Mega Shed: Regional Rooms for the Orgman's City
by
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Abstract:

The recent legitimization of Landscape Urbanism as a theory for architectural design may signal a growing cultural shift toward environmental custodianship. Design strategies that blur buildings and landscape have become architecture’s new orthodox response to this trend, promising continuity between architecture and landscape on the new “green” urban surface. However, the infrastructural and organizational demands of this blurring of city and country may actually require an architecture that is more flexible over its lifespan—more appropriately accommodating the on-going bureaucratic alterations required to manage this utopian complexity. This thesis offers a modest proposal for big-box architecture, one capable of delivering continuity and flexibility for the city, even for programs that require functional separation. An exploration of this super-sized typology, the Mega-Shed demonstrates the timeless desire to manage the environment, while resisting the urge to re-create picturesque landscape. Whereas modern cities banished their support systems to the periphery, the Mega-Shed is a passive machine for the current age, an organizational strategy capable of bringing these support systems back into view, producing a sublime utility in the heart of the city.

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In modern society, we have had the distinct privilege of removing the unpleasant from view. We’ve buried all of our utilities and sent our trash out into remote areas or other countries. But with 1% of the U.S. in jail or prison [1], and Los Angeles, the epitome of unfettered modern ambition spending billions of dollars to remediate its post-industrial landscapes, society’s infrastructure is not so easily dismissed.

Projects like the Fresh Kills, Staten Island landfill renovation convey a growing desire to deal with the importance environment in cities, but this new orthodox approach may simply veneer the problem, permanently monumentalizing mountains of urban refuse, ultimately naturalizing a serious failure of society.

The Mega-Shed proposes a re-engagement of architecture with society and environment through the large scale remediation of toxic land in L.A. and an extension to its central jail facility. While this thesis is an exploration of a very large typology, I’ve chosen to address the enormous scale of these issues in an enormous city. The large scale of the Mega-Shed is actually rather modest in a city like L.A. But I believe that it is imperative that architecture provide a means of visualizing these issues by moving them from the periphery of our cities to the center of our consciousness.

This project acts as a sponge, endlessly absorbing societal frustration and unsightly infrastructure, allowing society to safely confront its own reality. It is an attempt to air our dirty laundry, but to do it in the middle of the city. But doing this may stir up some heated emotions that could simply be a knee-jerk reaction to what happens when the existing paradigm of “out of sight, out of mind” or “not in my backyard” is overturned.

Influenced by the ability of the 19th century factory to outlive its original use, I've attempted to design a typology that will hopefully live on as something else. I'll discuss this in 3 parts:

MEGA-SHED:
EXPLORATION OF A TYPE

1 TYPOLOGICAL
THE RISE OF SHED ARCHITECTURE

2 THEORETICAL
THE END OF THE ARCHITECTURALIZATION OF LANDSCAPE

3 CULTURAL
THE EXPOSURE OF THE ABNORMAL
Aerial view of downtown Los Angeles.
As American cities de-industrialize, distributive and storage architectures have proliferated to accommodate a globalized economy which is now mostly imported. Los Angeles, one of the most powerful of these meta-cities, with its sprawling urbanism epitomizes the notion of an infinite datum, flooded with capitalistic desire—information, technology and people. Reyner Banham characterizes this condition in Los Angeles as the "Plains of Id," or the "Plains of Inner Desire" [1]. In the latter half of the 20th century, Big Box retail emerged to successfully satisfy these material desires by storing and transporting large volumes of inventory at high speeds across extensive

consumptive networks. The speed and ease of construction of these architectural containers made them amenable to the speed and volatility of the "just-in-time" market demand of today.
A variety of newer global companies investing in this typology and its corresponding support system, the distripark have produced ubiquitous shed architectures in the city.
Low and flat, this typology boasts a much higher surface to volume ratio than mid or high rise buildings. Aggregated in distriparks, at a certain scale, this mega-typology assumes the role of the urban surface itself. A perfect balance of rooftop and asphalt combine to produce a territory comprehensible only to the “freight forwarder” or the “orgman,” the bureaucratic mind behind this pure logistical landscape.

Shed architecture has been theorized by contemporary architects. Because of the sheer scale of these globalized forms, borrowing design strategies from other disciplines seems appropriate. In projects like the Agadir Convention Center in Casablanca, OMA utilized land forms to deal with vast interior public spaces. At the scale of urban public space, shed architecture can even modulate the climate by creating microclimates capable of buffering extreme external temperature differences. The Villa Moda by Office dA achieves this with a leisure landscape for Kuwait’s desert climate.
While the big box is typically overlooked by critics of capitalism because it is infrastructure explicitly for capitalism, this typology may actually have great potential as a supersized remediative container for the city. The Mega-Shed is a rather modestly scaled proposal for shed architecture capable of delivering flexibility for a variety of logistical programs that require interiority—a major benefit of the big box typology. Operating at the scale of the landscape, these examples of sheds demonstrate a common desire to interiorize the landscape and produce a landscape autonomous from its natural context.
Scale Comparison between the Mega Shed and various other large buildings.
LE CORBUSIER

