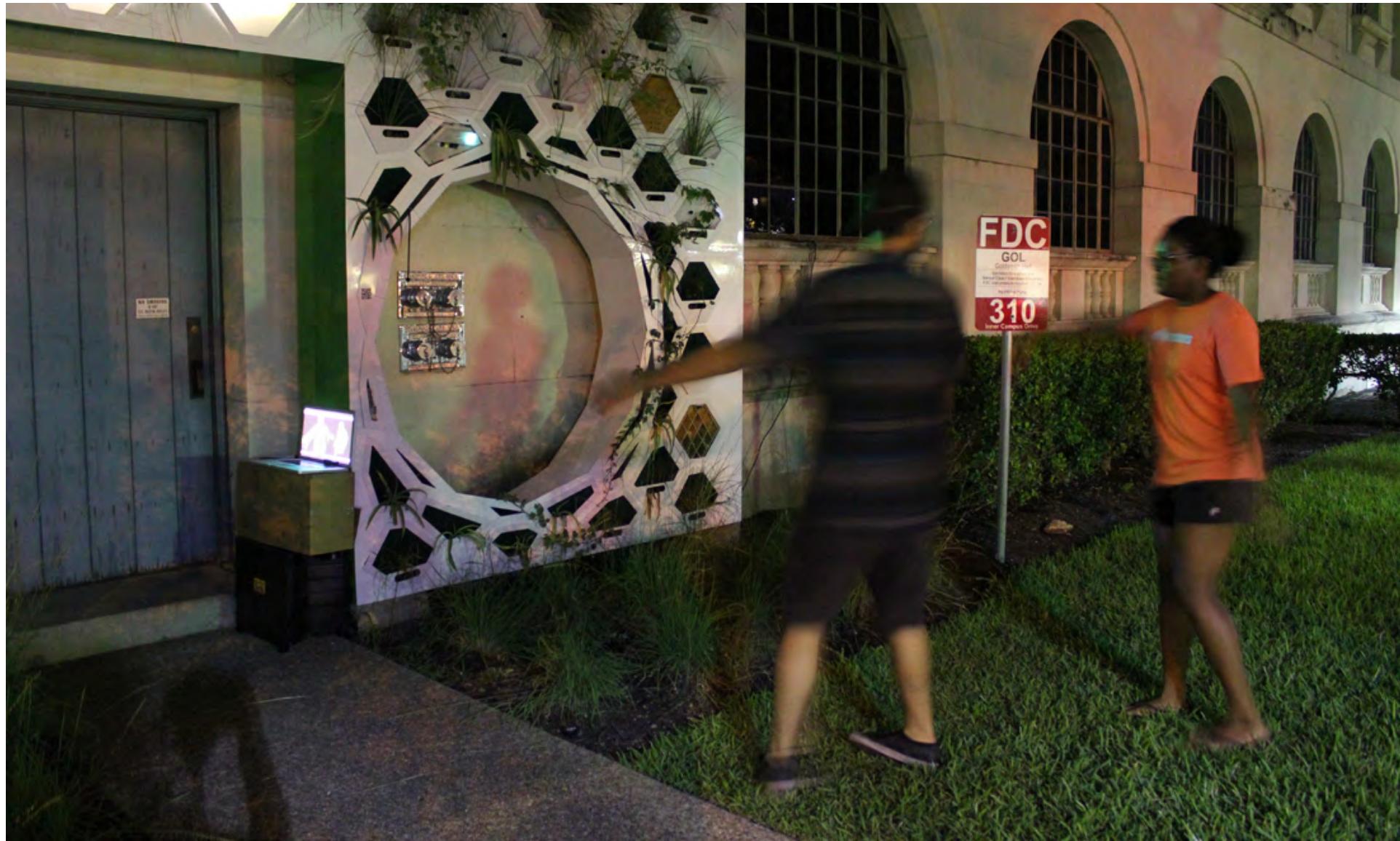
kinect embedded in
green wall



kinect embedded in
library stack







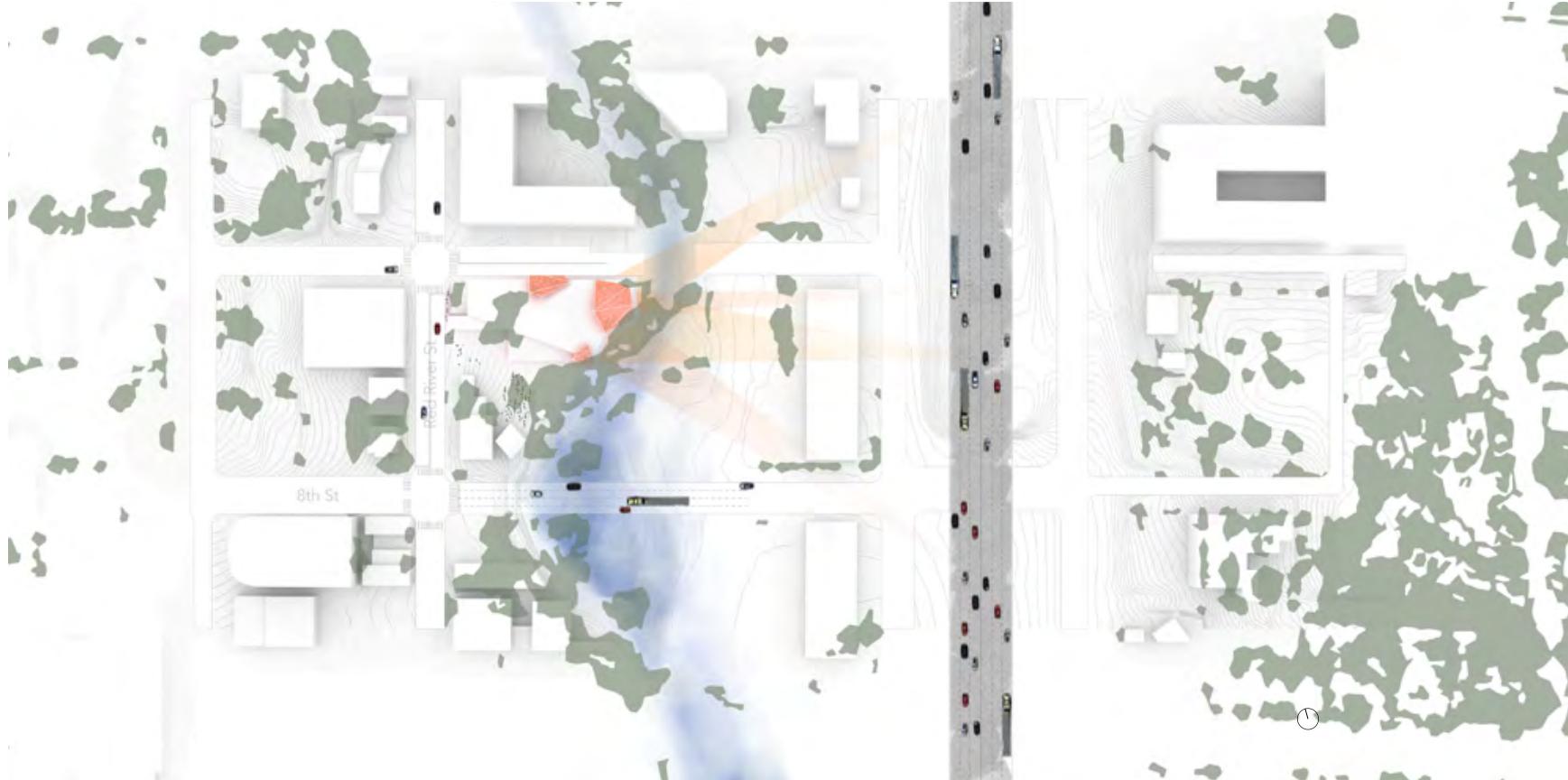
ROLLER RINK

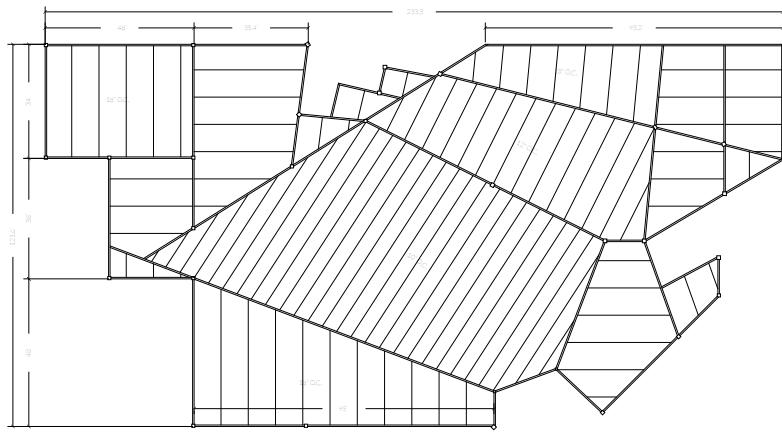
Comprehensive Studio -- Murray Legge

Spring 2014

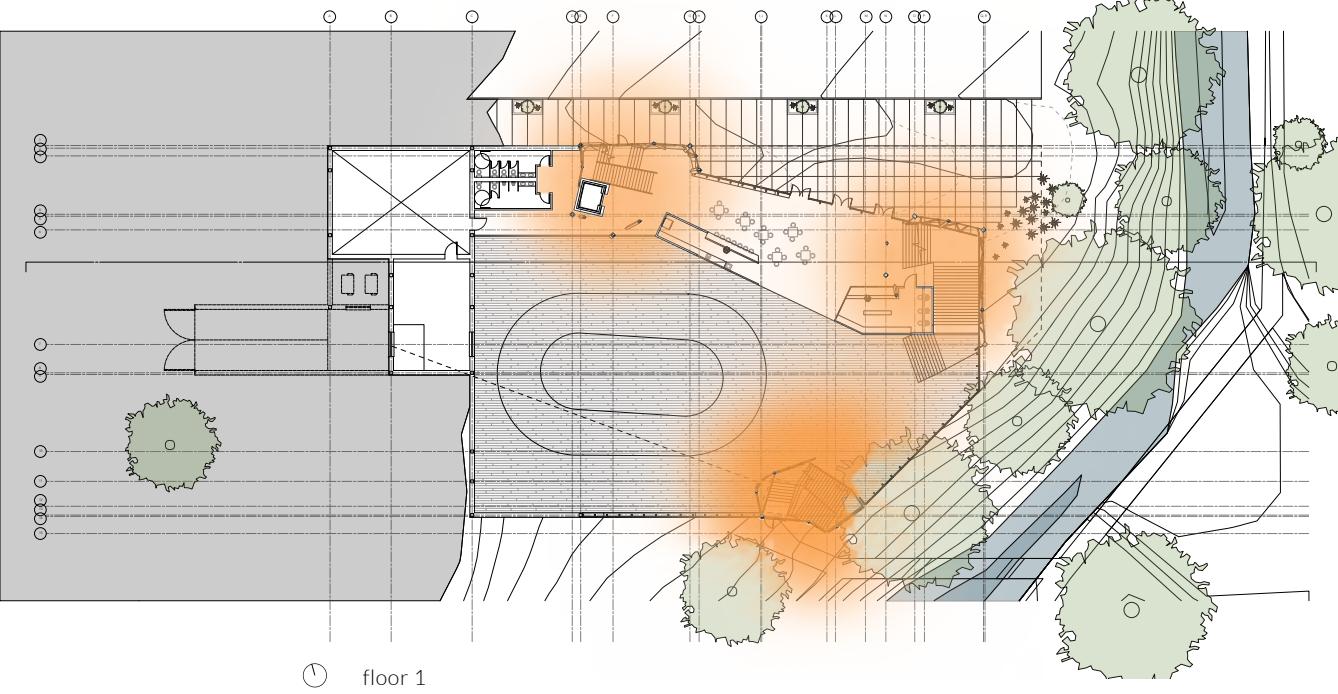
The city of Austin proudly claims the motto, "Keep Austin Weird," referring to the eclectic, expressive style of Austinites. A new roller skating and bowling facility bordering popular music venues downtown holds its own by making a statement in this same vibe. Deconstructivism, a movement starting around the peak of skating and bowling popularity, lends itself to express the funky style associated with the sports at that time. Something drastic in form blends into the Austin scene and announces the building's presence from a distance.

Materials and colors native to Texas achieve subtle moves while a brighter palette interrupts the larger form to set the tone of the main programs. Cantilevering steel columns support an orange glass-infilled, irregular diagrid, creating a geode shape. Three of these geodes cut through a solid limestone envelope to provide the primary structure of the building. Inside, orange light washes over parts of the skating rink and bowling lanes. While they draw attention to themselves, the geodes open the floor to create intersecting viewpoints between programs. Color and form support the conditions of the programs, maintaining constant active energy across both levels of the building.

