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EXODUS INDUSTRIOUS

A NEW AMERICAN DREAM FOR THE NEXT INDUSTRIAL REVOLUTION.


By: Alexander William Marshall

**Bachelors of Science In Architectural Studies
University Of Wisconsin - Milwaukee , 2008**


Submitted to the Department of Architecture in partial fulfillment of requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology.
February 2013.

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■ EXODUS INDUSTRIOUS

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By: Alexander William Marshall

Submitted to the Department of Architecture ON January 18, 2013 in partial fulfillment of requirements for the degree of Master of Architecture.

ABSTRACT:

Exodus Industrious has many beginnings, but few endings. Exodus Industrious is two parallel tales, told as one, which ultimately arrive at a critical moment in the history of the Americanism. Exodus is the story of capitalism and industry, and its antithetical decline which destabilizes a nation. Industrious is the story of the American Dream, a prodigal tale of the excess of Americanism, which was once rooted in a belief that if one possessed the characteristics of hard-work and self reliance, that they would ultimately reap the rewards of status, wealth, and power. Exodus Chronicles the rise and fall of the capitalistic state, while Industrious chronicles the industrious nature of the everyday American.

The intersection of American industrial decline and the American dream, has prompted a new architectural vision of both. A vision which reacts to the failures of industry in solving societal problems, and the failure of the American Dream to sustain livelihoods. The vision seeks to mix the two, Industry and Domesticity, and recast them as an architectural solution to the problem which both have created. A rampant foreclosure crisis and skyrocketing unemployment.

This new vision of the American Dream will be played out on a site in North East Detroit, in the Kettering Neighborhood. The Neighborhood is one of many which had been ravaged by the foreclosure crisis, as well as, the departure of a Major factory (The Packard Automobile Company) which would have once secured the livelihood of many of the residents of the Kettering Neighborhood, as well as, Detroit at Large. The proposal seeks to create an Anti-Capitalist Manufacturing Settlement,

founded on the premise of Urban Revolution. The intention is to create four new Architectural Typologies Based on the Home, The Factory, The Warehouse and the Big-Box Superstore, which will attempt confront the political and social injustices which these typologies have arguably created, and propose a new interaction between them, which ultimately prompt a re-writing of the American Dream.

We live in a nation in which 80% of the wealth is controlled by the top 5% of the populous, leaving the rest of us with no other option but Revolution. Revolution cannot be simply taken up as an occupation, or protest, it must be embodied via re-thinking the city, and re-assuming the right to the city, through the establishment of new architectural typologies. Architecture and Urban Space have the power to organize the masses, means of production, and the re-production of culture and through clever thinking, outside of the influence of capitalism, a new vision for the city can and must be envisioned.

The intention of the thesis is to consider a new history, or a re-writing of an old one as the grounds for an architectural proposal. The American Dream and the rhetoric which surrounds it is the founding basis for action. The thesis seeks to examine the relationship between the single family home, manufacturing production, the maintenance of surplus value, and the distribution of commodities to a wider populous, while operating at the scale of a neighborhood of 3,000 - 5,000 people.

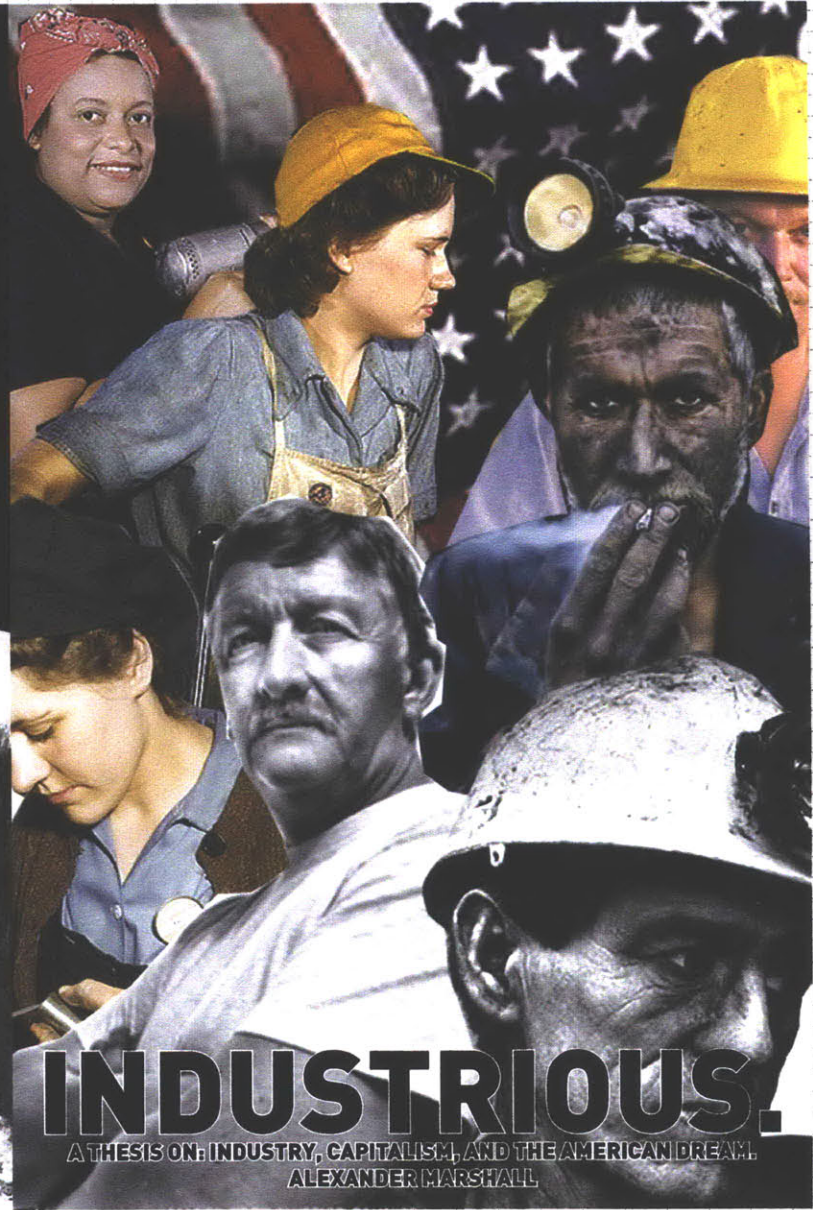
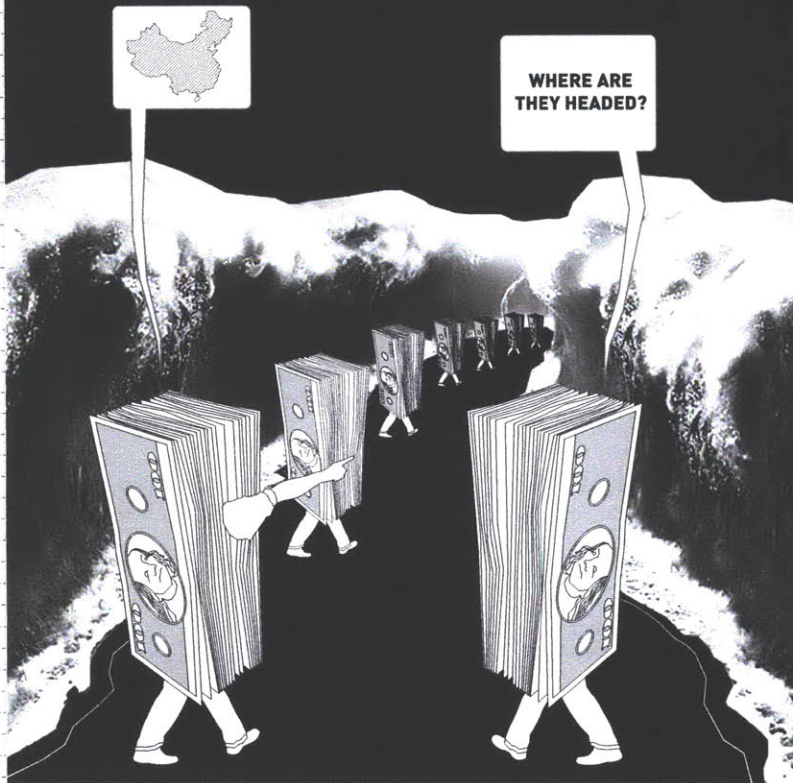
THESIS SUPERVISOR:

ANA MILJAČKI

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EXODUS.



INDUSTRIOUS.

A THESIS ON: INDUSTRY, CAPITALISM, AND THE AMERICAN DREAM.
ALEXANDER MARSHALL

ACKNOWLEDGMENTS

THANKS!

To Ana:

Your persistent criticism and steadfast commitment to this Thesis is unmatched. You have driven me to the absolute limit of my potential, and for that I am truly grateful. This Thesis has been continually inspired by your influence and dedication, and it will continue to inspire me in future endeavors. You ROCK!

To Miho and Cristina:

Your constant encouragement, criticism, and excitement for this Thesis was humbling, and it was truly a pleasure to have you as members of my committee.

To My Family:

For all of your support, encouragement, and occasional financial donations, this wouldn't have been possible without you... Especially **Liz**, who in the span of just a few days made the transition from Nurse Practitioner to Model Maker, and made some of the most beautiful models that I have ever laid eyes on... You are my personal savior in so many ways.

To Travis, Clay, Legband, Malcolm and David:

Without you gents, this would have been no fun at all. If you guys were unemployed in like 2 years we should resurrect ARRAY in a quonset hut in somewhere in BF Wisconsin.

To Nance, Kelly, Catherine, Behnam, Jin, George, Cecilia, Yuna, Sun-Sun Wow, Alan, Jonathan, Denis, Fai, Andy, Bunza, Chris, Ali and Carolyn:

Thanks for all the good times.

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I could not have completed this Thesis without You! Thanks for all your hard work and sleepless nights. The Thesis Gods will reward you with a staff of helpers when your time comes!

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EXODUS INDUSTRIOUS

A MANIFESTO OF SORTS

In the preceding paragraphs I shall present a Manifesto of sorts, a list of situations which will ultimately lead to certain and specific Architectural Interventions at the close of this document. The following should be considered as an outline for the work enclosed in this book:

1. The American dream can be defined as the ownership of certain culturally significant possessions. But, it can also be viewed as a device invented to keep the laborer dependent on the existence of the factory as a source of income. I mean, What better way to silence labor disputes and factory strikes than to encumber "American Dreamers" with toxic debt. Keeping the workers on the fringe of insolvency has traditionally allowed the factory owner to repress wages, under the pretext that the "American" Laborer will always go the extra mile, just to achieve the "dream".
2. "Capitalist Urbanization" practices in cities like Detroit have taken advantage of the dependent working class by providing just enough sustenance to keep the neighborhood alive. But when Financiers are put under pressure by labor unions, stagnating innovation, or rising costs in manufacturing, they possess the power to move factories over seas, Leaving Laborers unemployed and insolvent.
3. In Detroit, the practice of "off-shoring" has led to the linear progression of unemployment, social unrest, suburban flight, vacancy, arson and residential demolition. This has created 40 square miles of open land, that is commonly used as dumping grounds for anything from plastic bottles to dead bodies.
4. Detroit is in the midst of an urban crisis. Since 1950 it has lost over half its population. Residential vacancy and unemployment have become a financial burden, and the city is no longer capable of providing basic municipal services such as: [EMT, Fire, Water, Sewer and Refuse Removal]. Mayor Bing has called for the official Downsizing of Detroit

to combat this issue.

5. In an effort to re-employ thousands of laborers, the city planning commission has designated the I-94 neighborhood as an Industrial Renaissance zone. This means that all residential property in the zone must be vacated and leveled, leaving flat develop-able land, which will be marketed to heavy manufacturing companies.
6. Since 1994, The city of Detroit has been attempting to relocate residents of the proposed I-94 industrial zone into "livable" neighborhoods. In return for their homes and property, residents are offered "fair market value". But as more homes and small businesses are vacated, "fair market value" continually declines. Currently only half of the neighborhood has been relocated, the rest waits in limbo.
7. The 800 Detroiters who still live in the I-94 neighborhood, are now faced with a trichotomous future:
 - One. Sell their homes to the City for a few thousand dollars, vacate, and face demolition.
 - Two. Sit back, wait for their property to be condemned and eventually be forcefully relocated.-or-
 - Three. Commit, in the words of Paulo Virno, "Engaged Withdrawal".
8. I use the term "Engaged Withdrawal" here to define mass defection from the City of Detroit, in order to create a new form of community. Engaged Withdrawal" is a full-fledged model of action, capable of confronting the challenges of unemployment, vacancy and relocation through collective models of ownership and communal manufacturing production.
9. Through "Engaged Withdrawal", there is a possibility for a new

American Dream to flourish at 1-94 Industrial. Residents must look to a new model of ownership or rather "public investment" one which puts them in control of manufacturing production, by democratizing the factory.

10. Q: What do you get when you cross cheap, accessible, open source Manufacturing Technology with a pile of garbage?

A: Karl Marx might say: Means of Production.

11. In a traditional manufacturing process, the engine block requires 42 cast iron molds which produce 23 zircon sand and epoxy cores. These cores are injection molded and assembled on an automated assembly line which requires 9 molding apparatuses and 15 robotic arms.

12. Once the mold is assembled, it is filled with molten aluminum from a jet furnace, powered by a few thousand gallons of petroleum and pressurized oxygen. The block is then moved into a furnace where the mold is baked away, and the aluminum is tempered.

13. In an additive manufacturing process, a digital model of an engine block is sliced into several thousand layers, roughly 20 microns thick, and sent into a direct metal laser sintering machine. The machine builds the engine by affecting a bed of powdered aluminum with a 400w laser, building it layer by layer. This technology has the capacity to produce conformal cooling channels and other impossible assemblies which were not previously achievable with traditional manufacturing processes. THIS IS DISRUPTIVE TECHNOLOGY.

14. Additive manufacturing boasts fast turn-around and a cost benefit to manufacturers, because it is not limited by a traditional mold making process. Independent manufacturers can produce anything from end use commodities to parts for other products. This dexterity affords one the ability to simultaneously engage in multiple markets such as the automotive, aerospace and medical industries.

15. The makings of A Desktop factory. I built a 3D-Printer in my living

room for \$500 dollars. With a minimal investment of 4,000 dollars, I will soon be a micro-manufacturer, churning out commodities in plastic with a maximum dimension of 6"x6"x6".

16. Up to 17 materials used in 3-d printing processes can be found in Detroit's municipal waste stream. Through a process of grinding and mechanical separation, these elements can be refined into usable raw material. This material will fuel a new industrial revolution.

17. Given the promise of affordable technology and virtually free raw materials, the residents of 1-94 will require three distinct architectural interventions. One. The De-Factory, Two, the Silo Pavilion, three, a collection of Printer's Cottages.

18. Detroit possesses an untapped resource. It currently lacks a municipal recycling program. The De-Factory will refine municipal waste into usable granulated materials for distribution to local Silo Pavilions for storage and wealth retention purposes.

19. The Silo Pavilion is an open, public space intended to serve as monument to collective value. By stockpiling raw materials, the collateral, or economic stability of a neighborhood is defined by this structure. The Silo pavilion stores granulated materials within its columns, while simultaneously providing covered space for community events.

20. The Printers Cottage typology refills vacant lots in the neighborhood, while simultaneously re-valuing the homes around it. At first glance, this cousin of the modern kit home blends in to its surroundings. A second reading reveals the absence of certain domestic motifs such as shutters, shingles, and ship-lap siding. Inside its walls one might find a wealth of production space, calibrated for additive manufacturing.

CHAPTER 1:

EXODUS INDUSTRIOUS

THE ORIGINAL PROPOSAL

___The first section of the book will look at the original thesis proposal as a means to situate politically and socially, the result of the final Thesis proposal. The following pages were produced during the pre-thesis semester, and served as a basic conceptual framework for the Thesis. The following text was written as an introduction to this booklet:

___Exodus Industrious has many beginnings, but few endings. Exodus Industrious is two parallel tales, told as one, which ultimately arrive at a critical moment in the history of the Americanism. Exodus is the story of capitalism and industry, and its antithetical decline which destabilizes a nation. Industrious is the story of the American Dream, a prodigal tale of the excess of Americanism, which was once rooted in a belief that if one possessed the characteristics of hard-work and self reliance, that they would ultimately reap the rewards of status, wealth, and power. Exodus Chronicles the rise and fall of the capitalistic state, while Industrious chronicles the industrious nature of the everyday American.

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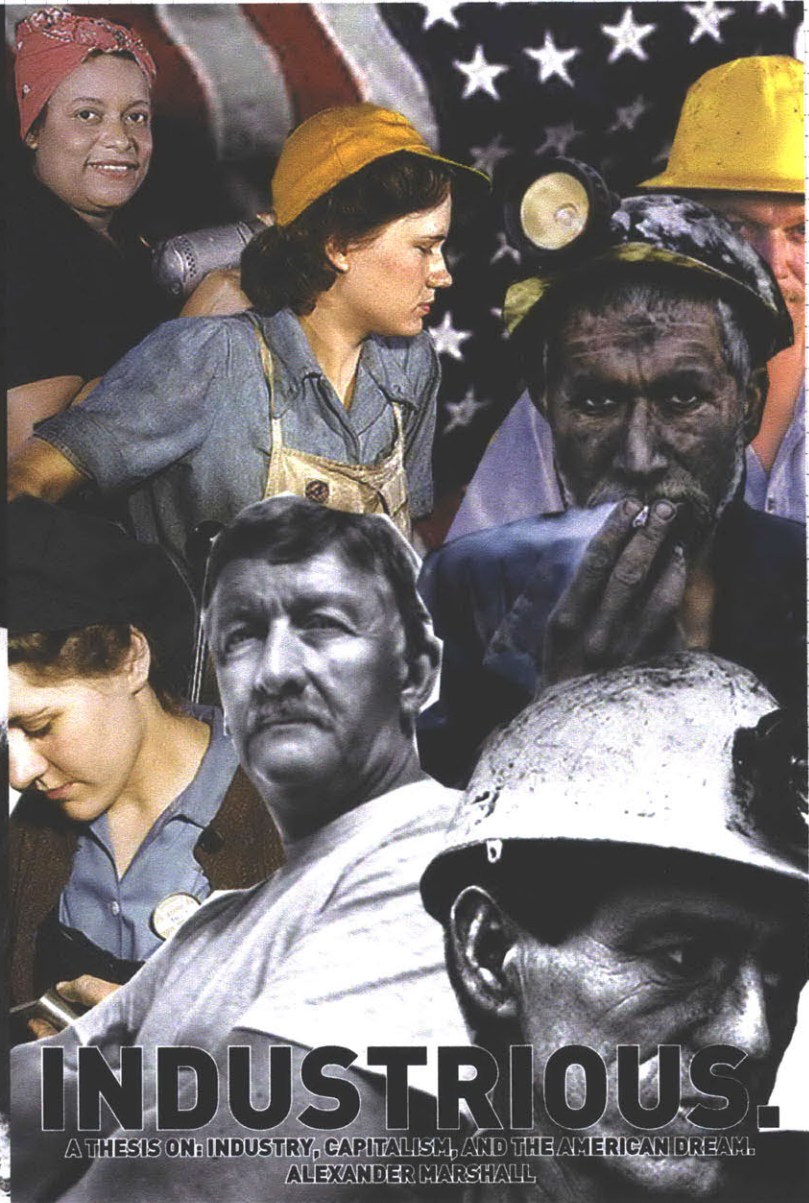
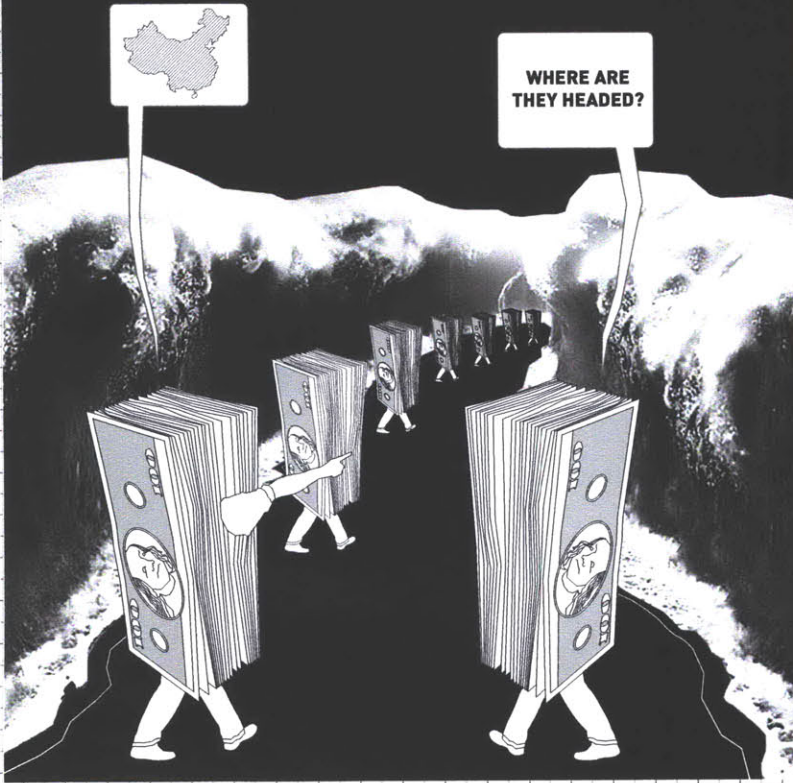
___This new vision of the American Dream will be played out on a site in North East Detroit, in the Kettering Neighborhood. The Neighborhood is one of many which had been ravaged by the foreclosure crisis, as well as, the departure of a Major factory (The Packard Automobile Company) which would have once secured the livelihood of many of the residents of the Kettering Neighborhood, as well as, Detroit at Large. The

proposal seeks to create an Anti-Capitalist Manufacturing Settlement, founded on the premise of Urban Revolution. The intention is to create four new Architectural Typologies Based on the Home, The Factory, The Warehouse and the Big-Box Superstore, which will attempt confront the political and social injustices which these typologies have arguably created, and propose a new interaction between them, which ultimately prompt a re-writing of the American Dream.

