

Advanced Design Studio V, Fall 2018

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Paradoxical Efficiencies
Exorbitance and Efficiency in Architecture

Introduction

“It is obvious that the utilitarian role of an object never completely justifies its form, ... that the object always exceeds its instrumentality. Thus is it possible to discover in every rational object an irrational residue...”-Caillois

Efficiency regulates architecture in a multiplicity of forms – witness net to gross ratio's, fast track construction, the aesthetics of the minimal, net zero buildings and mass pre-fabrication to name just a few. There is structural efficiency, spatial efficiency, energy efficiency, material efficiency, and so on. Efficiency is ingrained in the language of architectural discourse. Efficiency is seen as a moral imperative. Efficiency even defines production in the academic studio – how much work in how little time.

More and more, instead of less is more, we want more from less. And perhaps this is as it should be in a world increasingly defined by a sustained crisis of economic and ecological scarcity. However, it is necessary to ask whether a positivist application of efficiency –more often driven by the ruthlessness of market forces than principles of enlightened stewardship –results in an unquestioned privileging of the quantitative over the qualitative. If efficiency is the overriding imperative in a contemporary culture predicated on the bottom line -on ever faster and cheaper- then what is lost and what is gained in the exchange? Whereas the Taylorization of labor and mass production were considered unambiguous advancements at the beginning of the 20th century, they also reveal the double-edged nature of efficiency. The streamlining of work flows intended to minimize drudgery often compounded it -necessitating new forms of control and devaluing the individual worker. At the same time, the rise of industrialized production stimulated the consumption of a proliferating array of disposable goods, magnifying the depletion of resources and the generation of waste.

But what if efficiency itself was interpreted as a paradox? If efficiency entails the coupling of any maximum to any minimum, then how might a reconsideration of efficiency become conceptually generative rather than restrictive? This studio will be driven by a critical re-evaluation of notions of efficiency in architecture – recognizing that every efficiency paradoxically implies a corresponding excess, exorbitance or waste. Efficiency of movement implies a surplus of circulation, optimization of daylight might generate a superabundance of apertures, efficiency of structural footprint might create

an extreme density of structural members and so forth. This coupling of efficiency to its opposite creates a fertile contradiction -an irrational residue- that can be used to hijack a narrow functionalist conception of efficiency. In an era of performance-driven optimization, we will pursue extreme, perverse, or satirical efficiencies as a means of generating new programmatic and spatial opportunities. If the value of architecture exists to the precise degree that it transcends the strictly utilitarian, then we will seek the point at which efficiency folds back on itself, to the point where it generates a productive exorbitance.

Background:

An early critique of efficiency can be found in William Jevons' 'The Coal Question' from 1865, an appraisal of Britain's coal-based iron industry. Jevons contended that, contrary to intuition, an increase in technological efficiency results not in the conservation of resources but rather in their accelerated depletion: stimulating demand and increasing use. The Jevons paradox, as it is now known, can be found in a wide variety of disparate phenomena. For example, over the course of the last 25 years the efficiency of air conditioning in the U.S. has improved by more than 30%. However, rather than reducing consumption, energy use for cooling has nearly doubled over that same time period. Today, despite ever more stringent codes we use more electricity to air condition our buildings than the sum total of all electrical use at midcentury. At a minimum, such phenomena call into question a simplistic understanding of efficiency and point to the way that economies of scarcity are often implicated within systems of overproduction and obsolescence.

At least since the emergence of modernism however, the valorization of efficiency within architecture has been virtually complete: from Mies' famous dictum to Le Corbusier's machines for living in, from the aesthetics of structural optimization to the streamlining of transportation flows in the multi-layered networks of contemporary cities. Principles of efficiency have permeated every facet of architectural production, encompassing both the application of scientific management to the intimate spaces of the home and the standardization of the American building industry in the aftermath of World War II. Emblematic of this imperative toward efficiency, the repetitive floor plate building provided a means for speeding construction while maximizing financial return on limited urban sites. Aligning perfectly with the demands of capital, the Chicago Frame and Domino system prefigured a sectional efficiency that threatened to cancel out the very potentials of section as an architectural technique, relegating the vertical development of buildings to the ad nauseum repetition of generic space. Paradoxically, the very limitation presented by the stacked floor plate provoked a proliferation of invention, from variations in height to complexly sheared, perforated and inclined assemblies that reasserted a diversity of spatial strategies and effects. Simultaneously accepting and diverting the logics of the stack, these techniques demonstrate the potency of a critical engagement with efficiency.

Today, questions of efficiency in architecture are as dominant as ever: New forms of computation promise the optimization of performance as a driver of architectural form. The urgency of the climate crisis has rendered sustainability an

omnipresent aspect of architectural practice spawning an entire sub-industry predicated on new standards of environmental efficiency. And the emergence of the sharing economy, from Air b and b to breather, is extracting new spatiotemporal capacities from existing urban formations. Meanwhile, mass customization and modular prefabrication seek to further speed and individualize construction processes, while at the same time, the bulk of building is subject to market driven formulas– generating a taxonomy of building types – from micro-hotels to mini storage, from automated parking structures to fulfillment centers –driven by various forms of maximization or minimization typically outside the purview of architects.

While taking seriously the very real imperatives that underwrite impulses toward efficiency, we will deploy a logic of paradox to question efficiency itself – pursuing rational trajectories to the point that they render a precipitate of unanticipated architectural effects. These projects will take the form of precise architectural proposals and will be governed by four interrelated constraints: 1.) the isolation and propagation of a specific category of efficiency, 2.) the identification of a spatial type related to this efficiency and 3.) the definition of a programmatic logic and 4.) the limits of a physical site located within New York City. In these speculations, efficiency will be shadowed by its opposite in the form of the excessive, the residual, and the wasteful. Rather than seeking the elimination of these negative terms, we will leverage them to generate a productive exorbitance, challenging dominant narratives of optimization, catalyzing new, imaginative potentials within the rationalized spaces of contemporary systems.