Caret 6 is an installation and exhibition designed and curated by Kory Bieg and his students from the University of Texas at Austin Studio he taught in the fall of 2013. The installation supports prototypes and the winning project from the TEX-FAB 2013 SKIN Competition.

Caret 6 is an installation that supports prototypes and the winning project from the TEX-FAB 2013 SKIN Competition. The vaulting structure on one end provides a bookend to 3xLP, the large folded steel facade project designed by competition winners Nick Bruscia and Christopher Romano and fabricated by Zahner, on the other. Two wings of Caret 6 cantilever off the center vault—a perfect catenary designed using the Grasshopper plug-in, Kangaroo—and a third cascades into a differentiated ground surface in which diamonds can be interchanged with model bases to hold content for the exhibition.

To enable a smooth transition from a flat, two-dimensional ground surface into a volumetric, three-dimensional vault, the studio used a diamond pattern that could work as both an aggregate and woven rib-system. Though the diamond pattern appears to be
A series of stacked cells, the structure is actually three layers of overlapping ribs. Large, continuous primary ribs form the seams from vault to vault, while secondary ribs span between each seam. Tertiary ribs complete the web and enclose each cell to create a rigid structure.

A core goal of the studio was to introduce asymmetry into what would otherwise be a symmetrical form. The vault is roughly eleven feet at its highest point, enclosing a space small enough for occupants to engage directly with the surface, a condition atypical for most vaults which often frame larger and much taller spaces. Caret 6 was designed to fill an already existing space, so it was necessary to design a geometry that responded to the existing room, especially at the edges, where the vaulting forms project toward the walls.

The asymmetry of the overall form feeds back into each surface via the distribution of secondary and tertiary ribs within each vault, influencing the asymmetrical diamond pattern on the surface. As opposed to some parametric projects that promote the application of smooth grading patterns, the diamond pattern of Caret 6 is highly differentiated from cell to cell, pitting small clusters of diamond shapes adjacent to much larger diamonds.

The studio was fortunate to receive a donation of Alpolic, an aluminum composite material typically used to clad large office buildings. Using Robot Structural Analysis, we were able to model and test different Alpolic assemblies to determine a structurally sound solution that still achieved the aesthetic and formal aspirations of the design. Ultimately, we added a layer of attachment details that included thousands of O-rings and binder rings to ensure stability in the event, a lateral force or...
unexpected point load is applied, for example, someone hanging on the edge of the cantilever. In its resting state, Caret 6 does not require any fasteners.

Caret 6 was designed to be easily assembled, flat-packed and then reassembled at a new location. Initially, the project was installed at the University of Texas at Austin in the School of Architecture as part of SKIN: Digital Assemblies during TEX-FAB 5. It was later reinstalled at the Next Stage and Renegade Craft Fair as part of SXSW, one of the largest film, interactive and music festivals in the world.

KORY BIEG is an Assistant Professor of Architecture at the University of Texas at Austin. In 2005, Kory Bieg founded OTA+, an architecture, design and research office that specializes in the application of advanced digital technologies for the design and construction of projects of all types and scale. OTA+ has received awards for their design work and exhibited projects at galleries internationally. Their work has been published in blogs, journals, magazines and books. Kory Bieg received his Master of Architecture from Columbia University in New York City and his Bachelor of Arts in Architecture from Washington University in Saint Louis. He is a registered architect in the state of California, Colorado and Texas.

IMAGE CREDITS
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