___We live in a nation in which 80% of the wealth is controlled by the top 5% of the populous, leaving the rest of us with no other option but Revolution. Revolution cannot be simply taken up as an occupation, or protest, it must be embodied via re-thinking the city, and re-assuming the right to the city, through the establishment of new architectural typologies. Architecture and Urban Space have the power to organize the masses, means of production, and the re-production of culture and through clever thinking, outside of the influence of capitalism, a new vision for the city can and must be envisioned.

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EXODUS.



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EXODUS INDUSTRIOUS, A PREFACE:

Exodus industrious, that many would say, but few would dispute. Exodus industrious in two parallel fates, told in one, which ultimately are yet a single narrative in the history of the American dream. Exposed in the story of capitalism, industry, and the architectural oeuvre which pertains to it, the industrial is the story of the American dream, a product tale of the evolution of Americanism, which was also told in a parallel in the possibility that the rich would work and not be rich, that they would relinquish the rewards of status, wealth, and power, to give themselves the use and benefit of the capitalist state, while making visible the industrial nature of the new way of America.

The emergence of American industrial design and the American dream, which prompted a new architectural vision, took Alexander Marshall to the factory. The factory, in giving work to people and the future of the American dream to the world, was the vision, the way to break the two worlds, and of the study, and not of them, as an architectural solution to the problem which both have created. A complex, intertwined, and ever-evolving development, the new way of the American dream was played out in a site in North East Detroit, in the Kettering Neighborhood. The Neighborhood, a site of many which had been neglected by the industrial revolution, was the site of a Mass factory, the Ford Motor Company, which would have only increased the need of many of the residents of the Kettering Neighborhood, as well as other at risk, in a way that would be made in the Detroit Manufacturing Settlement, founded on the basis of Urban Revivalism. The settlement, in its early years, was Architectural Topographic, based on the name, The Factory, The Warehouse, and the Big Box Superstore, which was meant to hold the past and the new, and to be a new neighborhood, one which created a program, a conversation between them, which would be a prompt, a new way of the American dream.

We live in a nation in which a lot of the wealth is controlled by the top 1% of the population, leaving the rest of us with no other option but to work for them, and in the process, to be seen up as an occupation of protest. It may be essential for us to think the city and re-assessing the right to the city, through the establishment of new architectural typologies. Architecture and urban

space have the power to shape the masses, make it of education, and the re-production of capital, and through clever thinking, not only of the influence of capitalism, a new way for the city, and must be developed.

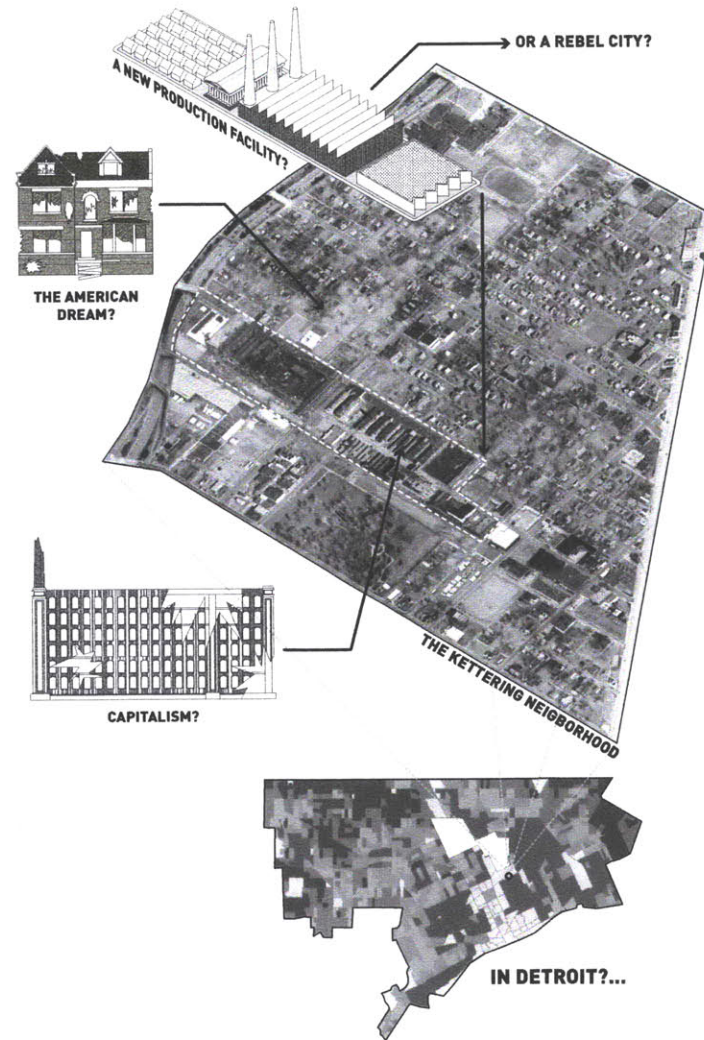
The intent of the thesis is to consider a new history, a new writing of an old one, as the grounds for an architectural proposal, the American dream, and the streets which surround it, in the founding tale, to act in the Mass, to look to examine the relationship between the single family home, industrial production, the negotiation of surplus value, and the distribution of commodities, to a wider program, while operating at the scale of a neighborhood of 3000-4000 people. A list of Architectural problems to be considered are as follows:

1. The programmatic implications of mixing domestic space with production space.
2. The architectural separation and influence of domestic space and production space.
3. The flexibility of the production space and its ability to operate as a work environment.
4. The image of the American dream, in the terms of its material quality and construction system.
5. The state of the parks which would be a functional production facility, and its relationship to the ever-changing scale of the existing American dream, or, Mass, in its typology, program, or, better, its history, and, its future identity.
6. The reuse of the existing park, and its existing infrastructure, of the Kettering Neighborhood District.
7. The relationship between production households and the central network, with which they operate.
8. The programmatic challenges of Mass industries, operating within a neighborhood.
9. The Architectural Language of the existing, The Factory, The Warehouse, and the Big Box Superstore, which are often driven by capital, and not by the user, rather than capital, issues of its history, organization and program.

The document is a work to be read in the program as a story. Narratives presented in four sections: 1. The Draft of the American dream, 2. Revolution, 3. New, 4. Revolution, 5. The New American dream, and, 6. Essay.

ALEXANDER W. MARSHALL, 5/14/2015

KETTERING, DETROIT, MICHIGAN





THE AMERICAN DREAM, DEAD, AGE 87

THE AMERICAN DREAM, DEAD, AGE 87

Former Ideology, The American Dream, passed away violently last night, from an apparent overdose of expectation. Officials describe the scene as horrifying, a fatal error in judgment, which caused the Dream to consume a lethal dose of belief and rhetoric. Explosively, it burst, taking with it the livelihoods of several innocent bystanders.¹ Its carcass was discovered scattered in pieces among the working class neighborhoods of Detroit, Mi, and hundreds of other average cities across the country. Authorities have identified Capitalismo Modus Operendi, Age 135, as the primary suspect in the investigation. Capitalismo.² was reportedly a longtime acquaintance of the American Dream. Was it murder? or Suicide?

The American Dream is succeeded in eternal life by its creator, Mr. James Truslow Adams.³ Upon its birth in 1931, Mr. Adams, drunk and depressed⁴, muttered a futilerant: **“The American Dream is that dream of a land in which life should be better and richer and fuller for everyone, with opportunity for each according to ability or achievement. It is a difficult dream for the European upper classes to interpret adequately, and too many of us**

WANTED!

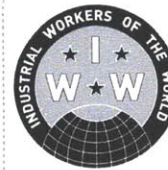
-FOR-

Corruption, Deceit, and Killing The American Dream

A PARASITE CALLED



“CAPITALISMO MODUS OPERENDI”



OTHER KNOWN ALIASES:
THE CAPITALIST MODE OF PRODUCTION
-OR-
CAPITALIST URBANIZATION

DESCRIPTION:
Industry, the backbone of the American Economy, has contracted a foul disease. This disease causes industry to behave like a locust, migrating from country to country, ravaging economies, and leaving laborers penniless. Symptoms of the disease are corruption, swelling, excessive denial, abandonment, and obsolescence.

The disease in question is of rare form, its Latin name Capitalismo Modus Operandi, loosely translated, it refers to the Capitalist Mode of Production. The disease behaves similar to a parasitic infection, in that it inhabits a body, using it to supplement its ravenous appetite, and when resources are exhausted, it leaves.

Its structure is simple. Input Capital, Purchase Means of Production and Labor Power, and output a commodity. Sell the commodity in an open market for a profit, and then re-invest in the cycle. Once enough surplus profit has accumulated, an investment is made in technology, more labor power and greater means of production. A substantial portion of accumulated profit is distributed to the owners of the parasite, while minimal capital is distributed to the mass of laborers which support it.

If dissent threatens to destabilize the parasite, it often searches for a new host. Characteristics of the host often include but are not limited to: An unstable or transitioning economy in a second or third-world nation, which offers cheap labor, and in-expensive means of production.

REWARD OFFERED!
A NEW PRODUCTION TYPOLOGY
FOR AN ANTI-CAPITALIST SOCIETY

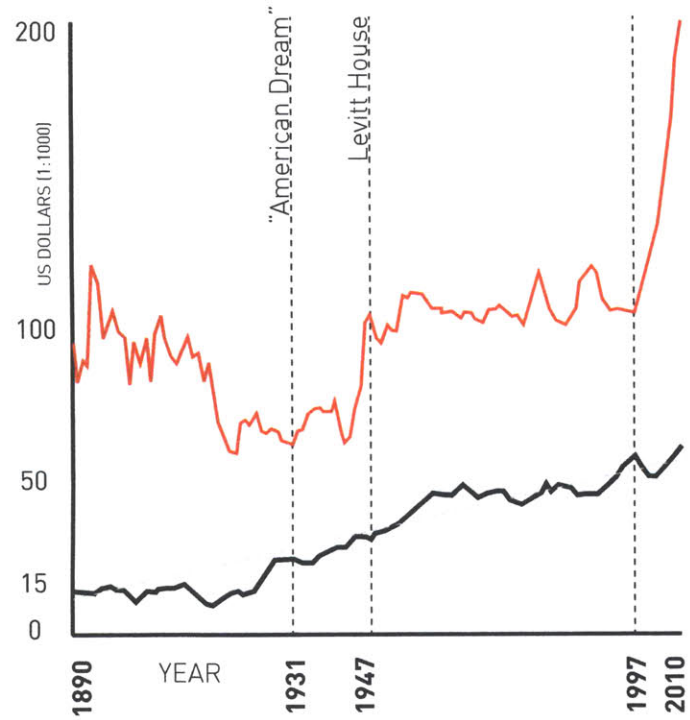
ourselves have grown weary and mistrustful of it. It is not a dream of motor cars and high wages merely, but a dream of social order in which each man and each woman shall be able to attain to the fullest stature of which they are innately capable, and be recognized by others for what they are, regardless of the fortuitous circumstances of birth or position.” He closed his exclamation with a belch of reverie.

As a youth, the Dream was raised on the basic tenets of the declaration of independence. Among them a belief that “all men are created equal” men “are endowed by their creator with certain inalienable rights,” “among these are life, liberty and the pursuit of happiness”. These tenets naturally involved the values of tolerance, charity, compassion and true regard for the dignity and worth of each and every individual.⁵ The innocence and morality of the Dream was apparent, even as a young ideology.

As the Dream grew older, it found pleasure in materialism. The dream was driven by puritan work ethic and the values of effort, persistence, initiative, self-reliance, achievement and success. The dream believed in the free enterprise system, and

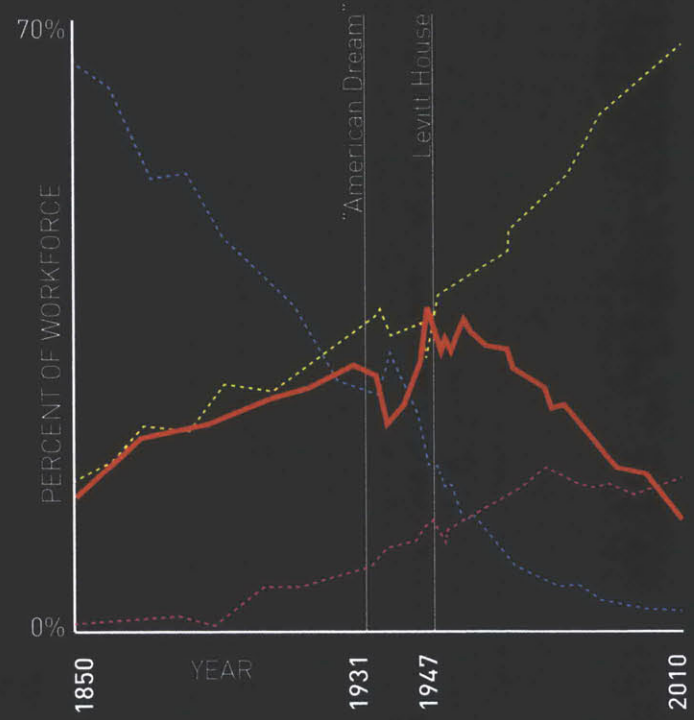


SHILLER'S INDEX OF HOUSING PRICES

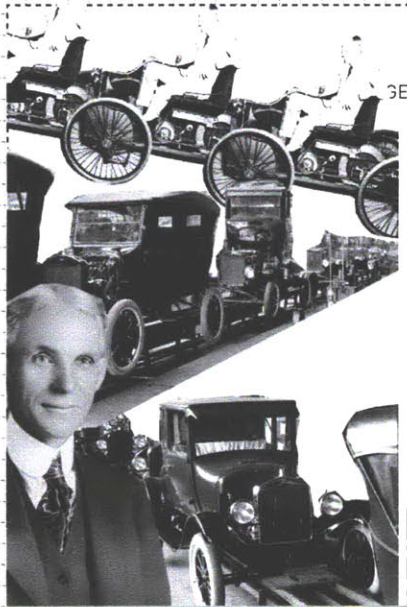


— HOUSING PRICE, INFLATION ADJUSTED TO 2010 US DOLLAR
****SINCE 1997 THE INDEX HAS RISEN ABOUT 87%**
— MEDIAN INCOME, INFLATION ADJUSTED TO 2010 US DOLLAR

CLARK'S SECTOR MODEL

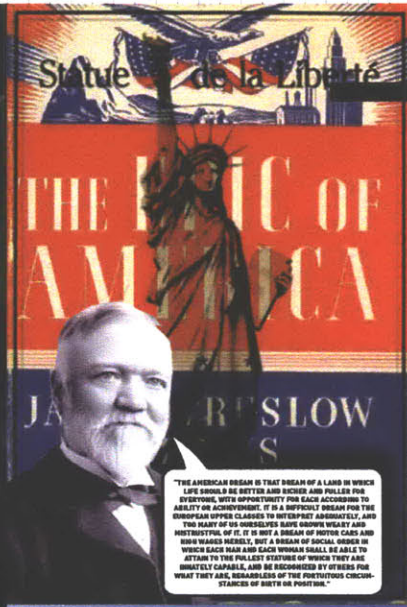
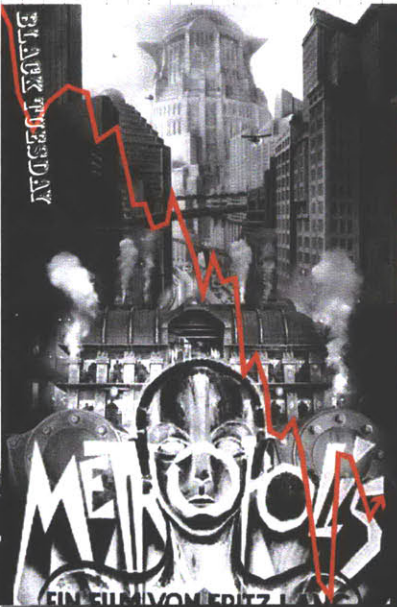


- - - NATURAL RESOURCES
— INDUSTRY
- - - SERVICE
- - - GOVERNMENT

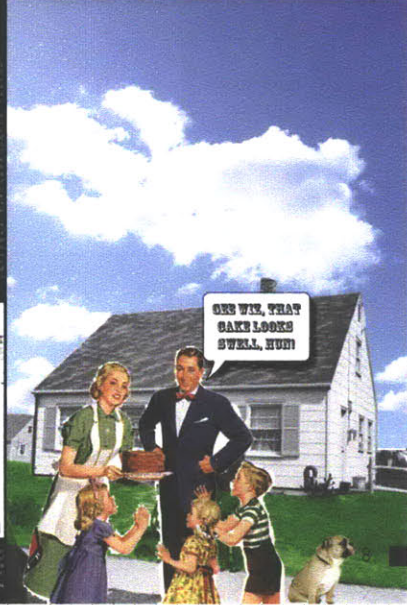
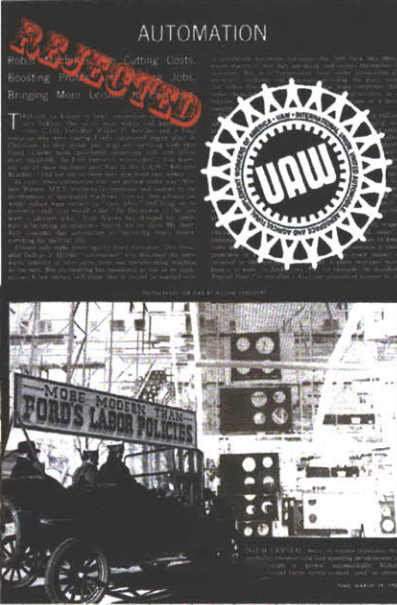
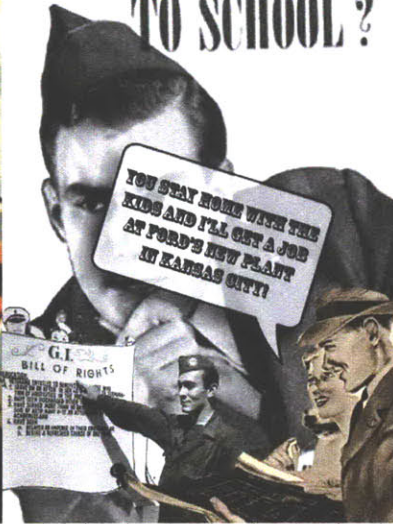


'GOLD RUSH' IS STARTED BY FORD'S

\$5 OFFER



SHALL I GO BACK TO SCHOOL?



the notion of freedom from controls, regulations, and constraints that may have hindered it's striving for ascendency in the social-economic hierarchy of society. The Dream firmly believed that if one employs one's energies and talents to the fullest, one will reap the rewards of status, wealth, and power.⁶

The Dream became so powerful, its rhetoric so strong, that the masses accepted it, and followed it in the pursuit of the material riches it so promised. Following the second World War, The dream became symbolic, a metaphor for a way of life. The image of the Dream consisted of a house, 2.5 children, a cocker-spaniel, a two car garage, all sitting on an acre of land just 3.67 miles outside of downtown America, on a block littered with 25-30 other fledgling dreams. The acquisition of material possessions, such as automobiles, boats, televisions, dishwashers and other so called luxuries, further satisfied the dream. The American dream was obsessed with ownership, The rightful ownership of objects and possessions which signified wealth, status and power.