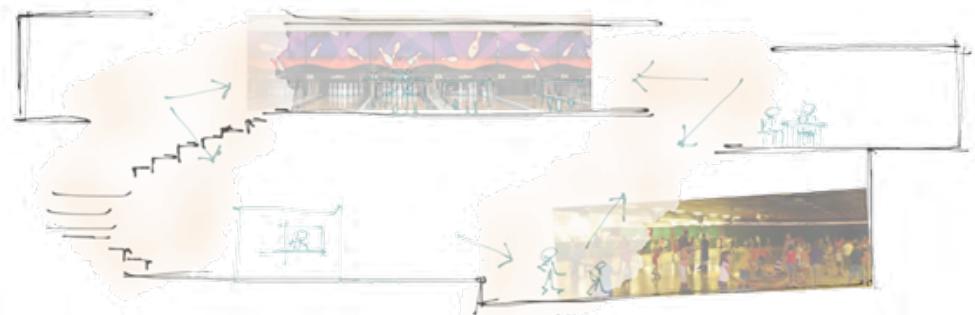


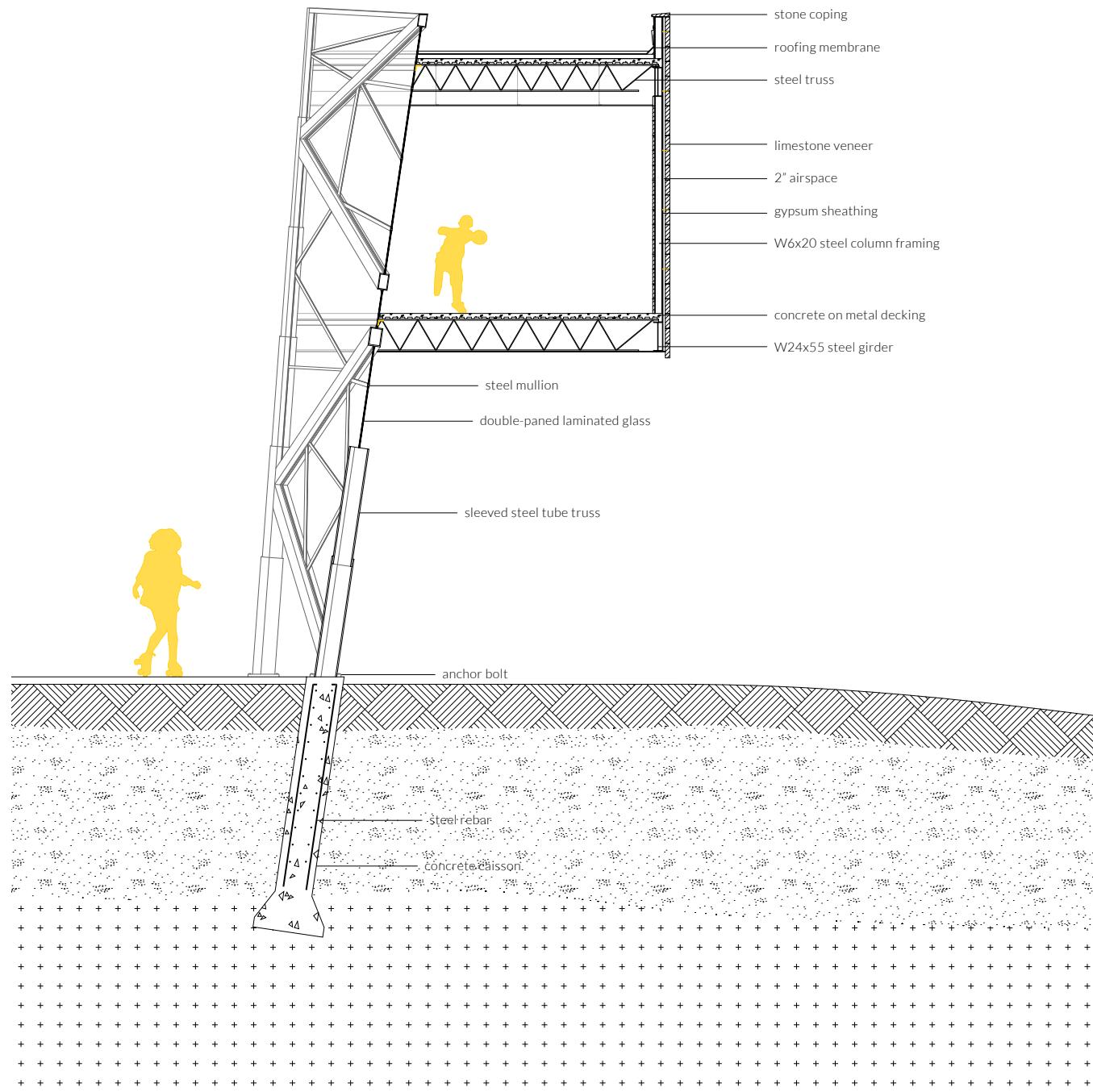
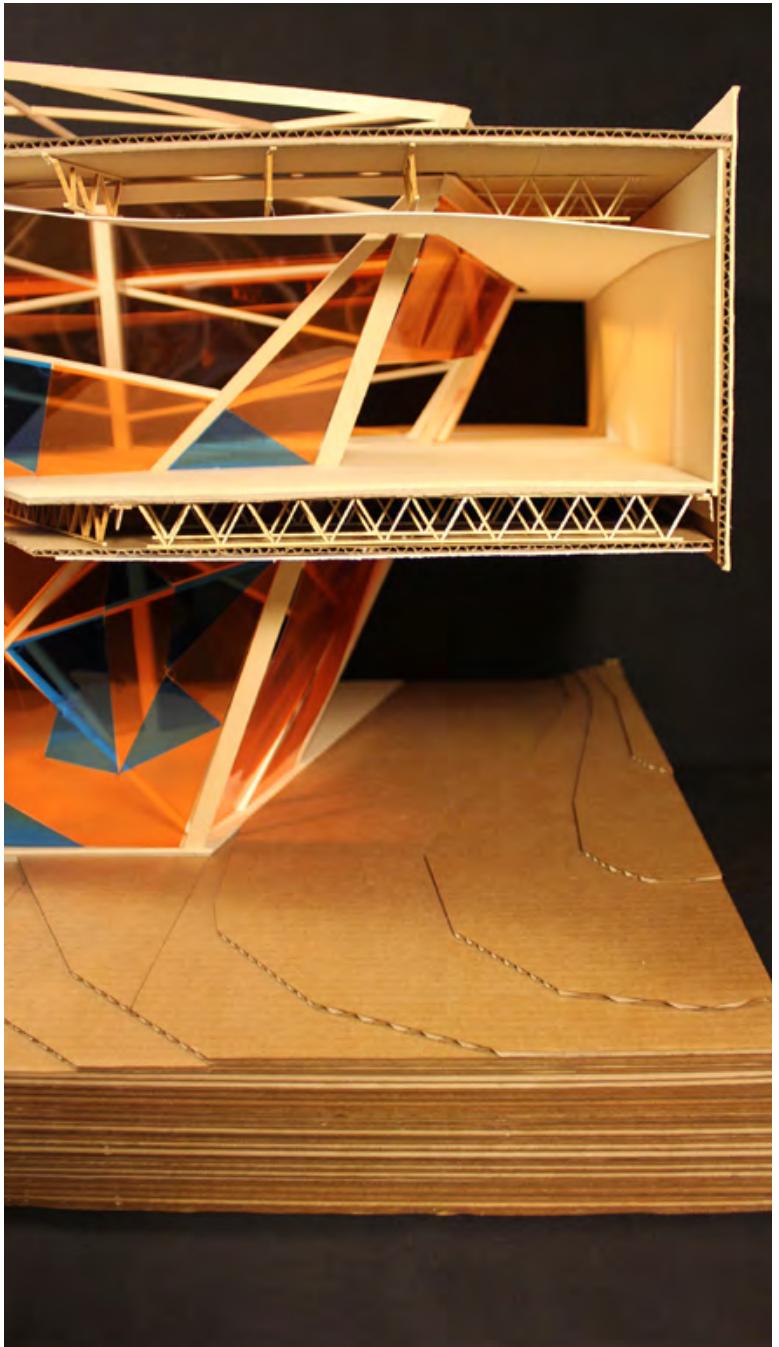


framing plan



⌚ floor 1







north elevation

WEAVERNEST

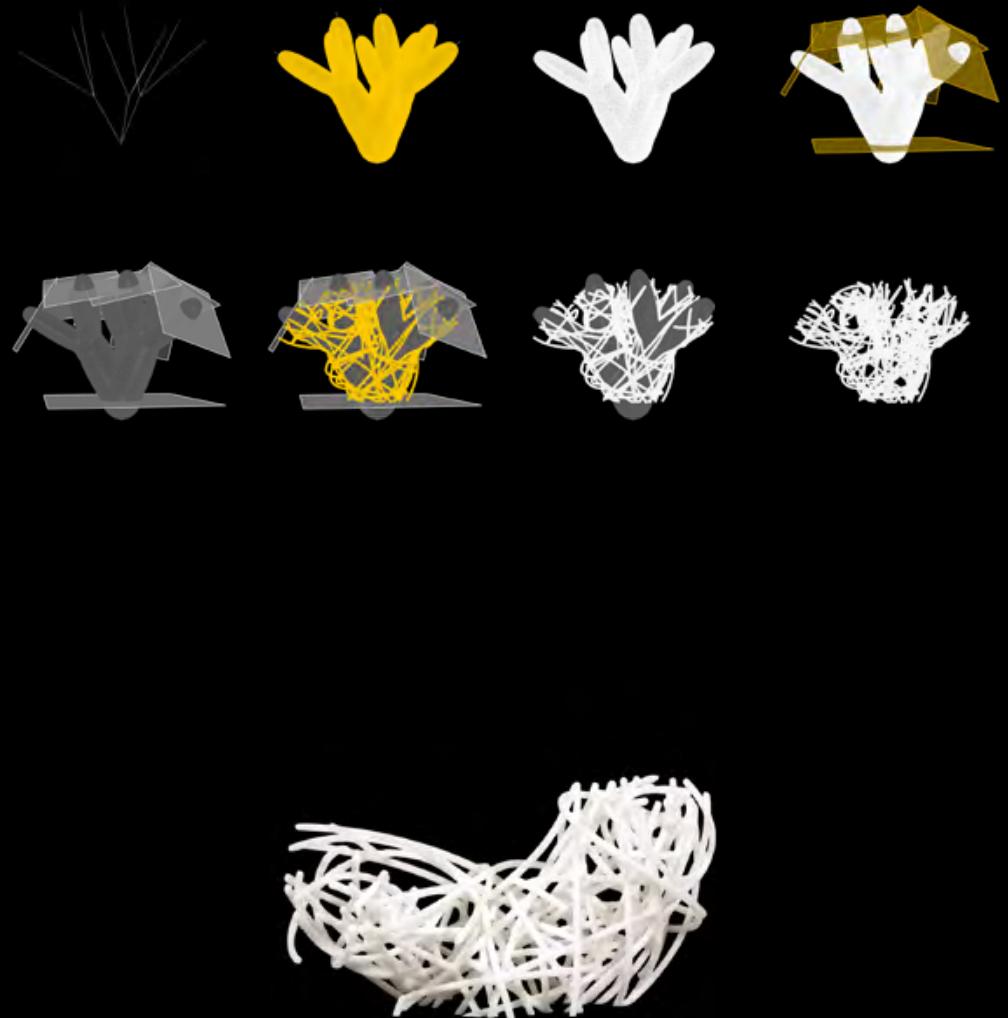
Bio-[In]formatic Modeling -- Danelle Briscoe, Chandrajit Bajaj

Spring 2016

Weaver bird nests consist of many small nodes clustered together to form a single mass, and multiple openings access the central void. The birds construct the overall shape by weaving together countless twigs, grass and feathers until a very solid structure emerges.

L-systems and flocking in Grasshopper produce a digital method to build a similar structure. First, modeling the central void as a solid object gives the flocking particles a surface to slide across. These particles generate a collection of random curves that enclose the void. Then the Cocoon plug-in gives thickness to the resulting curves as a single mesh, seamlessly leading to an .stl file for 3D printing. A portion of the model printed with strands thinner than .06 inches in diameter, tested its resemblance to a nest. Varying the density of the flocking particles changes the structural integrity of the model since its strength comes from strand intersections. Ideally, the flock could be increased until it reaches the density of an actual weaver bird nest, allowing for the potential to create artificial nests.

The class selected this project as one of three to be included in the UTSoA Fall 2016 exhibit on the Living Wall under the heading "collaboration + fabrication".



3D printed portion of model



