Designing an Urban Food-Vending Stand

Objective: Design and build a prototype for an urban food-vending stand that thoroughly integrates architectural, engineering, and sustainability considerations.

Background: In evaluating good design, we consider the relationship of the designed entity to its environment, its reasonable use, its longevity, its “well-built” quality, its ease of assembly and maintenance, and other factors. In short, we analyze the adaptation of the object’s form (interior and exterior) and materialization to its context, broadly construed. Sustainable architecture employs new methods of materialization, e.g., super-insulated building envelopes, and renewable energy systems. And it applies analytical tools including life-cycle analysis, embodied energy calculations, and assessment of recycling/reuse. These sustainability concerns obviously have implications for formal design strategies. This project aims to integrate and systematize these design and sustainability considerations into the design process for a piece of “urban furniture” that is a ubiquitous feature of everyday city life: the vending stand (primarily food, but also for flowers and newspapers/magazines). It will be an exploration of how energy efficiency relates to the form and materialization of vending stands, with transferability to larger and more complex structures.

Suggested Approaches: Research and inventory the materials-related and systems-related factors that affect the form-finding process, with attention to those that apply to structures of varying size and complexity. Compare different vending stand design alternatives with respect to operational and embodied energy, life-cycle assessment, materials use, and disposal/recycling costs. Analyze how these sustainability factors will influence design. From an architect’s perspective, develop schematic design alternatives, refine them in response to engineering and sustainability input, and specify the vending stand’s structure, skin, passive regulation devices, and equipment. From an engineer’s perspective, develop criteria for mechanical systems, and adjust/refine them in response to architectural and sustainability input. Integrating both perspectives, design and build a prototype model vending stand. Focus on the need for a structure that: “explains itself” through its form; integrates form with functions (protection of vendor from elements, food preparation, garbage disposal, power production, etc.); relates well to the human body and the vendor’s comfort zone; harvests energy and applies it to heating/cooling food and beverages and maintaining interior comfort; and is easily transportable and hence classifiable as a movable or dismountable device.