MEGA-SHED

AUTONOMY
OF LANDSCAPE & ARCHITECTURE

AUTONOMY & CONTINUITY
OF LANDSCAPE & ARCHITECTURE

MVRDV

CONTINUITY
OF LANDSCAPE & ARCHITECTURE
THE END OF THE ARCHITECTURALIZATION OF LANDSCAPE
LE CORBUSIER

AUTONOMY
OF LANDSCAPE & ARCHITECTURE
This autonomy between landscape and architecture has a history. Le Corbusier theorized autonomy via the pilotis. It was not only a symbol of this modern desire for separation, but it functionally isolated architecture from the ground plane to accommodate the machine of the Modern Age, the automobile. As illustrated by the Unite d' Habitacion, the resulting typology allowed for continuous freedom of movement on the ground plane and a displaced artificial landscape amenity on the roof of the building for the programs housed within.
Actively designing continuity into the urban surface has become a new orthodoxy in architecture. Strategies for blurring the relationship between architecture and landscape have been exhausted by architects like MVRDV in the last 20 years.

The architecturalization of landscape has been instrumental in shaping theories of what it means to make global architecture for meta-cities, but what began as a genuine desire to condense the city into a fluid but extremely compact and efficient typology, may have actually produced a sprawling, romantic vision of architecture, buried within the urban surface to accommodate a new urban picturesque. The Ministry of Agriculture designed by MVRDV three years after Villa Pro demonstrates this architect’s trend toward charicaturization of land form.

The Mega-Shed resists this urge for recreating the picturesque as well as using “Landscapiness” as an architectural design strategy. It is rather, a machine for the current age, a post-industrial utility for continuous and autonomous landscape.
MEGA-SHED

AUTONOMY & CONTINUITY
OF LANDSCAPE & ARCHITECTURE
THE EXPOSURE OF THE ABNORMAL

3
The desire to control and construct nature is not new, but the recent legitimization of Landscape Urbanism as a theory of design may signal a larger cultural shift toward custodianship of the environment. The sheer infrastructural and organizational demands of this blurring between city and country however, may actually require a different architectural result than what Landscape Urbanism proposes. Does this new orthodoxy for greening the city actually address any of the environmental abnormalities associated with the modern industrial era? Or does it merely veneer
You'll Be Able to Frolic in a Staten Island Dump Sooner Than You Thought

That plan to turn Staten Island's Fresh Kills landfill into a giant park will take a decade to complete, the city is now saying. (And, hey, take your time, guy. Last thing we want is to dig up a patch of benzene with our cleats.) But we can't help a little giddiness to learn that we'll actually be able to play soccer on Fresh Kills in a little more than a year. According to park administrator Eloise Hirsh, the 2,200-acre project will go through intensive environmental review this year - but one soccer field, Owl Hollow, sits outside the actual landfill and is currently being bid out to contractors. Park officials are still designing the bathroom (insert stupid gas jokes here), but construction should begin - with tours of the site - by spring. -Alec Appelbaum


modernity with a thin layer of green? Like the canonical "Fresh Kills" project for Staten Island by Field Operations, these projects permanently conceal societal toxicity, memorializing mountains of urban refuse and making these landscapes static – the opposite of the continuity and fluidity that landscape urbanism aspires to achieve.
Map of Environmental and Societal Abnormalities in Los Angeles County. GIS map created using data from: CASIL (California Spatial Information library), U.S. Department of Justice, and U.S. EPA.
Environmental Abnormalities:

Los Angeles County has the greatest number of Superfund sites in the U.S., 11 of which are on the national priorities list, a list of toxic release sites that are considered by the E.P.A. to present the greatest immediate threat to public health. Of these sites, several ranked a 100% score for high toxicity. [1]

Because on-site remediation is typically hazardous and expensive, off-site remediation typically occurs in remote areas of the U.S. and Canada. Off-site remediation of soil is also expensive, consuming large quantities of fossil fuels in the shipping process. Rising fuel prices and a growing public consciousness about localising industrial processes is producing a higher demand for on-site remediation. Bioremediation, a relatively benign alternative for on-site remediation is being developed which utilizes natural microbial organisms to volatilize contaminants in the soil passively.

Societal Abnormalities:

According to a recent New York Times article, 1% of the U.S. population is currently incarcerated [2]. California alone had 165,000 people in jails and prisons in 2007, the second highest incarceration rate in the U.S.. The state spent more on incarceration than any other state in the U.S. –4.2 Billion last year. [3] Because of overcrowding, California state prisons are contracting private prisons to deal with overflow rates which average 200%. High land costs in urban areas prevent this infrastructure from being located within the urban areas where the majority of crimes are committed. This and inadequate facilities are further removing this infrastructure from public view.

