

Wedge Sheds—An Example of the Collab/Fab Approach

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For four years, the Collab/Fab studio project at the [University name omitted] has engaged architecture and design students in hands-on research projects with a variety of community and professional partners.

“Collab/Fab” is not a proprietary name, but rather a concept of partnership, design and fabrication activity that challenges typical “Design-build” practices. For example, Collab/Fab design processes leverage digital media to more deeply and more nimbly engage clients, partners and collaborators. Collab/Fab also focuses on digitally enhanced building techniques like CNC, Pre-fab and Modular approaches, favoring “off-site manufacturing” paradigms over “on-site construction” ones.

Starting with a series of community design charrettes, students, faculty, residents and local professionals team up to explore mutually enriching opportunities for collaborative interventions in the built environment. While each Collab/Fab project varies in scale and intention, all of them share qualities of intense dialog, material and fabrication research, and pre-fabrication for deployability. Face-to-face meetings are augmented with online interaction, and design, fabrication and installation are organized as celebratory collaborative events. Despite their small scale and remote sites, these fabrication and installation projects engage strongly with place, people, research and innovation.

The WedgeSheds project grew out of a collaboration between the Collab/Fab studio, a rural sustainable agriculture Public Development Authority and a local recycling startup company. The focus was on developing a flexible shelter system suitable for various functions including recycling collection kiosks, garden and composting sheds, and information booths to educate about recycling. Students visited the rural site and met with representatives of the recycling company in early April. By the middle of June they had completed the first full-scale working prototype for a panelized plywood and polycarbonate system whose shape is a semi-circular wedge, geometrically derived from a torus (or doughnut) shape.

Each wedge, consisting of 10 site-assembled panels, can be joined to other wedges to form either straight or curved barrel vault sections. The system features kits of ‘intelligent’ parts that are digitally manufactured to encode all compound angles and complexities of the curving form. These kits can be manufactured and shipped flat-pack to a client or a community group for assembly by volunteers with little construction experience. The system is easily adaptable to various rural or urban sites, and a wide variety of agricultural or community uses. So far, the first WedgeShed prototype has served as an information kiosk, a garden pavilion and a wind break shelter on a cross-country ski course.

The Collab/Fab studio approach is unlike other design-build programs. In order to maintain a long-term relationship with our rural Public Development Authority partners, collaboration between students, PDA members, local residents and professionals is given greater emphasis than in many one-off design-build studios. The projects and installations aim to engage multiple constituencies and uncover unexpected potentials rather than fulfilling singular functional needs. While face-to-face interaction and hands-on experience are both incorporated, intelligent approaches to digitally enhanced collaboration, manufacturing and fabrication are exploited to increase opportunities for fruitful collaboration over long distances.



COLLAB/FAB - A DESIGN/BUILD ALTERNATIVE

The WedgeShed is an example of a Collab/Fab approach. The project grew out of a collaboration between the university department of architecture, a rural sustainable agriculture Public Development Authority and a local recycling startup company. The focus was on developing a flexible shelter system suitable for various functions including recycling collection kiosks, garden and composting sheds, and information booths to educate about recycling. Students visited the rural site and met with representatives of the recycling company in early April and by the middle of June they had completed the first working prototype for a panelized plywood and polycarbonate system whose shape is a semi-circular wedge, derived from a torus (or doughnut) shape. Each wedge, consisting of 10 site-assembled panels, can be joined to other wedges to form either straight or curved sections. The system features kits of ‘intelligent’ parts that are digitally manufactured to encode all compound angles and complexities of the curving form. These kits can be manufactured and shipped flat-pack to a client or a community group for assembly by volunteers with little construction experience.