The American dream was fueled, most often, by American Industrial Production. Capitalismo, the

T'ILL BUY THAT DREAM



HOUSING TRACT AFTER BULLDOZING



INSTALLING NEIGHBORHOOD INFRASTRUCTURE



FOUNDATION AND GARDEN SHEDS, POURED EN MASSE



HOUSE FRAMING, EN MASSE



WALL AND ROOF COVERING, EN MASSE



COMPLETED HOUSING TRACT, T'ILL BUY THAT DREAM

fundamental basis of American Business, forged a toxic relationship with the American Dream. Unbeknownst to the Dream, Capitalismo's critics often describe him as a Parasite. An article in the 1951 Journal of Economic Infections⁷ read as follows:

"Industry, the backbone of the American Economy, has contracted a foul disease. This disease causes Industry to behave like a locust, migrating from country to country, ravaging economies, and leaving laborers penniless. Symptoms of the disease are corruption, swelling, excessive denial, abandonment, and obsolescence.

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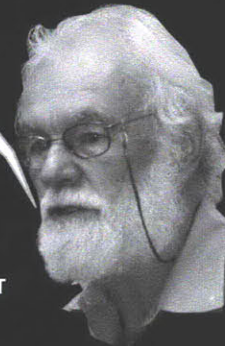
Its structure is simple. Input Capital, Purchase Means of Production and Labor Power, and output a commodity. Sell the commodity in an open market for a profit, and then re-invest in the cycle.

"THE PROBLEM IS THAT WE LIVE IN A SOCIETY WHERE CAPITALISM ITSELF HAS BECOME RAMPANTLY FERAL. FERAL POLITICIANS CHEAT ON THEIR EXPENSES; FERAL BANKERS PLUNDER THE PUBLIC PURSE FOR ALL ITS WORTH; CEOs, HEDGE FUND OPERATORS, AND PRIVATE EQUITY GENIUSES LOOT THE WORLD OF WEALTH; TELEPHONE AND CREDIT CARD COMPANIES LOAD MYSTERIOUS CHARGES ON EVERYONE'S BILLS; CORPORATIONS AND THE WEALTHY DON'T PAY TAXES WHILE THEY FEED AT THE TROUGH OF PUBLIC FINANCE; SHOP KEEPERS PRICE GOUGE; AND AT THE DROP OF A HAT SWINDLERS AND SCAM ARTISTS PRACTICE THREE-CARD MONTE RIGHT UP INTO THE HIGHEST ECHELONS OF THE CORPORATE AND POLITICAL WORLD...A POLITICAL ECONOMY OF MASS DISPOSSESSION, OF PREDATORY PRACTICES TO THE POINT OF DAYLIGHT ROBBERY - PARTICULARLY OF THE POOR AND THE VULNERABLE, THE UNSOPHISTICATED AND THE LEGALLY UNPROTECTED, HAS BECOME THE ORDER OF THE DAY...FERAL CAPITALISM SHOULD BE PUT ON TRIAL FOR CRIMES AGAINST HUMANITY, AS WELL AS FOR CRIMES AGAINST NATURE..."

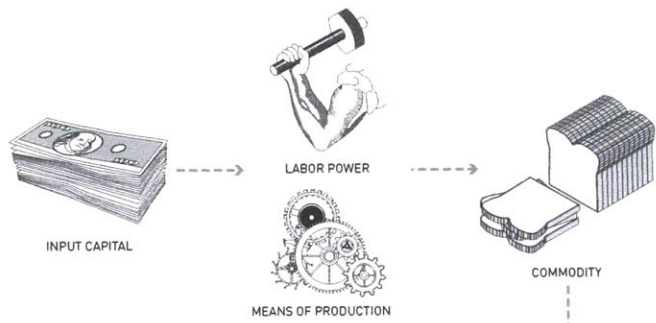
"MANY DECENT PEOPLE ARE LOCKED INTO THE EMBRACE OF A SYSTEM THAT IS ROTTEN TO THE CORE. IF THEY EARN A REASONABLE LIVING THEY HAVE NO OTHER JOB OPTION EXCEPT TO GIVE THE DEVIL HIS DUE, IN ACCEDING TO THE BARBAROUS AND IMMORAL PRINCIPLES AND PRACTICES OF THE PARTY OF WALL STREET. THE COERCIVE LAWS OF COMPETITION FORCE US ALL, TO SOME DEGREE, TO OBEY THE RULES OF THIS RUTHLESS AND UNCARING SYSTEM...THE PARTY'S FAVORED SLOGANS OF FREEDOM AND LIBERTY TO BE GUARANTEED BY PRIVATE PROPERTY RIGHTS, FREE MARKETS, AND FREE TRADE ACTUALLY TRANSLATE IN THE FREEDOM TO EXPLOIT THE LABOR OF OTHERS, TO DISPOSSESS THE ASSETS OF THE COMMON PEOPLE AT WILL, AND TO PILLAGE THE ENVIRONMENT FOR INDIVIDUAL OR CLASS BENEFIT."



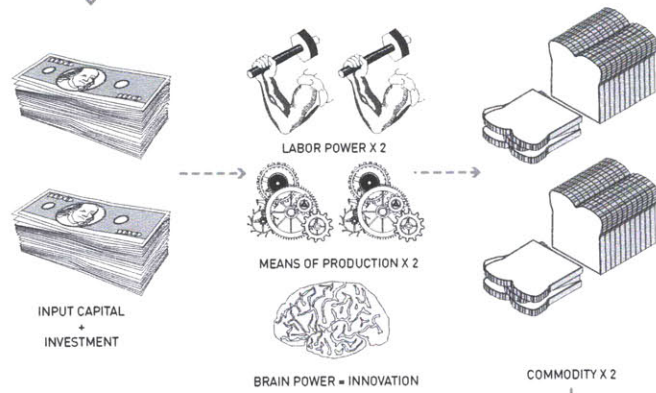
DAVID HARVEY
-ON-
FERAL CAPITALISM
-AND-
THE PARTY OF WALL STREET



CAPITALISTIC MODE OF PRODUCTION

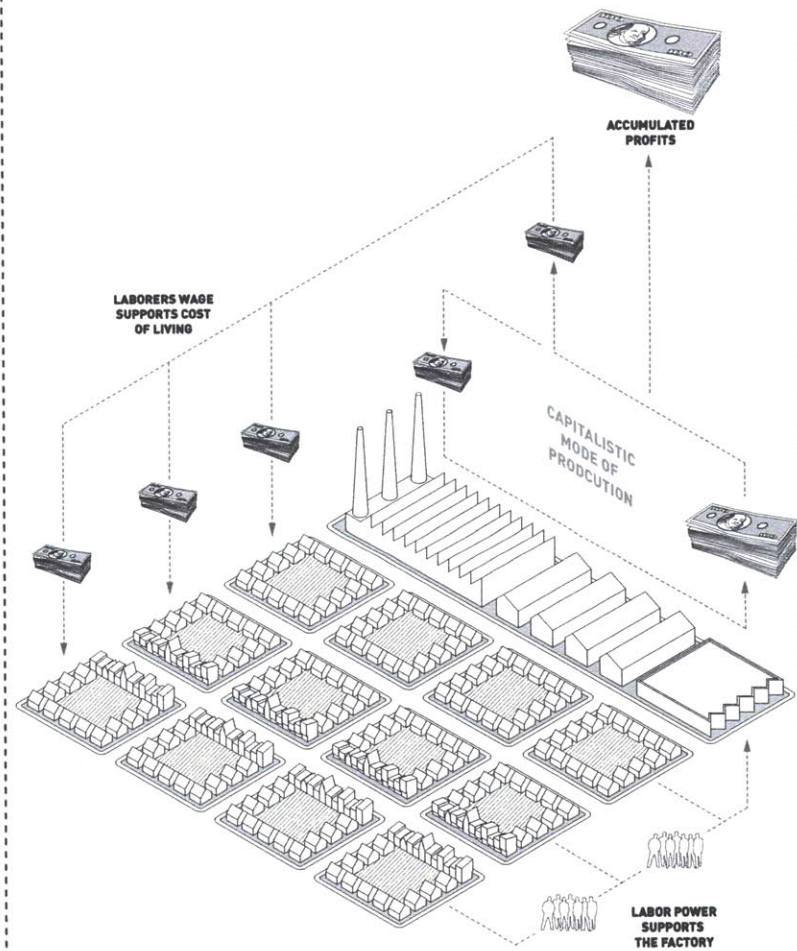


SALE OF COMMODITY FOR PROFIT



REPEAT!

THE GOOD 'OL DAYS



VISIT THE FURNISHED WIMPEY SHOWHOUSE IN THE AVENUE, NUNTHORPE

A TWO-STORY BUNGALOW

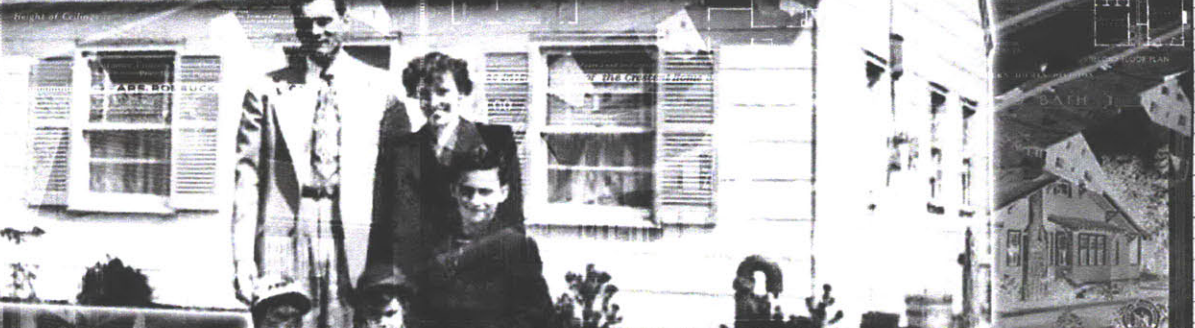
THE NORWICH... SEVEN ROOMS, BATH, LAVATORY, AND ATTACHED GARAGE

WHAT DID THE AMERICAN DREAM LOOK LIKE?



NOW OPEN
daily from 10 am to 8 pm (including weekends)

- 12,000 S.F. LOT SIZE & FINISH KITCHEN
- 12,000 S.F. LOT SIZE & FINISH KITCHEN
- BUILT IN GARAGE
- PRICES FROM \$2,500 FREE
- FINISH AND FURNITURE
- 12,000 S.F. LOT SIZE & FINISH KITCHEN
- 12,000 S.F. LOT SIZE & FINISH KITCHEN
- 12,000 S.F. LOT SIZE & FINISH KITCHEN



WIMPEY
better appliances
NO MORE

RENT RECEIPTS, OR A HOUSE OF YOUR OWN?

We Need Your Good Will

Square Foot Annuity

YOU'RE SURE TO SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

THE MANSION AT

YOU'RE SURE TO SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

YOU SAVE WHEN YOU BUY YOUR OWN HOME

THE NORWICH

SEVEN ROOMS, BATH, LAVATORY, AND ATTACHED GARAGE

PRICE \$2,828

First Floor Plan

Second Floor Plan

Garage

Bath

Lavatory

Living Room

Dining Room

Kitchen

Bed Room

Bed Room

Bed Room

Attic

Once enough surplus profit has accumulated, an investment is made in technology, more labor power and greater means of production. A substantial portion of accumulated profit is distributed to the owners of the parasite, while minimal capital is distributed to the mass of laborers which support it.⁸

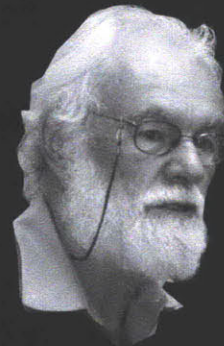
If dissent threatens to destabilize the parasite, it often searches for a new host. Characteristics of the host often include but are not limited to: An unstable or transitioning economy in a second or third-world nation, which offers cheap labor, and in-expensive means of production. "

Through the 1950's, Capitalismo held great influence over The American Dream. Through extensive federal tax incentives and a national re-propagation of the American Dream, ordinary citizens were given the opportunity to assume households at low rates with no down payments. Capitalismo provided the Dream with economic sustenance, which satisfied its continuing desire for more possessions. The American Dream gave back to Capitalismo an endless wealth of inexpensive labor, which fueled the many business

THE AMERICAN DREAM

"ALL SORTS OF TAX INCENTIVES, ALONG WITH THE GI BILL AND A VERY POSITIVE HOUSING ACT OF 1947, WHICH DECLARED THE RIGHT OF ALL AMERICANS TO LIVE IN "DECENT HOUSING IN A DECENT LIVING ENVIRONMENT," WERE DEVISED FOR POLITICAL AND ECONOMIC REASONS. HOMEOWNERSHIP WAS WIDELY PUBLICIZED AS CENTRAL TO THE "AMERICAN DREAM"...HOMEOWNERSHIP MAY BE A DEEPLY HELD CULTURAL VALUE IN THE U.S., BUT CULTURAL VALUES FLOURISH REMARKABLY WHEN PROMOTED AND SUBSIDIZED BY STATE POLICIES...AS OPENLY NOTED IN THE 1930'S, DEBT INCUMBERED HOMEOWNERS DO NOT GO ON STRIKE. WHAT BETTER WAY TO KILL TWO BIRDS WITH ONE STONE: REVIVIE THE ECONOMY THROUGH MASSIVE HOUSING CONSTRUCTION AND CO-OPT THE HIGHER PAID WORKERS INTO CONSERVATIVE POLITICS BY DEBT-ENCUMBERED HOMEOWNERSHIP!"

"VETERANS, WITH THEIR WORLD WAR II SAVINGS, WERE ENCOURAGED BY A NATIONAL POLICY PROMOTING HOMEOWNERSHIP IN SUBURBAN AREAS TO PARTICIPATE IN THE TRANSFORMATION OF THE AMERICAN CITY AND THE AMERICAN ECONOMY...THE UNITED STATES HOUSING STOCK INCREASED FROM 34.9 MILLION OCCUPIED UNITS IN 1940 TO 105.5 MILLION OCCUPIED UNITS IN 2000...THE DREAM HOUSE REPLACED THE IDEAL CITY AS THE SPATIAL REPRESENTATION OF AMERICAN HOPES FOR THE GOOD LIFE. IT NOT ONLY TRIUMPHED OVER THE TOWN, THE DREAM HOUSE ALSO PREVAILED OVER TWO OTHER MODELS OF HOUSING, ONE BASED ON EFFICIENT COLLECTIVE CONSUMPTION OF SCARCE RESOURCES, THE OTHER BASED ON THE MODEL NEIGHBORHOOD."



DELORES HAYDEN
DAVID HARVEY
-ON-
THE AMERICAN DREAM



ventures which he controlled. Life was good, and the dream was at its peak, or so it thought.

Capitalismo, an often unfaithful friend of the Dream, would ultimately seek out cheaper labor power and means of production in developing nations such as Japan, who was rapidly re-industrializing following the second world war. Soon, Major US Corporations, which employed many Dream seekers, began to fail because Japanese manufacturers were producing better products for less money.¹⁰ Capitalismo, reluctant to solve growing dissent among laborers, decided to relocate his problems elsewhere.¹¹

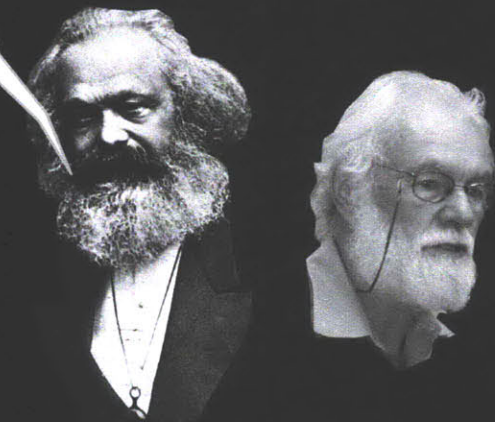
Laborers, still empowered by the Dream, desired more. But rather than satisfying the dream, Cappy began to repress labor wages, in order to yield great financial benefit to the owners of industrial operations (later known as the 1%). By the late 1970's average incomes for the common individual stagnated, and haven't grown much since.¹² But the dream was still alive and heavily influential.

Entering its Golden Years, the dream engaged in many risky behaviors to continue the propagation of its rhetoric. This ultimately grew into a severe addiction to a substance known on the street

CAPITALIST URBANIZATION

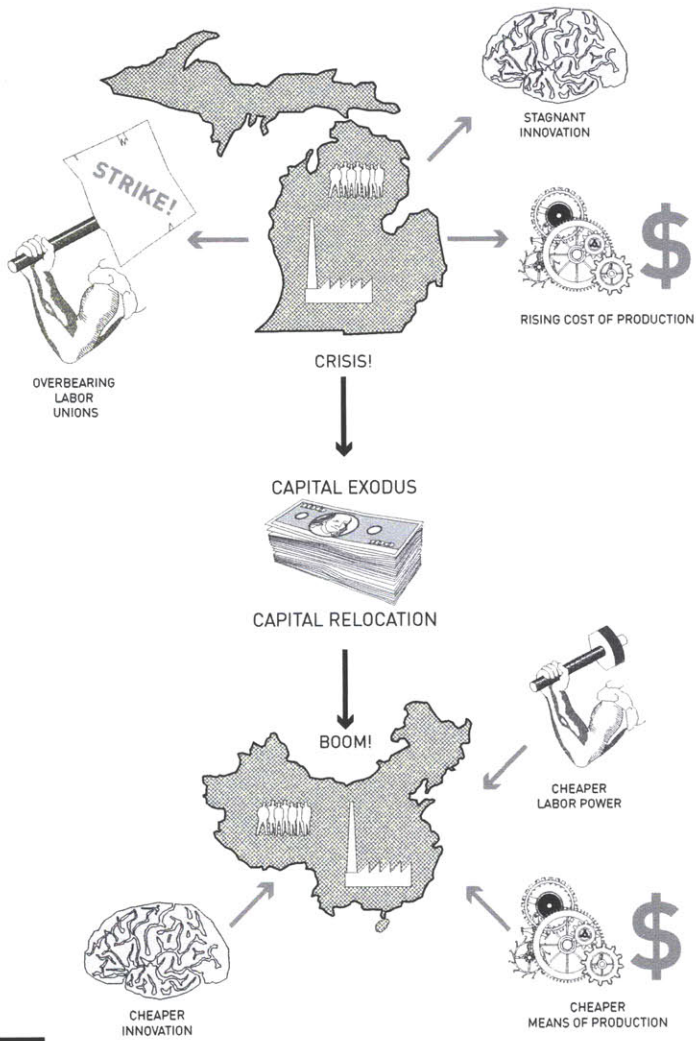
"THE MORE A COUNTRY PROCEEDS FROM LARGE-SCALE INDUSTRY AS THE BACKGROUND OF ITS DEVELOPMENT, AS IS THE CASE OF THE UNITED STATES, THE MORE RAPID IS THE PROCESS OF DESTRUCTION. CAPITALIST PRODUCTION, THEREFORE, ONLY DEVELOPS THE TECHNIQUES AND THE DEGREE OF COMBINATION OF THE SOCIAL PROCESS OF PRODUCTION BY SIMULTANEOUSLY UNDERMINING THE ORIGINAL SOURCES OF ALL WEALTH - THE SOIL AND THE WORKER."

"CAPITALIST URBANIZATION PERPETUALLY TENDS TO DESTROY THE CITY AS A SOCIAL, POLITICAL AND LIVABLE COMMONS...LOOK AT THE URBAN WRECKAGE IN DETROIT TO GET A SENSE OF HOW DEVASTATING THIS PROCESS CAN BE..."