The Mega-Shed attempts to bring societal abnormalities into view. Whereas Fresh Kills is functionally an extension of the modern, with a postmodern veneer, the Mega-Shed is functionally of the current age, while maintaining a modern aesthetic. It is a passive container, absorbing its climatic and programmatic context in a way that does not blur the relationship between architecture and landscape; it is a more honest expression of the ambitions of contemporary society for custodianship of the earth. It is a new type for societal and environmental remediation necessary to process these abnormal programs in the heart of the city.
In the same way that the 18th Century French architect, Boulee believed that it was critical to give a strong physical and visual presence to the institutions that structure society, the Mega-Shed also represents a desire to elevate the presence of the processes that structure society today [1]. While I hope that this architecture will outlive its original purpose in a short period of time, it doesn’t appear likely that these issues will disappear in the foreseeable future.

The Mega-Shed is Located in Downtown Los Angeles on a post-industrial site at the north end

of the warehouse district. It is located east and downhill of the Civic Center Zone that slopes down to the L.A. River (a 150' wide, 30' deep, and 55 mile long concrete channel). The Twin Towers Jail and Men's Central Jail are located across the 101 freeway north of the site and sequestered by Union Station, the 101 and the river. The Mega-Shed will provide 2 million SF for 8000 inmates and because of its central location will accommodate the storage and remediation of 1 million cubic yards of soil from L.A.'s superfund sites.

The Mega-Shed utilizes an urban scale pilotis structure to physically elevate (and isolate) the
county jail from the existing landscape. This generates a free and open plan for soil remediation, but sealed and contained within an overall envelope.
Above: Ground plan of Mega Shed illustrating the dimensions and relationships to transportation infrastructure. Opposite: View of Mega Shed from the L.A. River west down Temple Street toward downtown at night.

The urban pilotis is amenable to the complexity of transportation infrastructure necessary for transporting soil and inmates to and from the Mega Shed.
Diagram of soil bioventing. Process is made possible by very low pressure vacuum created by the stack and bernoulli effects from the wind towers.

Ground plan of the Mega Shed illustrating the layout for soil mounds related to duration of treatment.

The Mega-Shed biovents mounds of soil by combining a series of wind towers with a sealed enclosure, perforated slab and a vented basement plenum. The stack effect from the 170’ tower height and the Bernoulli effect of the wind blowing over the top like a Venturi Tube provides the low negative pressure required to vent the soil slowly. Adding oxygen to the soil increases the rate at which microbial organisms are able to metabolize the contaminants in the soil. Humidity control is essential for this process, so the Mega-Shed provides the requisite enclosed volume of space.
Above: Basement plan, a 48' column grid open plan. Opposite: Detail of basement plan.
Loading and sorting the different contaminated soils as they arrive is located near the rail and truck drop off area. The longer the remediation, the farther away from the loading area soil is located. Phytoremediation for heavy metals and other contaminants that require this process could potentially occur around the periphery of the south and west sides of the shed where there is sufficient light, producing a green periphery for the autonomous remediative landscape.

The parking garages are designed to hold a total of 2000 vehicles. Half of these spaces are dedicated to the jail and remediation field staff and the other half is dedicated to public parking for
the residential neighborhood, government buildings and the visitor center. the visitor center and field office are located above the southeastern most parking garage and includes an enclosed and elevated pathway for staff to monitor work activities and the public to view the progress of remediation.
MINIMUM RISK FACILITY
NO SECURE PERIMETER; RELAXED INTERNAL SECURITY

MEDIUM RISK FACILITY
SECURE PERIMETER; RELAXED INTERNAL SECURITY

MAXIMUM RISK FACILITY
SECURE PERIMETER; HIGH INTERNAL SECURITY

Above: Diagram of various risk levels for inmates. Opposite: well-established contemporary architectural typologies of incarceration.
MEGA-SHED: LIVING GROUP LAYOUTS

MINIMUM SECURITY

MEDIUM SECURITY

MAXIMUM SECURITY

SHORT TERM

MID-TERM

LONG TERM
Above: Diagram of the passive ventilation strategy for the elevated jail program. Opposite: Program distribution for the jail.
Above: Detail of west jail plan. Opposite: Rotated jail plan, the north direction is toward the left of the page.
Detail of east jail plan.
Above: Detail of west roof plan. Opposite: Rotated roof plan.
Elevation and Section from West to East.
Elevation and Section from West to East.
Elevation and Section from West to East.
Wall Section at a typical garage entry. Staff Offices above this particular entry.
Wall Section through west facade illustrating the phytoremediation mounds and the inmate work areas above.
Above: Wall elevation at garage entry. Opposite: Detail of wall elevation. Solar cells are printed on a "float-glass" facade system supported on bracing columns with spider hardware. The garage entries have operable roll-up garage doors. Parking garages are continuous spirals shown behind the glass facade in the drawing.
Opposite: Drawing of the Mega Shed from the west end of Temple Street near the civic center area. The facade appears to be solid during the day because of the reflection from the glass and the patterning of the solar cells.
Opposite: View from Alamea Street looking North nearest the Museum of Contemporary Art. The facade visually animates the elevation of the jail program at night which appears as a solid mass autonomous from the landscape below.
Opposite: The northern facade of the Mega Shed will receive no sunlight and therefore has no solar cells on the glass panels. This clarity exposes the processing and work activities of the jail to the freeway, providing a "film-strip" view of the interior of the project. A traffic jam may provide a more contemplative experience with the Mega Shed.
Bibliography:


