SUPER SIPS SCHOOLS
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This project reimagines the one-room schoolhouse as a portable building constructed from structural insulated panels (SIPs). The panels are made from ultra-lightweight materials: foam and fiberglass impregnated with fire-resistant phenolic resin. This panel technology is currently being developed for the defense industry by NexGen Composites, located in Dayton, Ohio. Our project envisions a domestic use—relocatable schools—for a product that is primarily used by the military to create mobile command centers deployed abroad.

Relocatable buildings in the United States comprise a one billion dollar industry primarily targeting school overcrowding. The typical portable school employs heavy, conventional wood framing systems that are prefabricated in narrow modules constrained by roadway dimensions. Our design rethinks the problem of the portable school with a flat-pack system of lightweight SIPs that can be quickly assembled on site. A variety of layouts can be efficiently achieved with simply shaped panels, overcoming the “box problem” that haunts portable construction.

Our design also uses a system of strong graphic patterning to bind the individual prismatic panels into an unified composition. Custom, procedurally-generated designs are developed for projection onto the panels from a variety of angles; these textures produce visual depth, animating the chamfered surfaces of the schoolhouse.
(above) Graphic projection strategy applied to a cube

(opposite) above: Sample plan showing a wedge shape that is not possible with conventional modular construction

(opposite) below: Graphic projection strategy applied to prismatic structural panels
(above) Main entry facade
(opposite) Plan with “unfolded” vertical structural panels
Above: View of interior showing possible desk layout and graphic wainscoting
Opposite: Installation of vertical panels; lightweight components reduce assembly time