

Frame & Textile: Hybrid Materials, Hybrid Methods

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Digitally-controlled production can achieve repeatable, and infinitely customizable, precision. However, these tools can displace and reformulate traditional craft skill and knowledge. Frame & Textile deploys elemental aspects of architecture, a simple material palette, and a tight focus on two ways of making with a natural tension between them, as a way to track and highlight these potential shifts. The steel Frame leverages the specific capacities of robotics and scripting, while the smocked and pleated rubber Textile can only be achieved with the skillful use of the hand. By using materials, methods and forms, that can only be worked on in specific ways, the project relocates the tacit, embodied knowledge associated with craft, and how its digital and traditional manifestations might interact.

Smocking, the technique of organizing a grid of dots into cellular formations through fastening pleats, is a labor-intensive activity. Smocking occurs strategically to create a thickened surface, to seam between pieces, and to hold rods in place. Changes in grid size, orientation and direction produce different, spatial and material effects. The behavior of smocked rubber is predictable and repeatable, but loose. While the overall pattern and design can be done digitally—flat yardage is cut and inscribed with a CNC knife cutter—the work of production is opportunistic, spontaneous and fluid. It relies on practice, dexterity, and a complete tacit understanding of that process

The fundamental aptitude of CNC equipment and robotics is their ability to repeatedly, and with a knowable degree of precision, locate points in space. To use these tools merely to produce a multitude of varied parts is to use them at half speed. Additionally, computation and scripting excel at managing, parsing and deploying data. In the metal framework each member has unique spatial data associated with it: location, orientation and dimension. By deploying the robot as an infinitely reconfigurable fixture we can keep our data in the computer. The labor and skill is precisely located in the design of the process, and development of the specific tools needed to execute that process, and in the fabrication of a final installation, and explicitly not in the physical sorting and organizing a vast collection of individual parts, or the secondary production of jigs and templates, as one typically sees in digitally fabricated work.

If digital technologies that directly fabricate computational output do relocate and displace some skill and knowledge, then this shift or disappearance occurs in terms of specific content (trading skill with a chisel for an intuitive sense of the position a vector produces). As a way of knowing though, craft continues to reside in an ability to fully know one's own processes of making. This kind of knowledge is also what drives the specific refinements of an iterative design process. Knowing how to do it—technique and process with any tool—is inextricable from the ends—the design—such processes are put towards.

