

MATERIALIZATION MATTERS: WEEKEND WORKSHOP ON DIGITAL FABRICATION AND INTERIOR DESIGN

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This one credit hour weekend workshop introduced design students to tools, work-flow, and considerations in digital fabrication and its creative application in contemporary interior design. In recent years, the culture of custom digital fabrication has heavily influenced the practice of architecture, interior design and design pedagogy. The focus of the workshop was to materialize a digital design to a 1:1 scale interior skin installation as a group. The learning goal of the workshop was to understand the basics of work-flow and considerations between digital design and physical making in the context of large-scale installation. Besides the hands-on making and learning, the students also had the opportunity to visit an industrial-scale fabrication shop, Noblitt Fabricating, in Columbus, Indiana.

The central project of this workshop was that of working on the latest iteration of Ruga Interior Skin, an ongoing research and creative scholarship by Jiangmei Wu, assistant professor at Indiana University. Ruga Interior Skin (RIS) explores the ambiguous and conceptual realm connecting wearing and inhabiting and its relationship between body, form, material and surface making of a novel interior semi-structural wall and partition. 'Ruga' is the Latin word for making wrinkles, creases, pleats and folds. RIS is inspired by the use of wrinkling and folding to create flexible frameless topological forms that can be suspended in a way that is similar to a piece of cloth or textile. The free-form geometric surface is inspired by Yoshimura folding pattern and was modeled in Grasshopper and Rhino before the workshop by Professor Wu. It is made up of 68 unique pieces of cardboard panels, fabricated by Noblitt Fabricating in Columbus, Indiana. These cardboard panels then needed to be folded and connected to form a large semi-structural interior skin that stands about 8 feet in height, 15 feet in width and 12 feet in length.

Because of the free-form geometric design, these 68 unique panels could not be all connected in flat surface. The only way to connect these panels was to hang connected pieces sequentially in segments and to allow the gravity to fold the pre-scored mountain and valley crease lines while connecting each segment using rivets, nuts and bolts. This hands-on experience



therefore required the students to self-organize and to draft a system to facilitate the production and assembly workflow as a group. While this process proved to be a very difficult task, the students in the workshop were enthusiastic. Many of them expressed their preferences to active and hands-on learning through making than other forms of learning.

Eleven students, mostly junior and seniors, started organizing themselves by different fabrication tasks, including scoring, folding and connecting, and hanging. Because of the efficient organization, all of the 68 unique pieces of cardboard were folded and ready for assembly and installation in two hours. Students then devised a numbering system on the drawing to organize and connect the panels in segments to be hung and to be further connected (figure 1). Despite many obstacles due to material strength, assembly details, and integrity of folding the large interior skin installation was completed in three hours.