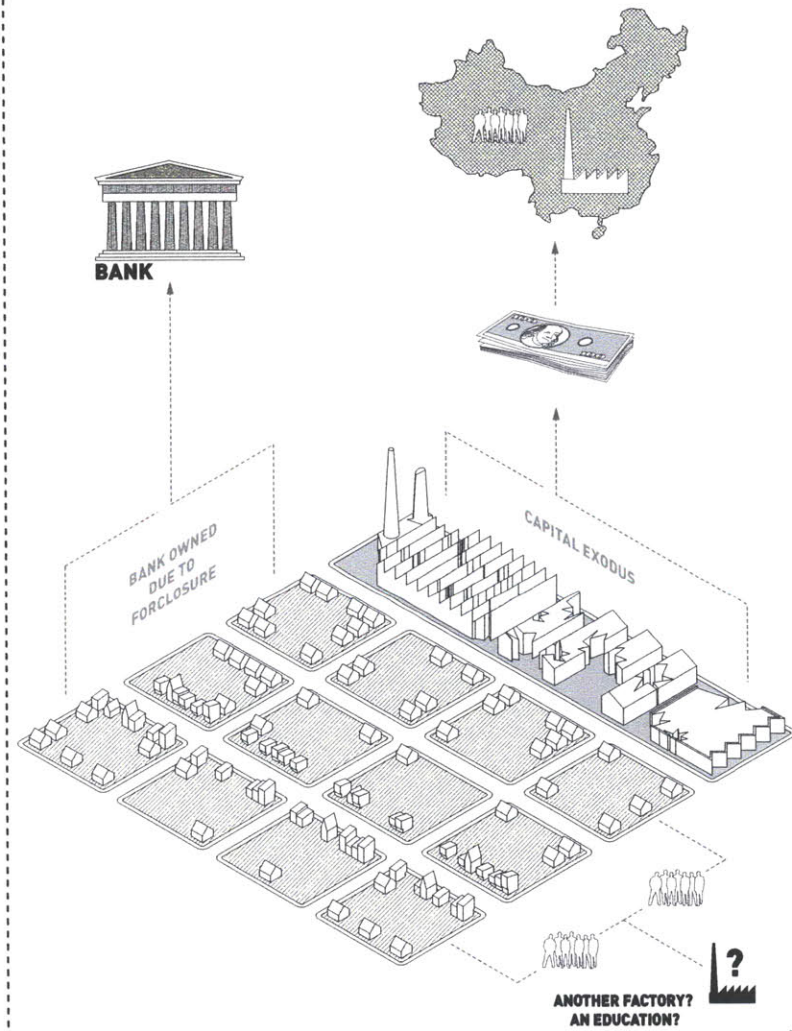


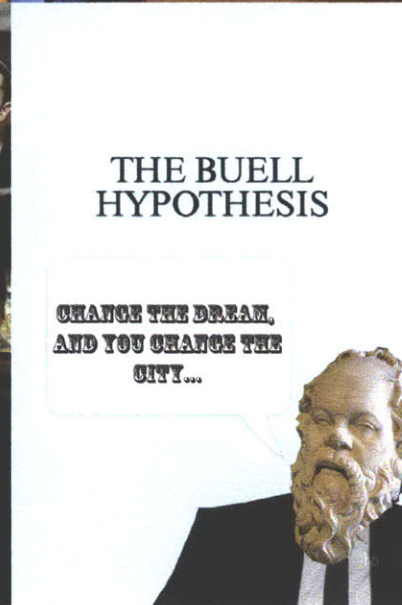
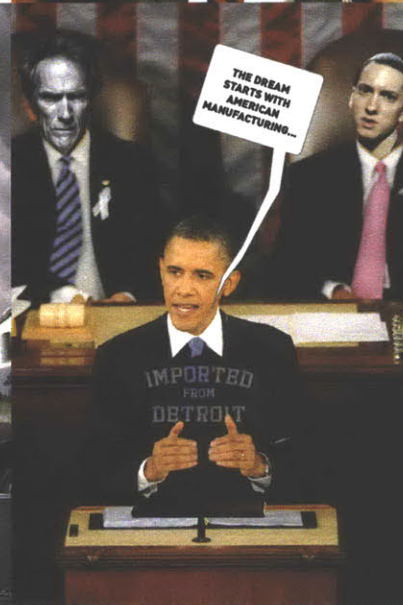
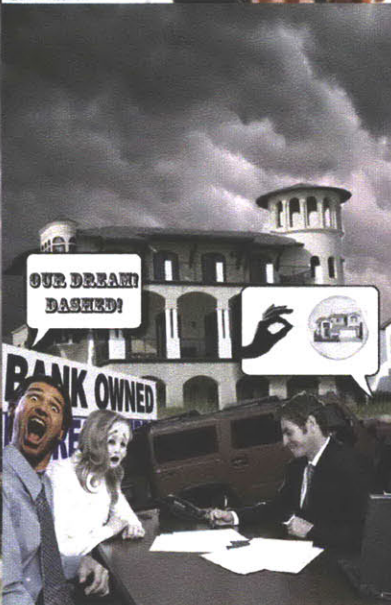
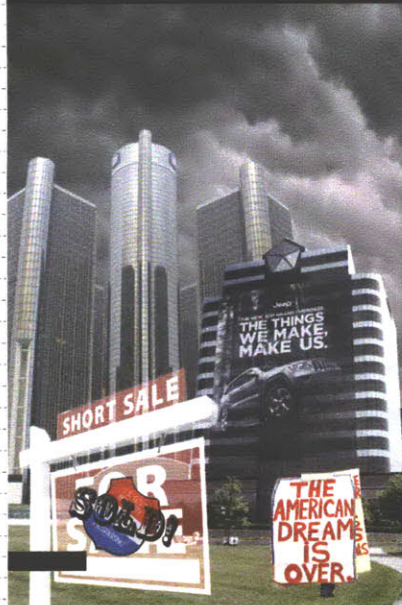
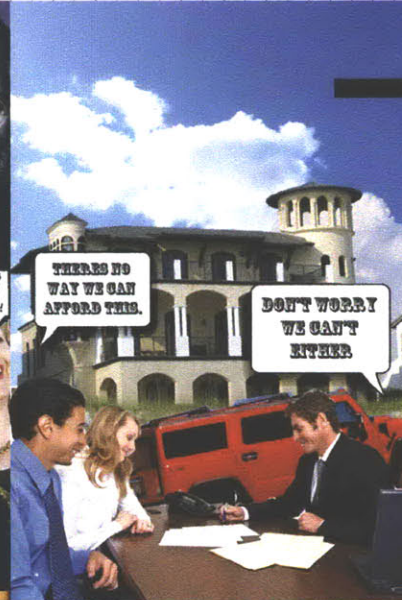
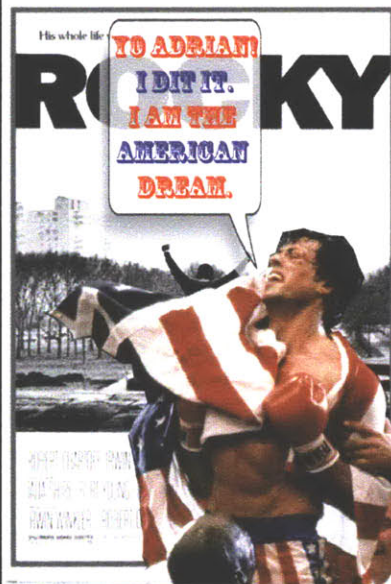
HARVEY + MARX
-ON-
CAPITALIST
URBANIZATION

THE EXODUS OF PRODUCTION CAPITAL



THE "DECLINE"



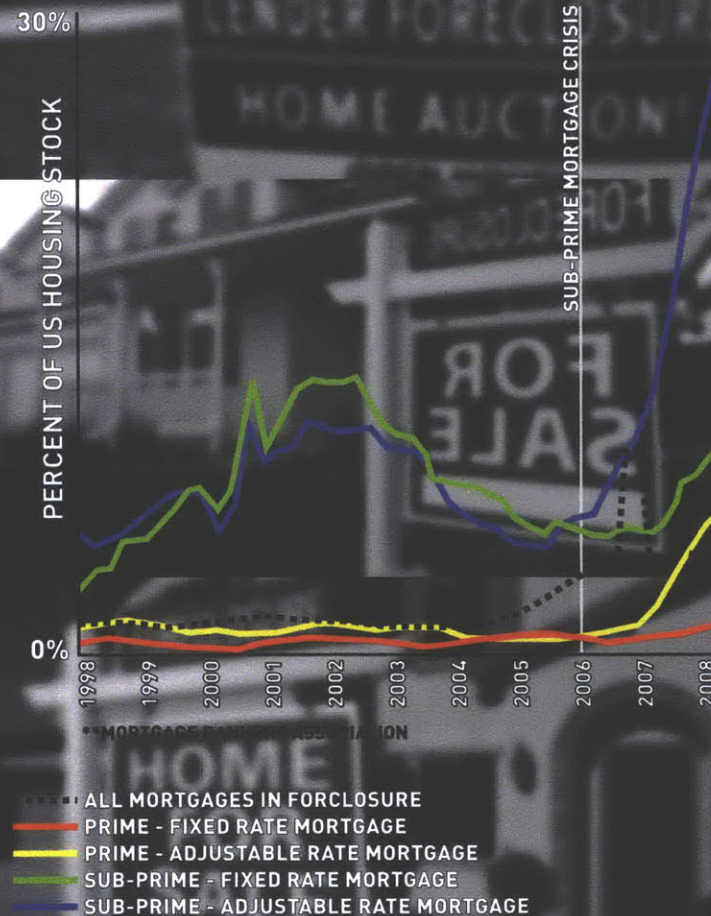


as "expectation". The drug causes a general feeling of laziness and righteous empowerment, which causes the user to desire certain material amenities, and causes them to attempt to acquire them at any cost. The dream often felt reluctant to do real work, and often expected that someone would ultimately bear the increasing costs of the American Lifestyle. Rather than working, the dream resorted to "Credit" as a means to acquire possessions. At the same time Capitalismo was growing Feral, and his crude tactics of capitalist urbanization were further diminishing the Dream.¹³

The dream entered it's elder years as an accomplished ideology, but a failing reality. It would soon find that its tenets would be used against it, in an effort to undermine it. The underpinnings of the dream would soon be exploited by its many followers. A small bubble began to grow in the inner lining of the heart of the dream, as the abuse of "expectation" became a daily occurrence.

Vicious Financiers, seeking to create a boom, used the dream and its ideological underpinnings to sequester disenfranchised individuals into sub-prime lending agreements. These individuals were unaware of the motives of the Financiers, and

ACTUAL FORCLOSURE VS. SEVERELY DELINQUENT MORTGAGES



graciously accepted mortgages to acquire dream homes and other material possessions which they could not actually afford.¹⁴ By the 1980's many of the most fervent followers of the dream, were out of work.

The boom thrived. Homes were being built at a rate never before seen or anticipated. The bubble inside the dream swelled. The followers of the dream were drunk with the power of borrowed money. Through their stupor, they lost sight of the original message of the dream, that "hard-work and persistence" was the key to acquiring the material rewards of life. Expectation over came them, as they believed the dream was an "inalienable right", and as such were reluctant to work for it.

Suddenly and Unexpectedly the bubble burst, the dream had consumed a dose of expectation so powerful that it could no longer sustain life. Calamity instantly rocked the followers of the dream as the Dream exploded with such a force that it killed millions of livelihoods, all at once. The dream died a horrifying, painful death, taking with it all that once believed in it.

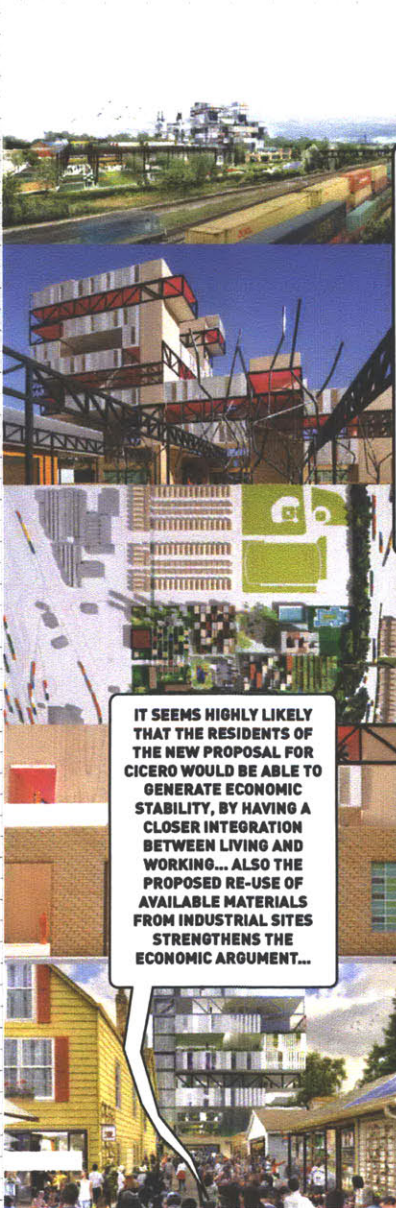
FORECLOSED: RE-HOUSING THE AMERICAN DREAM



"WHAT IF WE WENT BACK TWO OR THREE YEARS TO THE FEDERAL RE-INVESTMENT ACT, AND IMAGINED THAT FEDERAL MONIES WERE SPENT DIFFERENTLY. IN OUR SCENARIO, WHAT WE ARE DOING IS IMAGINING THAT THE FEDERAL GOVERNMENT CAME IN WITH T.A.R.P. MONEY IN A DIFFERENT WAY, NOT SIMPLY TO BAIL OUT THE BANKS, BUT TO BAIL OUT THE BANKS IN EXCHANGE FOR A SET OF CONDITIONS, AND IN OUR CONDITIONS WE HAVE ASKED THEM TO TAKE APART THE MODELS OF OWNERSHIP WITHIN THAT SUBDIVISION...ANOTHER PART OF HOW WE WOULD RE-IMAGINE THE FEDERAL RE-INVESTMENT ACT, IS THAT THE DEPARTMENT OF THE INTERIOR WOULD PAY FOR A CABLE GONDOLA LINE THAT WOULD COME FROM OUR SITE UP INTO THE MOUNTAINS, TO CAMPSITES AND HIKING AREAS."

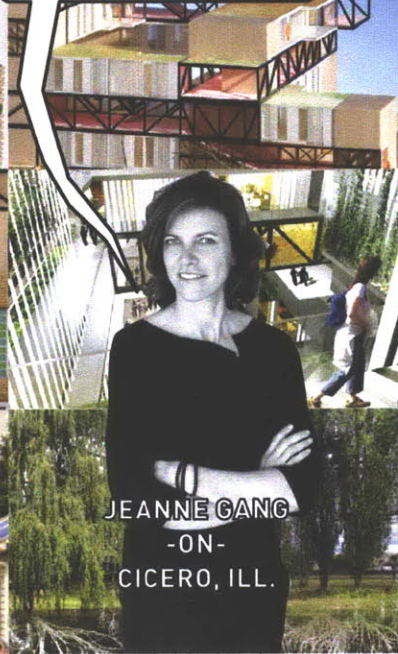
A GONDOLA?...REALLY? LOOKING BACKWARDS TO A GOVERNMENT SURPLUS PACKAGE, AND RE-SUPPOSING HOW THE FUNDS MIGHT HAVE BEEN ALLOCATED SEEMS LIKE A DANGEROUS WAY TO SOLVE THE FORCLOSURE CRISIS. THE GOVERNMENT WAS CLEARLY SWAYED BY BIG MONEY, NOT NERDY ARCHITECTS. WHY NOT SUPPOSE THAT THE ACT HAS ALREADY HAPPENED, AND ACTUALLY DEAL WITH IT.

ANDREW ZAGO
-ON-
RIALTO, CA



ONE THING WE NOTICED IN CICERO WAS THAT THE PEOPLE WERE STARTING TO USE THEIR GARAGES, INSTEAD OF USING THEM FOR A CAR, THEY WERE USING IT FOR A WORKSHOP, OR TO HAVE A GARAGE SALE, SO THE ALLEY WAYS ARE CONVERTED INTO SHOPS... AND STORES... AND RESTAURANTS...AND PEOPLE COULD HAVE ANOTHER OPPORTUNITY TO CREATE AN ECONOMIC INCOME...IN ORDER TO DO THAT WE HAD TO COMPLETELY REDACT THE EXISTING CICERO CODE, MAINLY STRIKING OFF PLACES WHERE LIVING AND WORKING IS SEPARATED. ONLY THE HEAVIEST INDUSTRIES NEED TO BE SEPARATED FROM RESIDENTIAL...BUT LIGHT INDUSTRY AND COTTAGE INDUSTRIES CAN BE MORE TIGHTLY WOVEN.

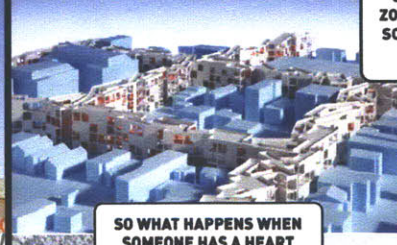
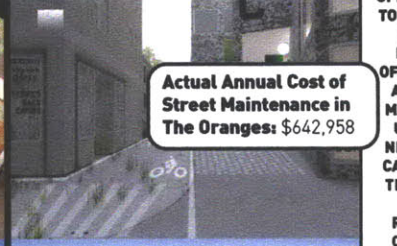
IT SEEMS HIGHLY LIKELY THAT THE RESIDENTS OF THE NEW PROPOSAL FOR CICERO WOULD BE ABLE TO GENERATE ECONOMIC STABILITY, BY HAVING A CLOSER INTEGRATION BETWEEN LIVING AND WORKING... ALSO THE PROPOSED RE-USE OF AVAILABLE MATERIALS FROM INDUSTRIAL SITES STRENGTHENS THE ECONOMIC ARGUMENT...



JEANNE GANG
-ON-
CICERO, ILL.



Actual Annual Cost of Street Maintenance in The Oranges: \$642,958



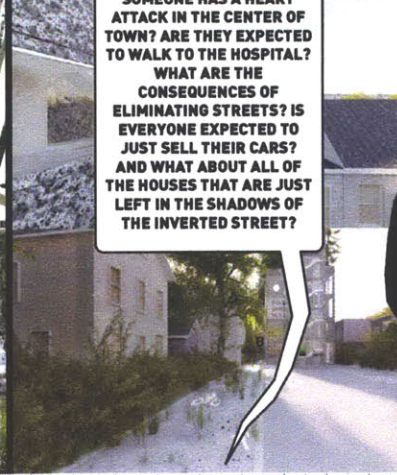
SO WHAT HAPPENS WHEN SOMEONE HAS A HEART ATTACK IN THE CENTER OF TOWN? ARE THEY EXPECTED TO WALK TO THE HOSPITAL? WHAT ARE THE CONSEQUENCES OF ELIMINATING STREETS? IS EVERYONE EXPECTED TO JUST SELL THEIR CARS? AND WHAT ABOUT ALL OF THE HOUSES THAT ARE JUST LEFT IN THE SHADOWS OF THE INVERTED STREET?



ALL OF THE STREETS THAT WERE FOR THE CARS...ARE GOING TO BE DEVELOPED AS HOUSING, AND WE ARE GOING TO REMOVE THE CAR FROM THE CITY. THE STREETS ARE ACTUALLY A BURDEN ON ORANGE AS A...KIND OF...CITY IN DECLINE, THEY REQUIRE A LOT OF CAPITAL AND MONEY TO MAINTAIN THE STREETS, THEY ARE UNDER USED AND THEY ARE NOT NECESSARY...AND ITS AN ECOLOGICAL PROBLEM....BY GETTING RID OF THE CAR AND RE-THINKING INFRASTRUCTURE, WE ARE REALLY RE-THINKING THE CITY...NOW WE CAN PRODUCE A CITY THAT HAS A ZONING FREE APPROACH TO ZONING, SO YOU COULD SORT OF...AHH...HAVE A MIX OF LIVE AND WORK...



WELL...AHH... THERE IS AN OBESITY PROBLEM IN THE ORANGES....



MOS
-ON-
THE ORANGES, NJ

"THE ONLY QUESTION IS, WHEN WILL PEOPLE START TO WAGE A CLASS WAR BACK? AND ONE OF THE PLACES TO START WOULD BE TO FOCUS ON THE RAPIDLY DEGRADING QUALITIES OF URBAN LIFE, THROUGH FORECLOSURES, THE PERSISTENCE OF PREDATORY PRACTICES IN URBAN HOUSING MARKETS, REDUCTIONS IN SERVICES, AND ABOVE ALL THE LACK OF VIABLE EMPLOYMENT OPPORTUNITIES IN URBAN LABOR MARKETS ALMOST EVERYWHERE, WITH SOME CITIES (DETROIT BEING THE SAD POSTER CHILD) UTTERLY BEREFT OF EMPLOYMENT PROSPECTS. THE CRISIS NOW IS AS MUCH AN URBAN CRISIS AS IT EVER WAS!...."

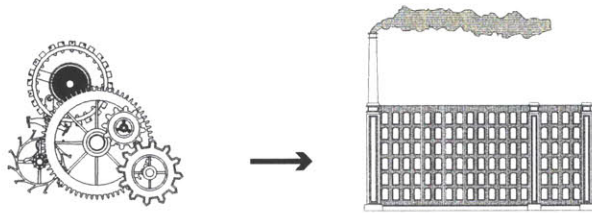
"OF COURSE THERE IS A CLASS WAR... AND IT IS MY CLASS, THE RICH, WHO ARE MAKING IT AND WE ARE WINNING..."



**DAVID HARVEY
WARREN BUFFET
-ON-
CLASS WARFARE**



PRODUCTION IS TIED TO LOCATION... AND ARCHITECTURE.



MEANS OF PRODUCTION

THE FACTORY



LABOR POWER

THE SINGLE FAMILY HOME

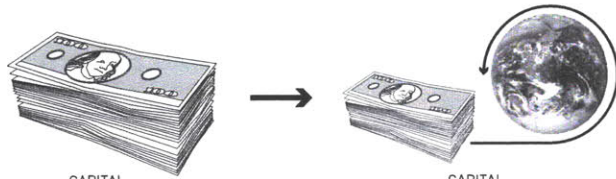


BRAIN POWER

THE INSTITUTION

ARCHITECTURE = PERMANENCE

CAPITAL = OBSOLESCENCE



CAPITAL

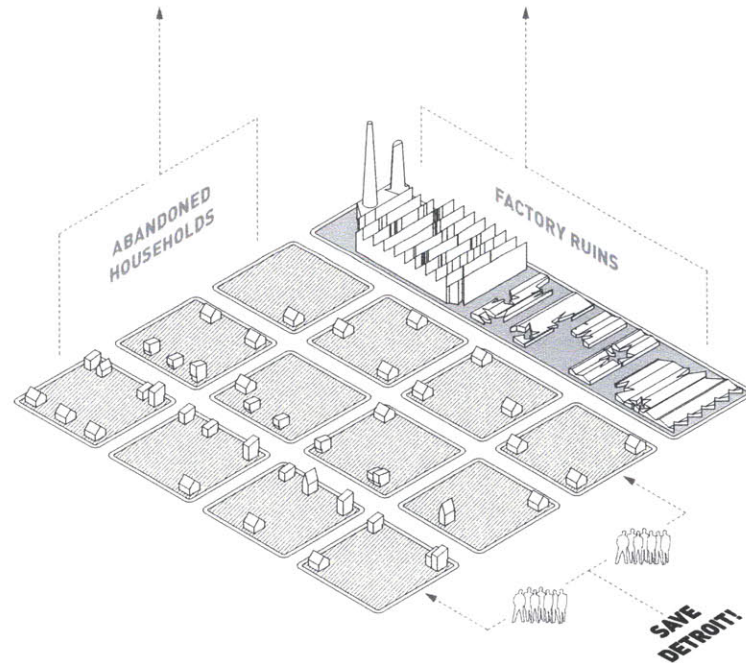
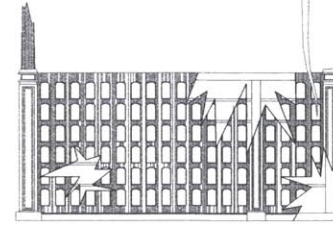
CAPITAL FLOW

TEAR ME DOWN!



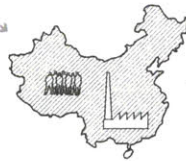
"MAD MAX" SYNDROME

ME TOO!

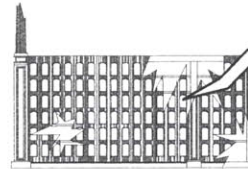




**CAPITAL
"PUNISHMENT"**



RELOCATION



CAPITALISM?

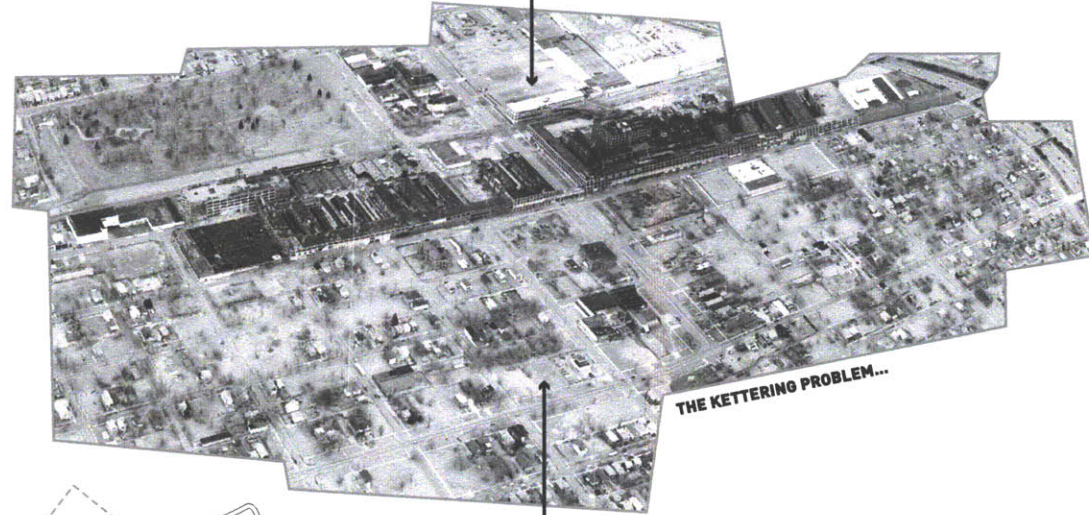
**CAPITALISM
DOESN'T SOLVE IT'S
PROBLEMS, IT JUST
RELOCATES THEM
GEOGRAPHICALLY...**



DAVID HARVEY



REINHOLD MARTIN



THE KETTERING PROBLEM...



**HARD WORK
AND A DREAM**



**REPPRESSED
WAGES**



**SUB-PRIME
MORTGAGE**



**THE AMERICAN
DREAM?**

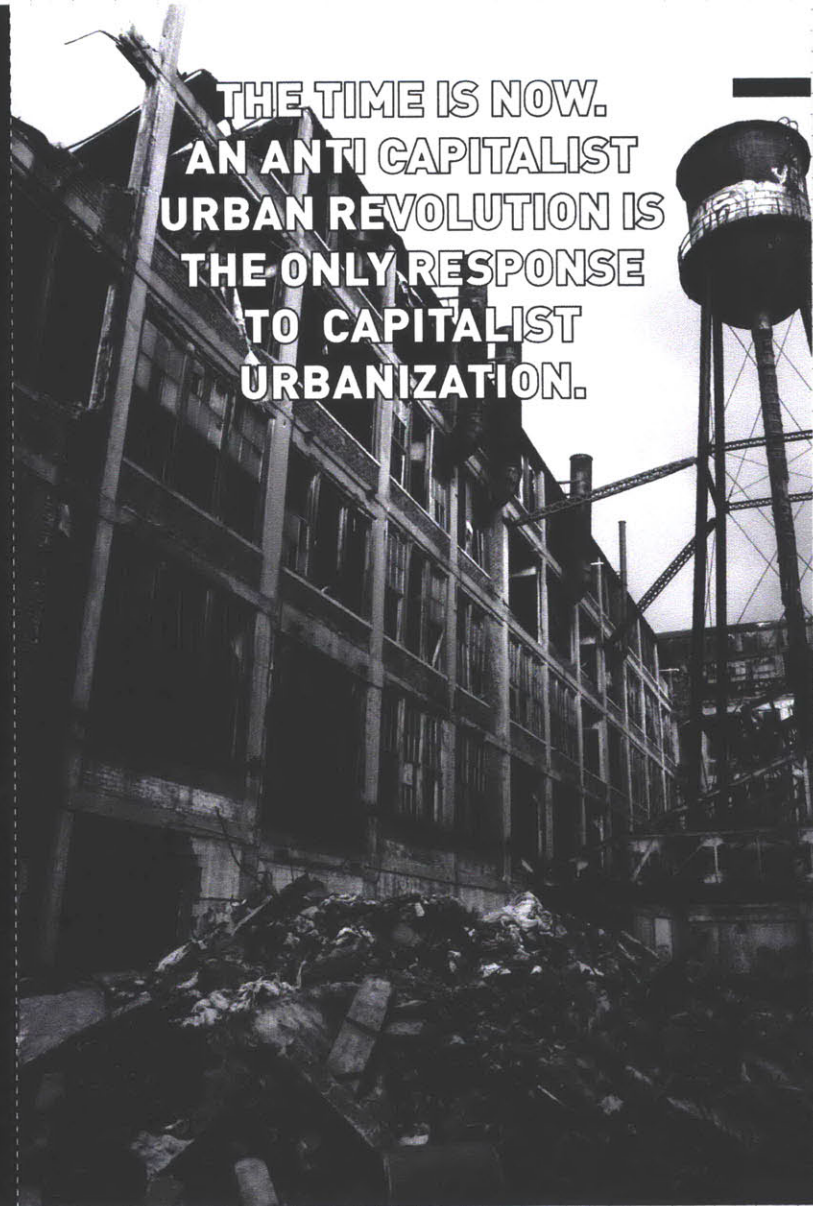
**THE AMERICAN DREAM
IS RESPONSIBLE FOR
THE FORECLOSURE
CRISIS. CHANGE THE
DREAM AND YOU
CHANGE THE CITY...**

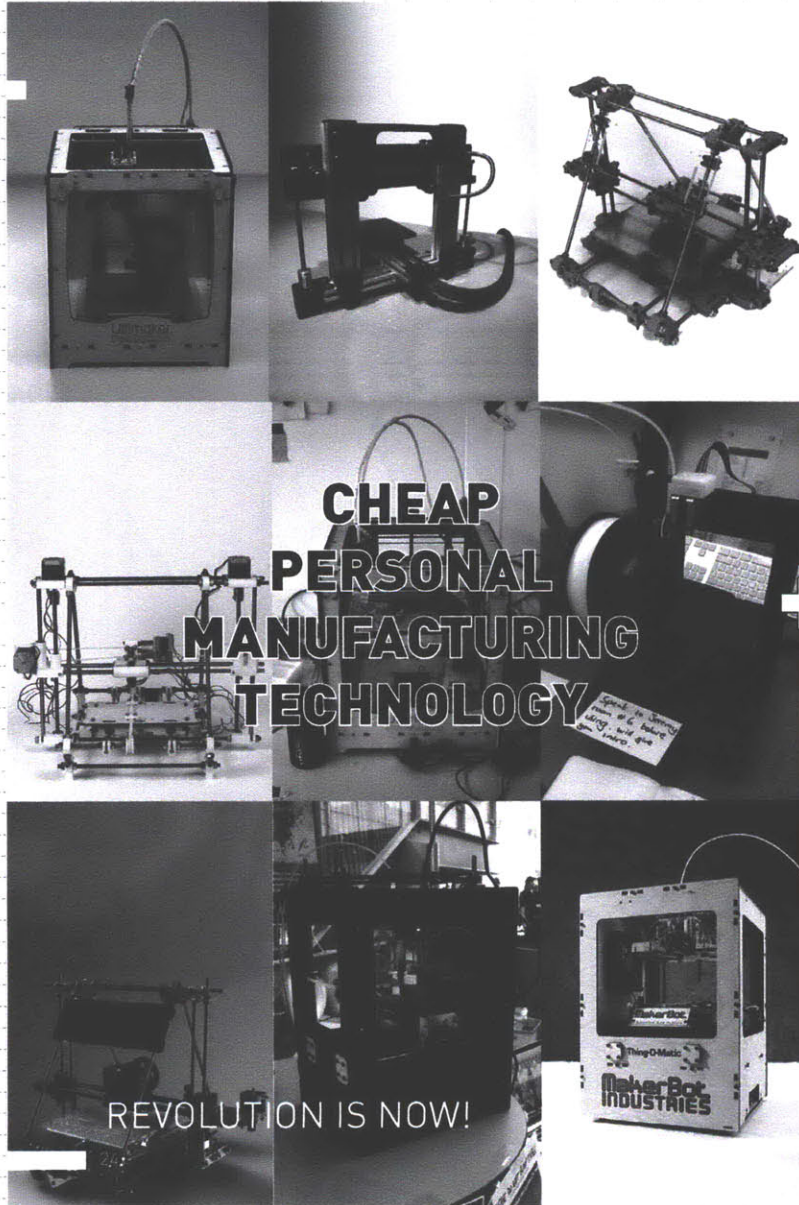
The American Dream has run out of gas. The car has stopped. It no longer supplies the world with its images, its dreams, its fantasies. No more. It's over. It supplies the world with its nightmares now: the Kennedy assassination, Watergate, Vietnam, The Sub-Prime Lending Crisis, The Iraq War, Afghanistan, The Foreclosure Crisis, and now a burgeoning trend towards rampant unemployment and a relentless class war waged by the richest of the rich, on the poorest of the poor.¹⁵

**The dream is survived in life by its offspring:
Foreclosure, Corruption, and Elitism.**

In lieu of flowers, or other material possessions, please send donations of distrust and disdain to your congressional representatives and local politicians. A memorial service will be held continually, until the dream is re-written.....

**THE TIME IS NOW.
AN ANTI CAPITALIST
URBAN REVOLUTION IS
THE ONLY RESPONSE
TO CAPITALIST
URBANIZATION.**

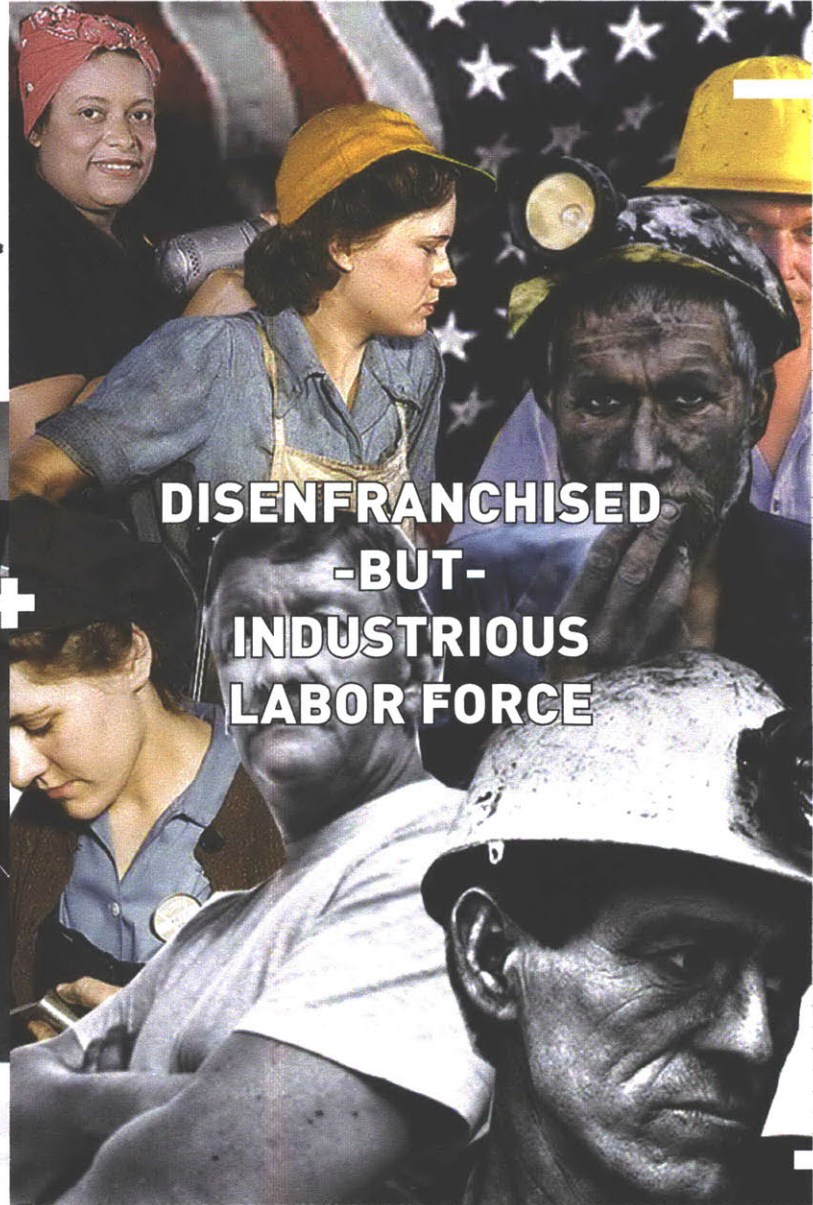




**CHEAP
PERSONAL
MANUFACTURING
TECHNOLOGY**

REVOLUTION IS NOW!

+



**DISENFRANCHISED
-BUT-
INDUSTRIAL
LABOR FORCE**

REVOLT!

The revolution in our times has to be urban-or nothing at all.¹⁶ Revolutionary citizens, the 99%, must subsume greater control over surplus product and the production process, in order to claim the right to the city. Collective ownership of the production process could derail the motives of capitalist Urbanization, and offer disenfranchised citizens a revolutionary re-writing of the American Dream. The production process will also see revolution, as personal scale manufacturing machinery is being developed in an open source and rapidly deployable fashion.

The American dream will undergo a revolutionary re-writing. Occupiers nationwide will transition to a new form of protest. No longer will they occupy public space begging for action. And Rather than continuing to support the normative modes of capitalism, Thisgrowingmultitudewillinstead take matters into their own hands, Literally.

"THE OLD WAY OF MAKING THINGS INVOLVED TAKING LOTS OF PARTS AND SCREWING AND WELDING THEM TOGETHER. NOW A PRODUCT CAN BE DESIGNED ON A COMPUTER AND "PRINTED" ON A 3D PRINTER, WHICH CREATES A SOLID OBJECT BY BUILDING UP SUCCESSIVE LAYERS OF MATERIAL. THE DIGITAL DESIGN CAN BE TWEAKED BY A FEW MOUSE CLICKS. THE 3D PRINTER CAN BE RUN UNATTENDED, AND CAN MAKE THINGS WHICH ARE TOO COMPLEX FOR A TRADITIONAL FACTORY TO HANDLE. IN TIME, THESE AMAZING MACHINES MAY BE ABLE TO MAKE ALMOST ANYTHING, ANYWHERE - FROM YOUR GARAGE TO AN AFRICAN VILLAGE."

The
Economist

The Third Industrial Revolution
April 21st, 2012



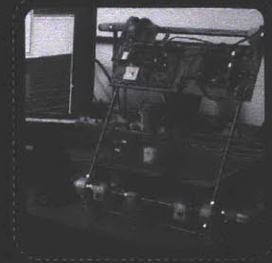
Assembly Line Workers

[http://www.flickr.com/photos/1111111111/1111111111/](#)



War-Time Welder

[http://www.flickr.com/photos/1111111111/1111111111/](#)



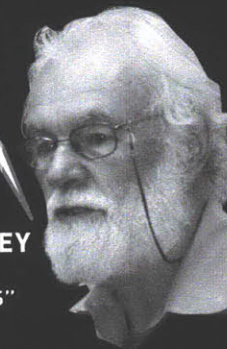
REP-RAP Working Autonomously

[http://www.flickr.com/photos/1111111111/1111111111/](#)

Waging a class war, Industrious individuals will unleashed low-cost manufacturing technology, as a means to re-write the existing conception of the American Dream, one which generates livelihood through autonomous production. The new dream, therefore, is the ownership of Production, not the ownership of material possessions.

The current dream, reliant on the ownership of material possessions as a symbol of success, is no longer economically sustainable. A growing number of Americans are struggling to find work, many who possess extensive educational backgrounds and high levels of technical skill. The American Dream once recognized the benefits of "hard work and persistence"¹⁷ as a means to generate a livelihood which could sustain the perils of ownership. Labor, the practice of productivity for the sake of economic gain¹⁸, was once a source of livelihood, but as been permanently damaged by the operative mode of capitalist production, in essence it has become

TO SUCCEED, THE MOVEMENT MUST REACH OUT TO THE 99%...THE MOVEMENT MUST REACH OUT TO ALL THE ALIENATED, THE DISATISFIED AND THE DISCONTENTED... ALL THIS HAS TO BE DEMOCRATICALLY ASSEMBLED INTO A COHERENT OPPOSITION, WHICH MUST ALSO FREELY CONTEMPLATE THE FUTURE OUTLINES OF AN ALTERNATIVE CITY, AN ALTERNATIVE POLITICAL SYSTEM, AND ULTIMATLEY, AN ALTERNATIVE WAY OF ORGANISING PRODUCTION, DISTRIBUTION AND CONSUMPTION FOR THE BENEFIT OF THE PEOPLE. OTHERWISE A FUTURE FOR THE YOUNG THAT POINTS TO SPIRALING PRIVATE INDEBTEDNESS AND DEEPENING PUBLIC AUSTERITY, ALL FOR THE BENEFIT OF THE 1%, IS NO FUTURE AT ALL...



DAVID HARVEY
-ON-
"REBEL CITIES"



WALMART?
WHAT ABOUT
BOT-MART?

99% OF US
AREN'T
LIVING THE
"DREAM"

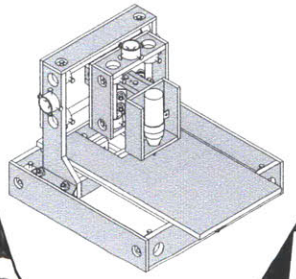
RE-OCCUPY
DETROIT!

UNDERMINE THE
SYSTEM.
MAKE YOUR
OWN STUFF.

MANUFACTURE
A NEW DREAM!

PROSECUTE
FINANCIAL
CRIMINALS

LABORERS
DEFECT
NOW!

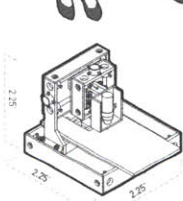


MADE IN AMERICA'S
LIVING ROOM.

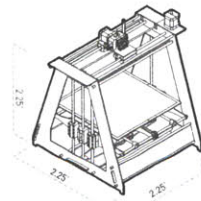
OPEN A FACTORY
IN YOUR LIVING ROOM!
EVADE DEBT!

"MACHINA DE LA REVOLUCION"

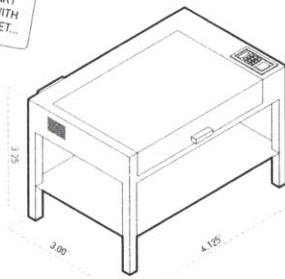
HUMAN SCALE



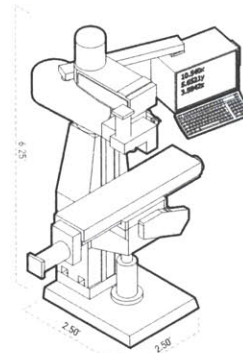
MODELA TABLETOP MILLING MACHINE



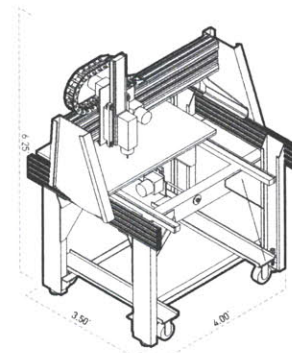
REP-RAP "MENDEL MAX" 3D-PRINTER



EPILOUGE 120W LASER-CUTTER

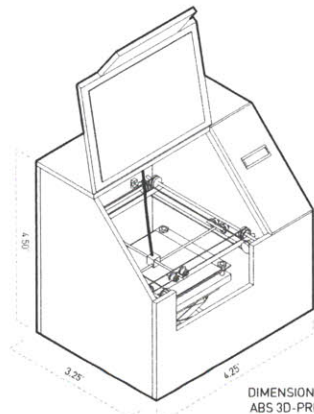


BRIDGEPORT 3-AXIS MILLING MACHINE

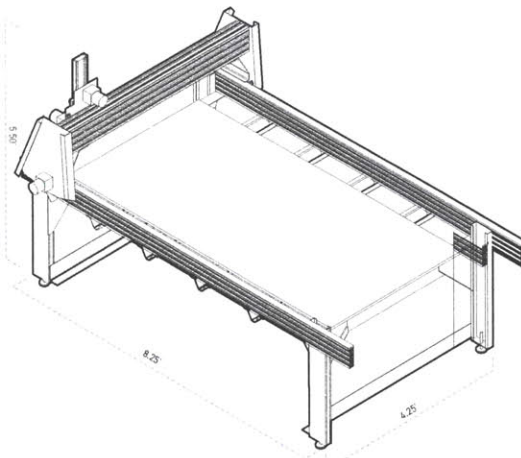


SHOP-BOT "BUDDY" 48" X 48" 3-AXIS MILLING MACHINE

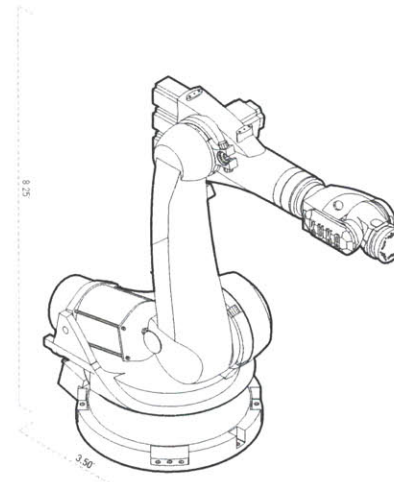
HUMAN SCALE MACHINERY



DIMENSION ELITE ABS 3D-PRINTER



SHOP-BOT "PR-STANDARD" 48" X 96" 3-AXIS MILLING MACHINE



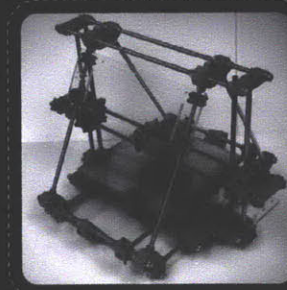
KUKA 6-AXIS ARTICULATED ROBOT ARM

commoditized, just like that loaf of sliced bread in your freezer. In order to redefine the American dream, we must first reconsider the definition of labor.

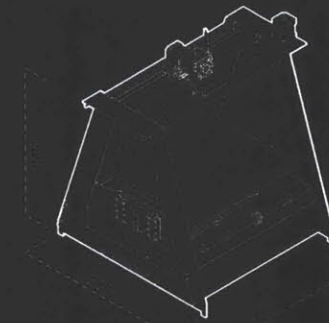
Revolutionaries beg the question: What if labor, in terms of manufacturing, didn't involve working in a factory? What if a laborer in fact was an owner and operator of personal manufacturing technologies, producing products at a relatively small scale? And what if this scenario was played out within the confines of the Household?

A new epoch of manufacturing exists now! Call it the third industrial revolution for lack of a better description. For a few thousand dollars, anyone can buy their own personal-scale manufacturing machine, download electronic blueprints to their home computer, and manufacture unique and complicated objects at home.¹⁹

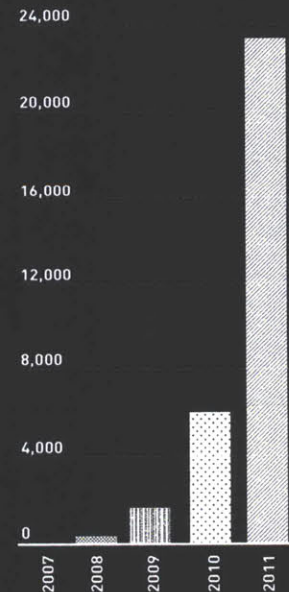
Before long, small objects will no longer



Rep-Rap Mendel Max
The Self-Regulating 3D Printer



Global Sales of Personal 3d - Printers



Steven Colbert, 3d Print by Maker-Bot

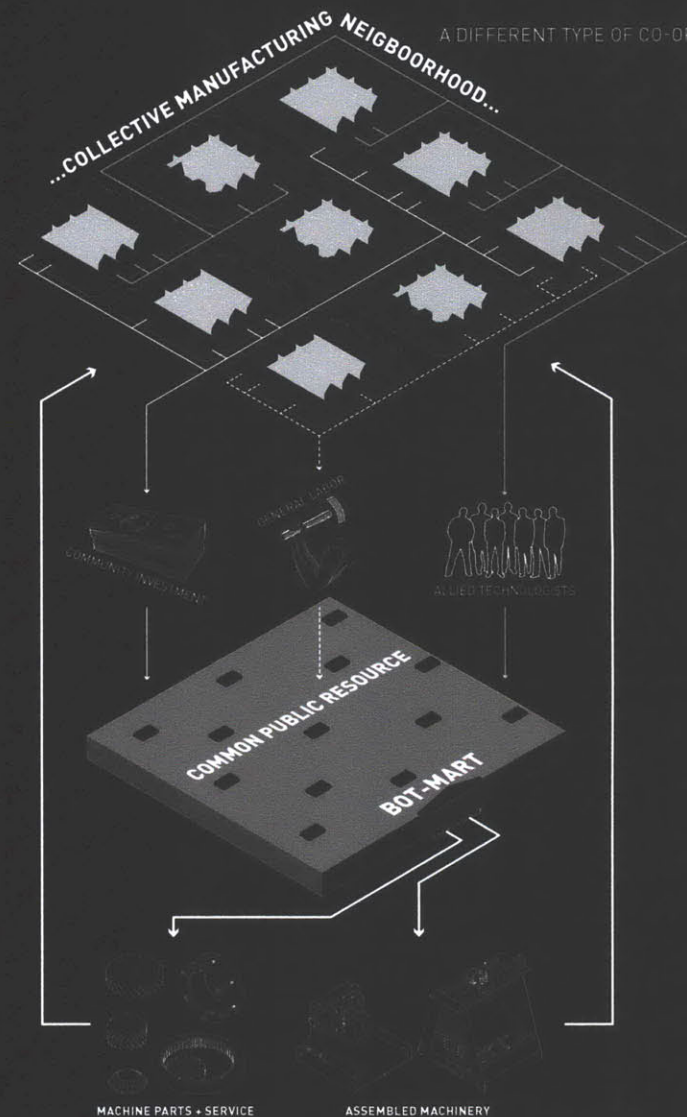


3D Printable - 3d Printer parts

be purchased at your local Wal-Mart. In a time of unprecedented un-employment and financial struggle among the 99%, it is probable to imagine a world in which we would have the ability to disassociate the ideals of the American Dream from the clutches of Capitalism. We now possess the ability to efficiently make the things that we would normally go out and purchase, at a fraction of the cost.

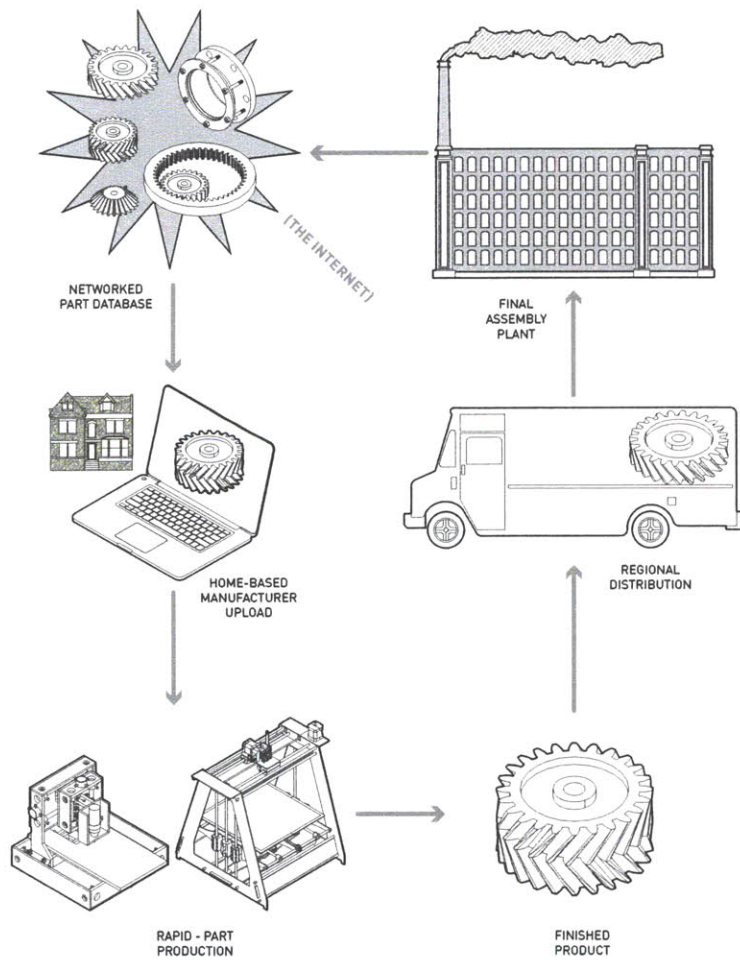
Imagine an all too likely scenario: We now live in a world where an average individual can readily acquire personal manufacturing technology. A 3-D printer can be purchased on the internet and shipped to your front door at the unfathomably low cost of \$600.00.²⁰ Virtually anyone can set up these simple machines, download digital models, and within a few hours, be printing durable products in quality materials such as ABS plastic.²¹

Now insert an economically disenfranchised populous, who is ready for a new way of life.

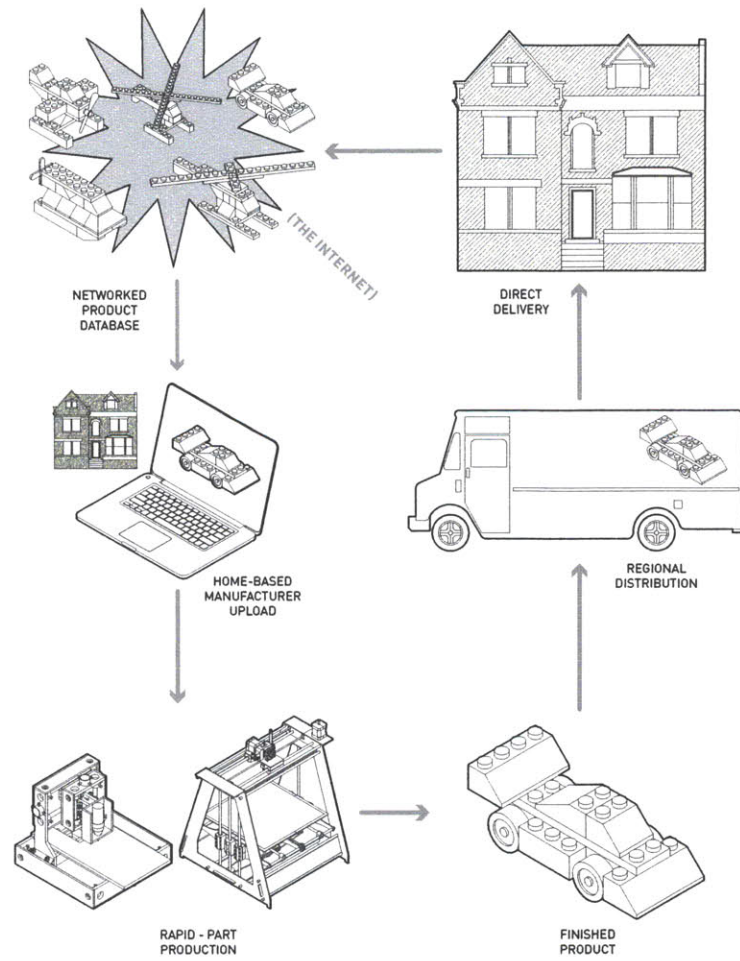




PART PRODUCTION CYCLE

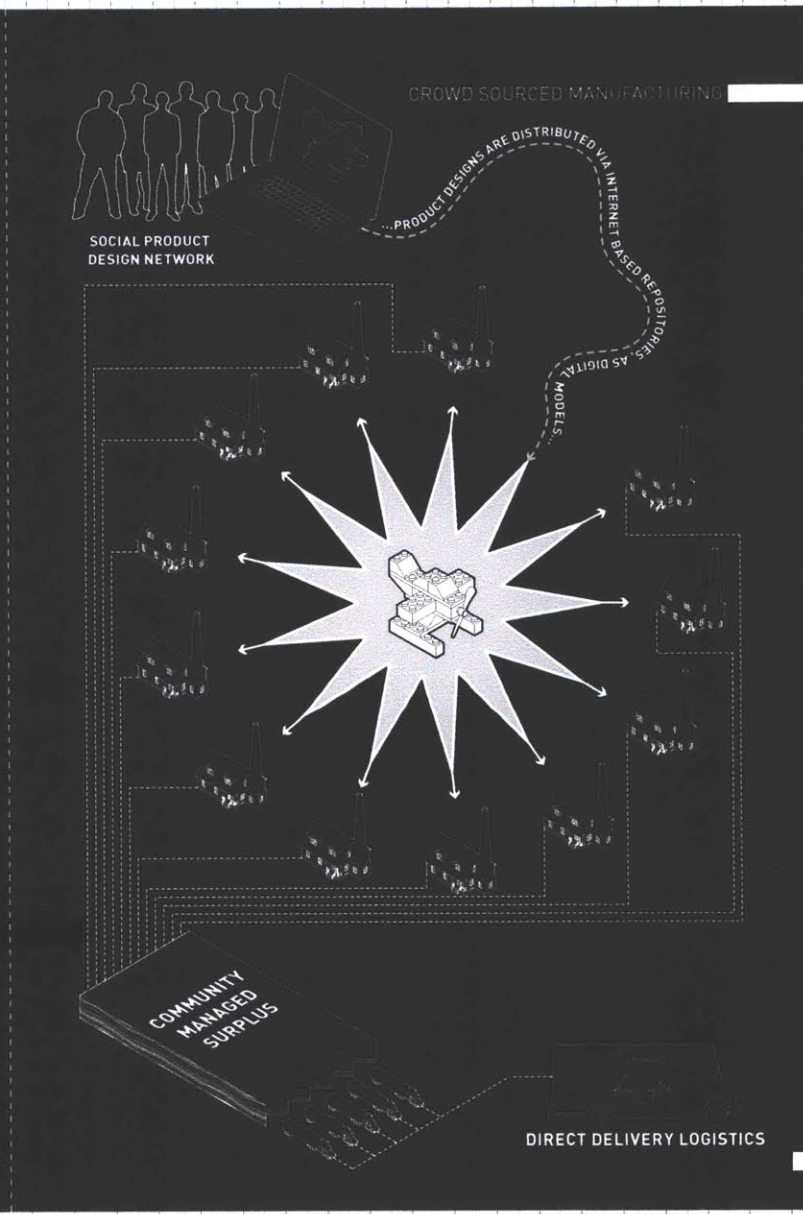


PRODUCT PRODUCTION CYCLE



What new modes of commerce could emerge? Existing e-commerce infrastructures, such as Etsy and Amazon are already poised to support a maker revolution. The direct exchange of goods from maker to consumer, could happen without the excessive rake of the house (i.e. the 1%).

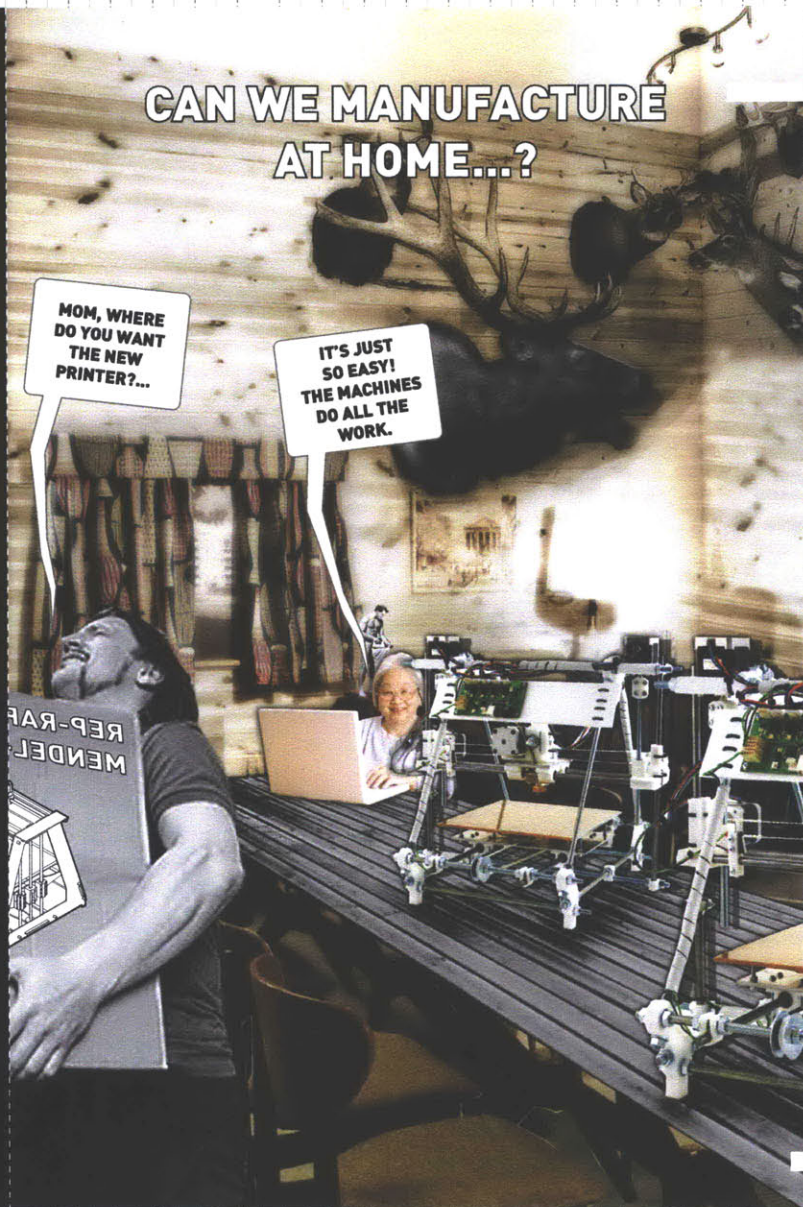
Fueled by the internet, an entirely new form of commerce and manufacturing production could emerge. Throngs of product designers, connected via social networks will begin to design and catalog new consumer products. These items could be submitted to collective manufacturing data bases as digital models, which independent fabricators could produce at a specified cost. The assembled products could be sold via e-commerce sites such as Amazon or Etsy, and delivery would be direct from manufacturer to consumer, evading the middle man and his mark-ups. This flow of product, which defies traditional modes of commerce may even eliminate entire architectures (Think: Walmart), all together.

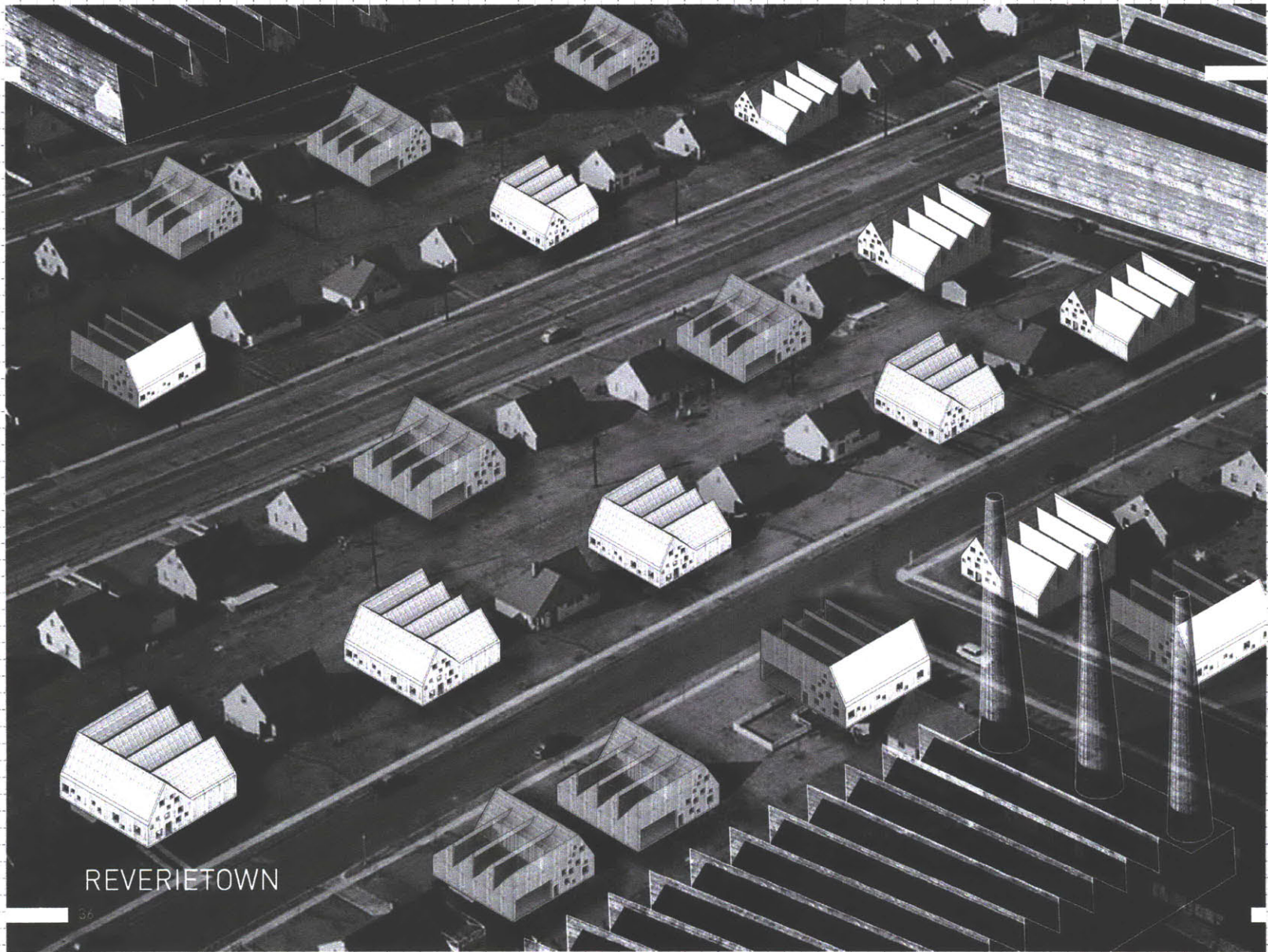




In short, Personal Manufacturing Technology is no longer out of reach of the common individual. Manufacturing technology has become nearly as accessible as personal computing. Wal-Mart, America's favorite big box, might be recast as Bot-Mart, and begin providing production machinery to the masses at large, like cord-wood. Houses might incorporate manufacturing space as a new programmatic element. A cooperatively owned assembly plant might exist to produce large scale items such as furniture, electronics, and other consumer products. The neighborhood might even incorporate a storehouse for raw materials and assembled products, to ensure that surplus value, generated by that neighborhood, is managed properly, for the economic benefit of various manufacturing collectives.....

CAN WE MANUFACTURE AT HOME...?





REVERIETOWN

36

REVERIETOWN

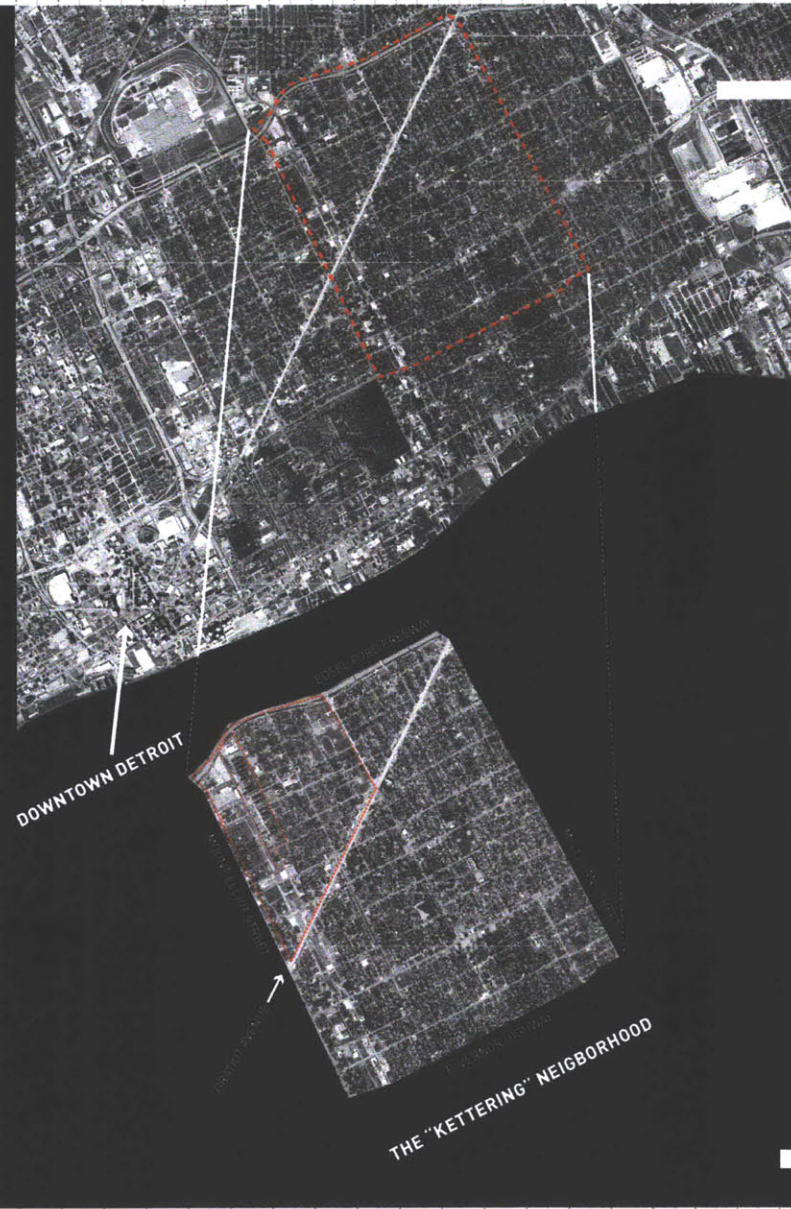
Reverietown is a new peri-urban phenomena. It is a suburb recast, an ur-burb if you will. No picket fences, no gable roofs or sweeping front yards, no vinyl siding, no asphalt shingles. Reverietown is a production hub, a concoction which is built out of the ashes of a failed industry and unproductive households.

A dream like locality, Reverietown, is located in northeast Detroit, in a neighborhood which could be considered the poster child for the ill effects of capitalist urbanization. Occupying the remains of the disheveled Kettering Neighborhood (Virtually Abandoned), and the defunct Packard Automobile Factory, this commune has embarked on a new type of manufacturing production, collective and anti-capitalist in nature. The occupants, Reverites, a collection of societal exiles, are pursuit of a dream that once was. They have assembled, organized, and are waging a counter attack against "the party of wall street" and the class war that has ravaged their existence. The occupants are youthful, a generation of educated but disenfranchised citizens who have resisted the belief in a failed American dream, and have committed exodus from normative society. The collective, rouge in nature, operates as an independent manufacturing collective, free from the restriction of corporate ownership.

They are a parasite for good which slogs off of the drudgery of capitalism, secretly benefiting from the excess of a failed system. The neighborhood, audacious in appearance, is unlike its predecessors. Four essential architectural programs dominate the landscape.

A New American Dream Home

Each member of the collective operates a micro-manufactory, disguised as a household. Home Ownership, as a concept, is un heard of in Reverietown. Reverites instead operate the home as if it were a peice of machinery. The house is dedicated to supporting an on-demand labor force, a force which is capable of operating their own factory, to support the endless and varied demands of commerce. Reverites neither own nor rent the housing facilities, but are satisfied by the fantastic quality



of life which they are offered as members of the enclave. Reverites, collectively understand that ownership strips them of their voice as laborers (as noted debt encumbered homeowners rarely go on strike)¹², and in Reverietown strikes are encouraged. A wage elimination act among members of the co-operative recognizes that homeownership is the single largest expense to an individual or family, and ownership is out of the question. In lieu of wages, members of the collective live mortgage free, as households are considered a component of the operational budget of Reverietown. No longer are laborers subject to commodification.¹³

Each household is engaged in crowd-sourced manufacturing, producing small products and parts. Products are sold directly to consumers via e-commerce, while parts are sent along to Reverietown's collective assembly. Thus proximity between the household and the assembly is critical, as parts are delivered "as they are produced" to the assembly for final fabrication.

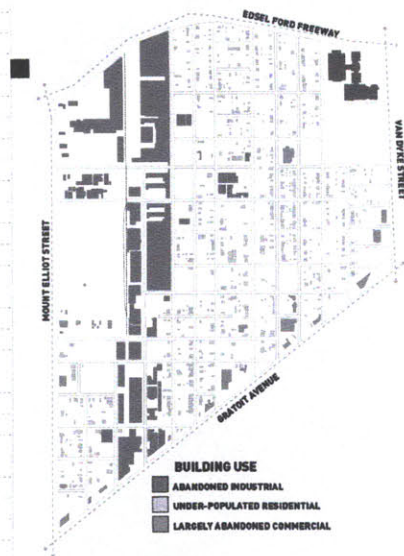
The Common Assembly

The assembly makes big things. It is the urban common space of the collective. In times of production it is an assembly line, and in times of non-production, it serves as a public assembly. It is used for both the production of material things and the production of culture. Programmatic specificity, in terms of production facilities, is the root cause of decline and dis-use. In order to ensure a longevity of usage, the intentionally banal architecture of the factory must be periodically recycled as a collective commons, a ground for debate, gathering, and play. The massive spaces of industrial production, with better than average lighting conditions, can easily be transposed as fantastical public space. A common sense of ownership (economically and emotionally), across all Reverites, ensures that the assembly has no end-game.

The assembly collects various parts produced by the neighborhood at large, and assembles them into durable goods such as furniture, electronics and machinery. It is a generic architecture which can thrive on changing demands for means of production under a crowd sourced commerce model. It is not linked to any specific product or

THE DEFUNCT PACKARD AUTOMOTIVE FACTORY

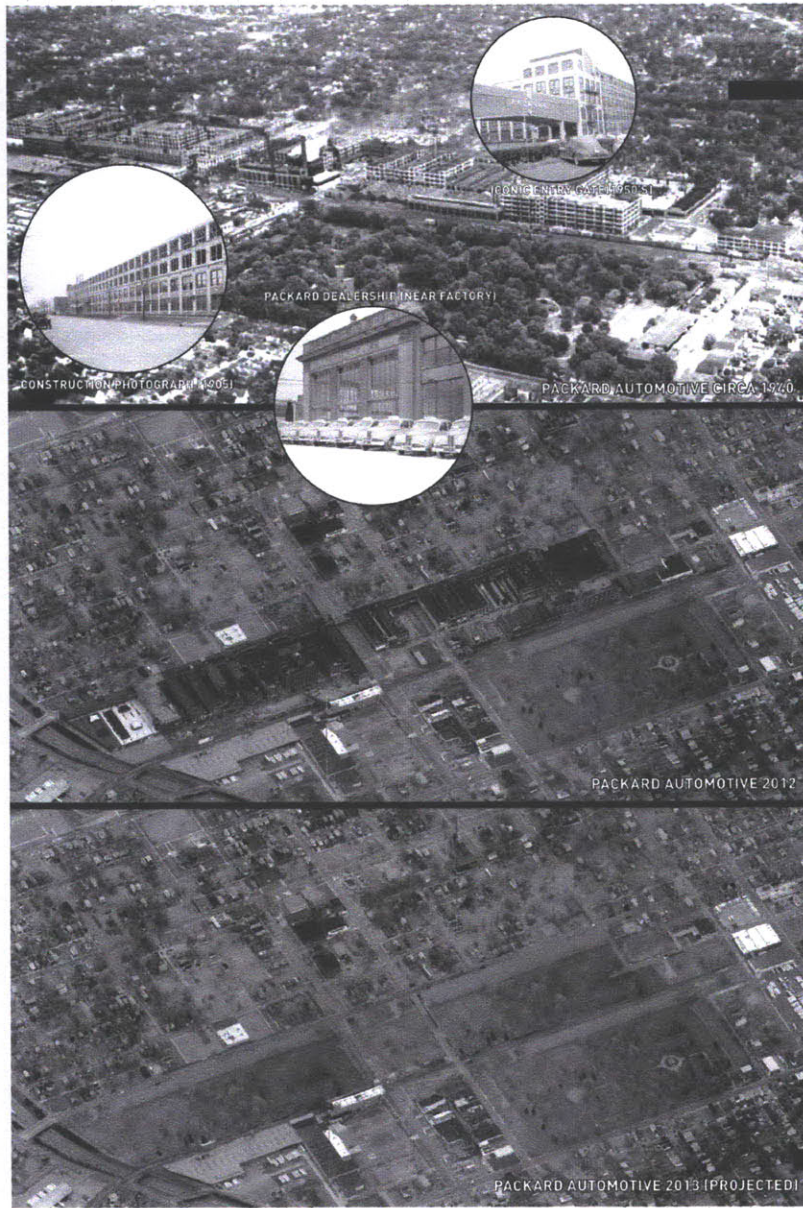




WHY PACKARD?

THE CAPITALIST MODE OF PRODUCTION HAS SUCCEUMED DETROIT. REPEATEDLY, THE PACKARD SITE AND SURROUNDING AREA ARE IN DIRE NEED OF REVITALIZATION. DETROIT IS ON THE RISE AGAIN, BUT THE LABORERS ARE NOT FEELING THE GAINS OF INCREASED PRODUCTION. RECENTLY CITY-WIDE WAGES HAVE BEEN REDUCED, IN AN "EFFORT" TO BOLSTER MANUFACTURING.

1. PACKARD AUTOMOTIVE IS A CULTURAL PHENOMENON -- THE SITE IS WELL TRAVELED BY GRAFFITI ARTISTS, PHOTOGRAPHERS AND URBAN EXPLORERS, IT IS SECOND ONLY THE MICHIGAN CENTRAL STATION IN TERMS OF URBAN EXPLORATION. WHILE IT SITS WELL OUTSIDE OF THE CENTER OF THE CITY, IT IS STILL AN ATTRACTION.
2. THE EXISTING 25 ACRE SITE IS UNDER A DEMOLITION ORDER, BECAUSE IT IS UNFIT TO BE REUSED, AND IS A HAZARD TO RESIDENTS.
3. THE CURRENT OWNER, DOMINIC CRISTINI, HAS NO PLANS FOR THE 40 ACRE SITE, WHICH IS LOCATED IN THE CENTER OF AN ALREADY DEPLETED RESIDENTIAL NEIGHBORHOOD.
4. DETROIT AS A CITY HAS 101,719 VACANT PARCELS.
5. THE CITY OF DETROIT IS POTENTIALLY AT RISK OF A STATE TAKEOVER. CURRENTLY DETROIT HAS A \$200 MILLION DOLLAR DEFICIT AND 12.5 BILLION IN SUSTAINED LONG-TERM DEBT. EXCESSIVE TAX DEFICITS HAVE BEEN RACKED UP BECAUSE OF THE NUMBER OF VACANT PARCELS, LIKE THIS ONE.
6. ONCE THE SITE IS RAZED, IT WILL CREATE A MASSIVE VACANT PARCEL, WHICH IS LIKELY UNFIT FOR DEVELOPMENT OUTSIDE OF THE INDUSTRIAL SPECTRUM.
7. THE RESIDENTIAL FABRIC WHICH SURROUNDS THE SITE HAS BEEN SUBJECT TO THE WIDES OF THE FACTORY SITE ITSELF.
8. THE SITE IS WELL SITUATED FOR NEW DEVELOPMENT AS A PRODUCTION FACILITY, IT IS PART OF AN ALREADY EXISTING RAIL NETWORK, IT SITS ALONGSIDE A MAJOR EXPRESSWAY, AND IT ALSO WOULD BENEFIT FROM BEING LOCATED WITHIN A PARTIALLY INDUSTRIALIZED CITY.
9. DETROIT HAS ADOPTED A TWO TIER WAGE STRUCTURE, 14.45 FOR NEW EMPLOYEES, \$29.50 FOR SENIOR EMPLOYEES. CAN YOU ACTUALLY LIVE ON THIS EGREGIOUS WAGE?
10. VACANT PROPERTIES ARE ABUNDANT, AND ARE VALUED SUBSTANTIALLY LOWER THAN OTHER CITIES OF SIMILAR SIZE AND POPULATION, GIVING GREAT OPPORTUNITY TO A MANUFACTURING COLLECTIVE.

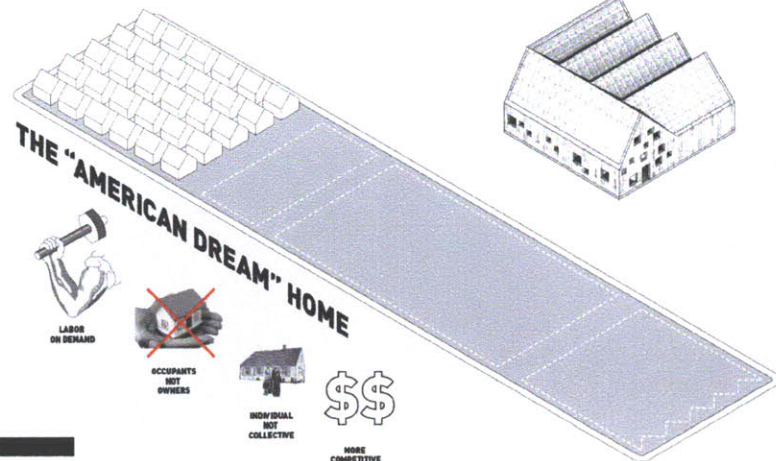
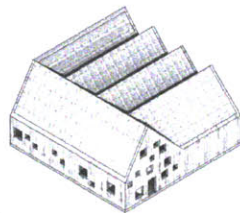
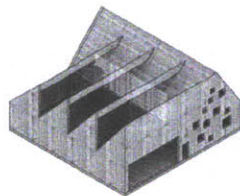
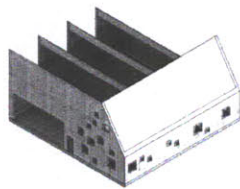
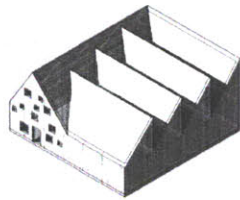




EXISTENCE MAXIMUM

EXISTENCE OPTIMUM

DESIGNCE MINIMUM



LABOR ON DEMAND



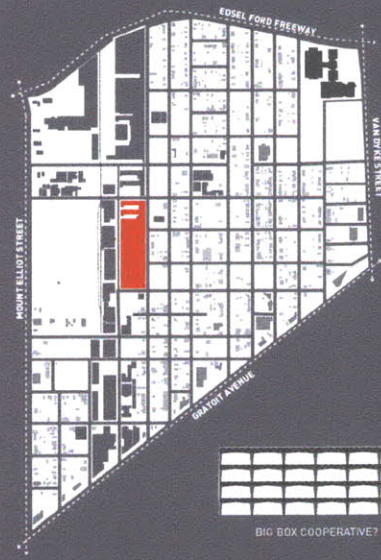
OCCUPANTS NOT OWNERS



INDIVIDUAL NOT COLLECTIVE



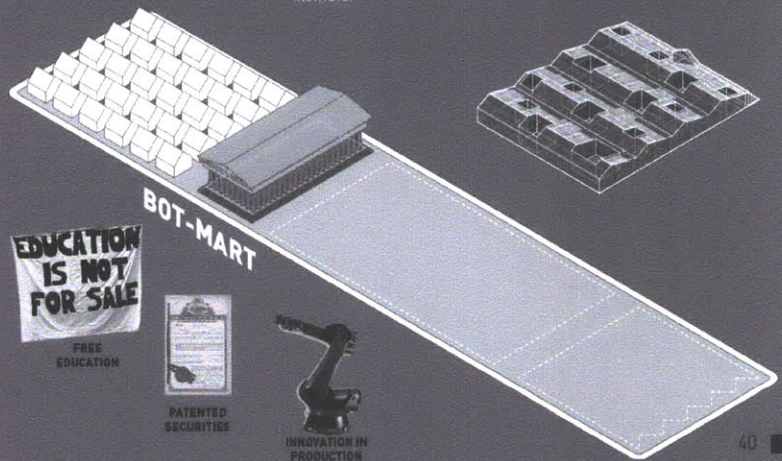
MORE COMPETITIVE



BIG BOX COOPERATIVE?



INSTITUTE?



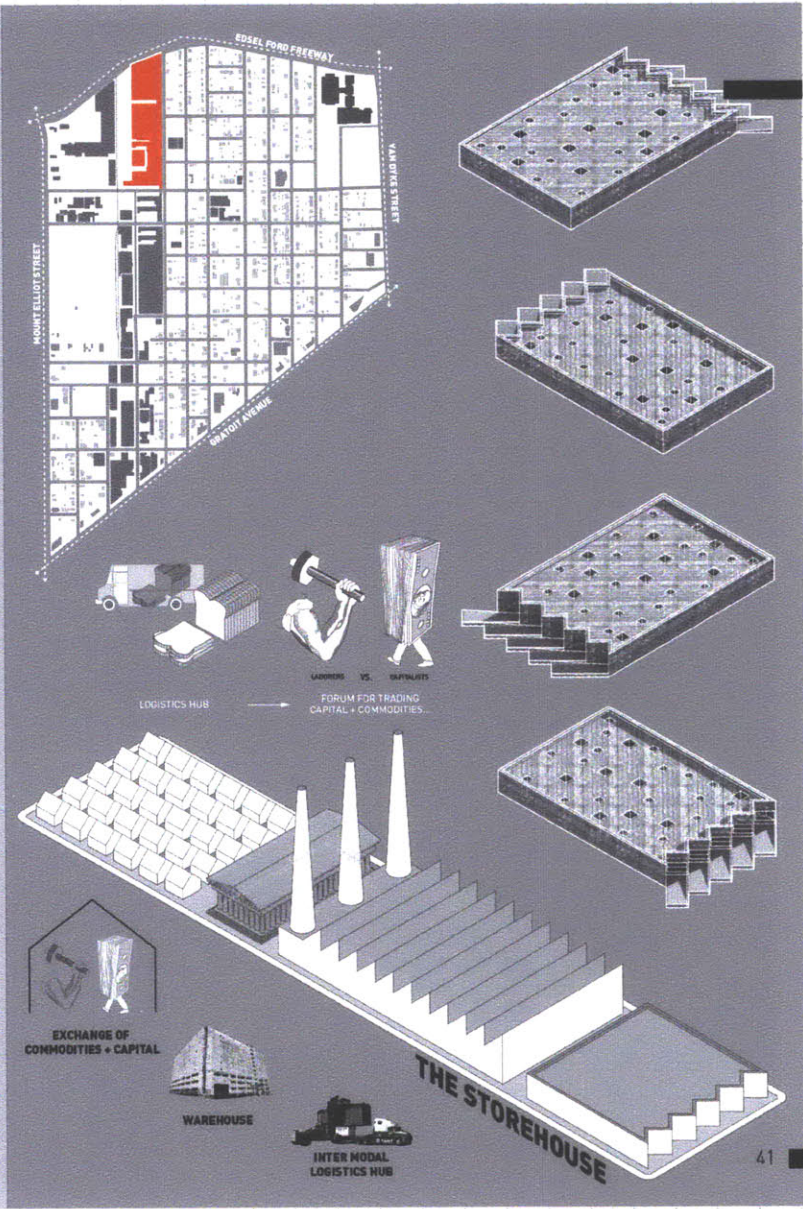
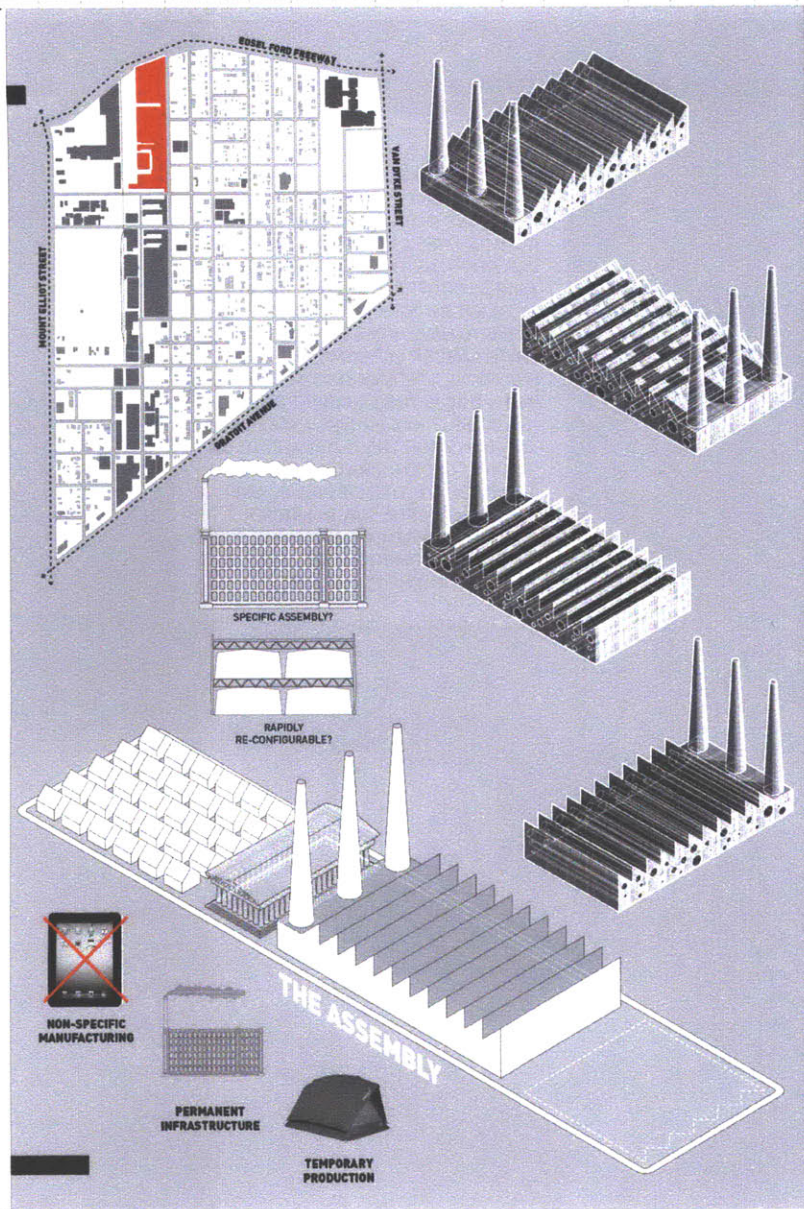
FREE EDUCATION



PATENTED SECURITIES



INNOVATION IN PRODUCTION



process, and it is striped to the barest essentials of an architectural typology. It is a-typological. The architecture should engender qualities which promote production and laborer well-being, while providing the necessary infrastructures for production. The challenge of this facility is in producing a generic production hall, which is infrastructured in a way that it can be rapidly reshaped and reconfigured. It is a product of the standardization of building infrastructure, permanently placing elements which will always be needed in the production hall, and allowing for spaces which are easily reconfigurable. It also must re-define the generic industrial typology. Since it is not produced by a corporation or capitalistic venture, Architectural Invention is mandatory. The members of the collective consider the assembly as they would a finely crafted tool, it must satisfy the needs of the labor force and allow them to operate as they see fit.

The Store-Ware-Bank-House

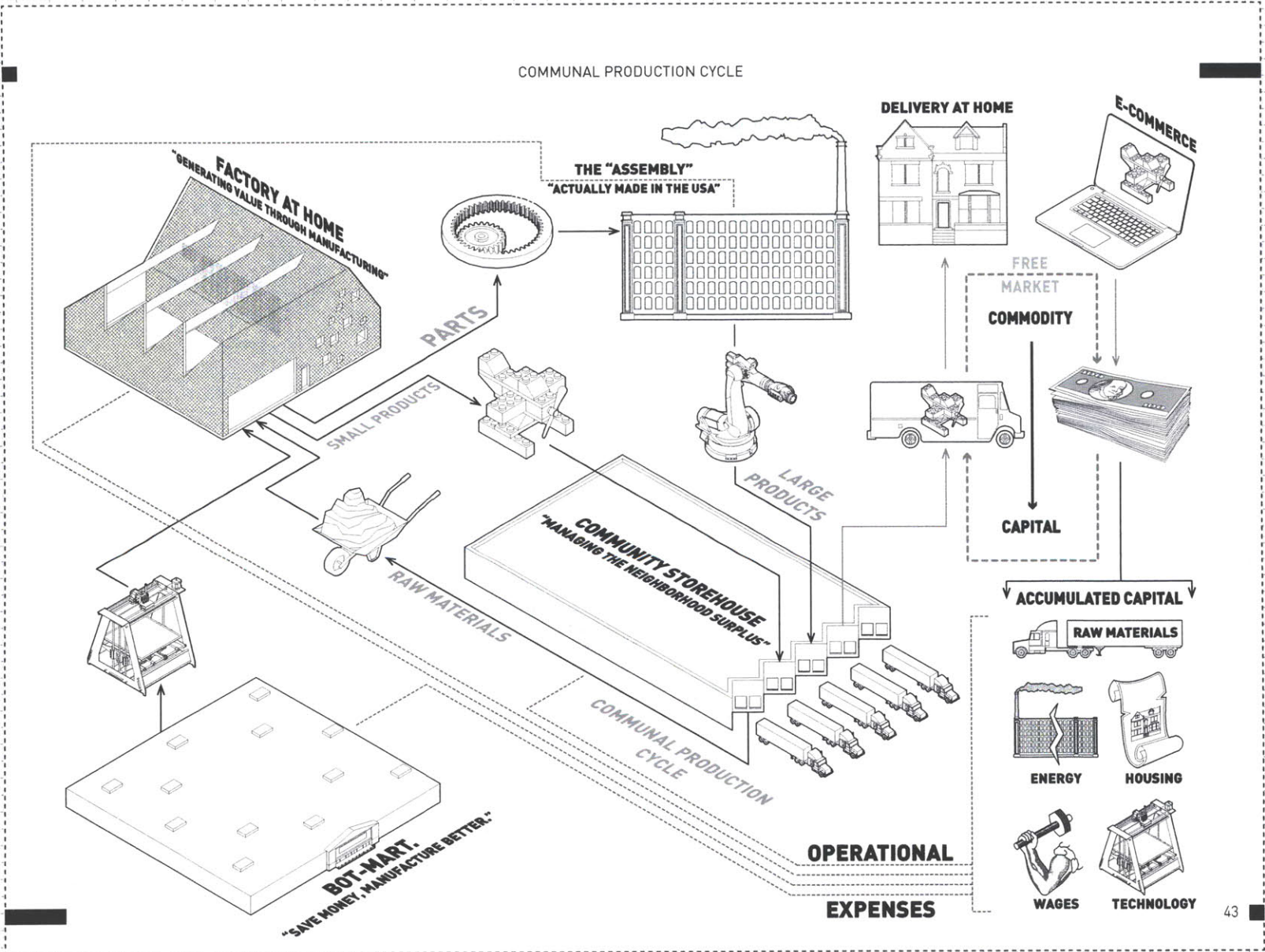
Occupying the remains of failed industry, the store-ware-bank-house is poised to refuel each home with materials as they engage in the production of commodities. The store-ware-bank house manages the surplus. Three types of surplus in fact. The assembled products, the raw materials, and the surplus capital (or commodity) from product sales and trades. This critical typology is the representative of value production within Reverietown. It is a warehouse, a storehouse and a central bank. Since value can subsume the form of either commodity or money (formerly labor), this typology must be able to handle either, or all. Since it houses three fundamental programs, it should be divided as such. Raw materials are stored in vast basins, bulkheads, and tanks. Assembled products and commodities are stacked, layer by layer, on endless rows of generic shelving, while money is excised, rapidly, and replaced by, materials which actually hold consistent value (As we know, money is actually value-less). The remaining shell of the defunct Packard factory will easily embody these demands. Due to its situation along a rail corridor, product ebbs and flows can be managed effectively. And since the Store-ware-bank-house is held as a public asset by the collective, Reverites will have unadulterated access to this museum like facility.

"TEMPORARY BUBBLES OF AUTONOMY MUST GRADUALLY TURN INTO PERMANENT FREE COMMUNITIES. HOWEVER IN ORDER TO DO SO THESE COMMUNITIES CANNOT EXIST IN TOTAL ISOLATION; NEITHER CAN THEY HAVE A PURELY CONFRONTATIONAL RELATION WITH EVERYONE AROUND THEM. THEY HAVE TO HAVE SOME WAY TO ENGAGE WITH LARGER ECONOMIC, SOCIAL OR POLITICAL SYSTEMS THAT SURROUND THEM. THIS IS THE TRICKIEST QUESTION BECAUSE IT HAS PROVED EXTREMELY DIFFICULT FOR THOSE ORGANIZED ON RADICALLY DEMOCRATIC LINES TO SO INTEGRATE THEMSELVES IN ANY MEANINGFUL WAY IN LARGER STRUCTURES WITHOUT HAVING TO MAKE ENDLESS COMPROMISES IN THEIR FOUNDING PRINCIPLES."

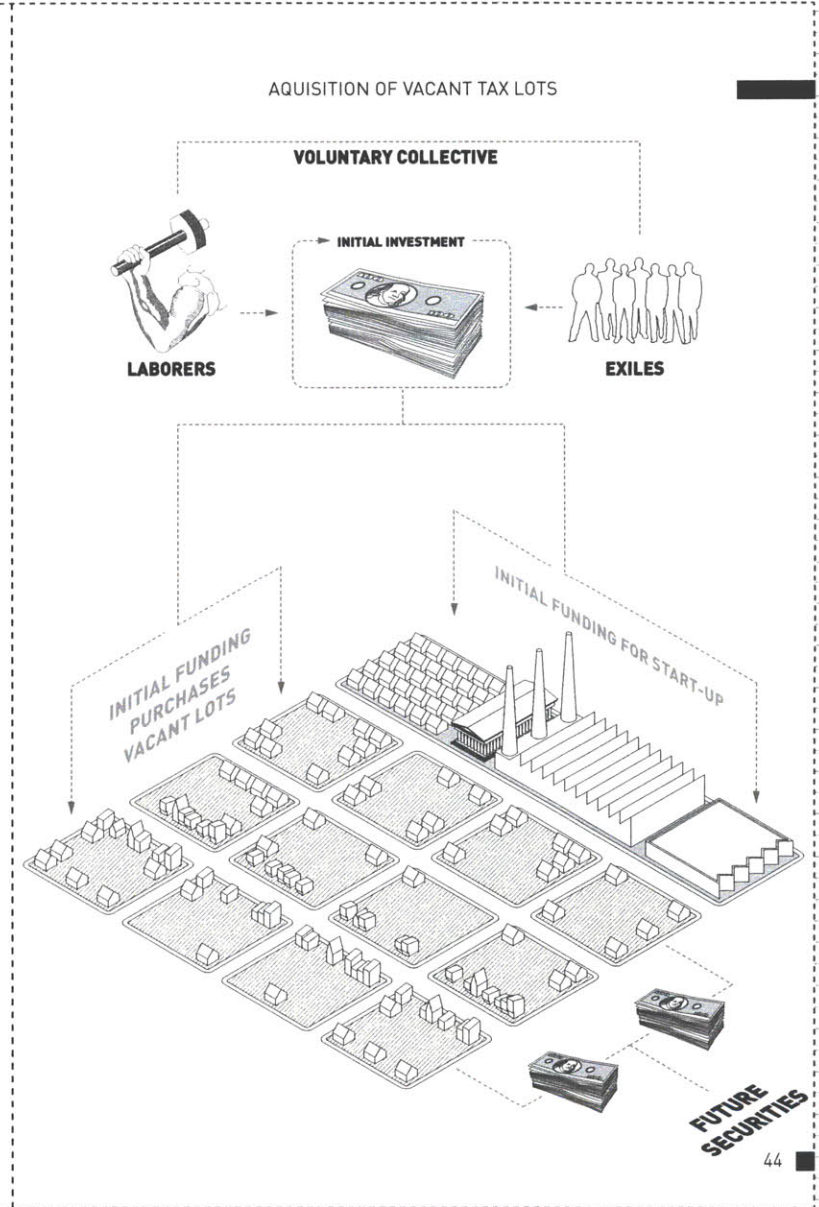
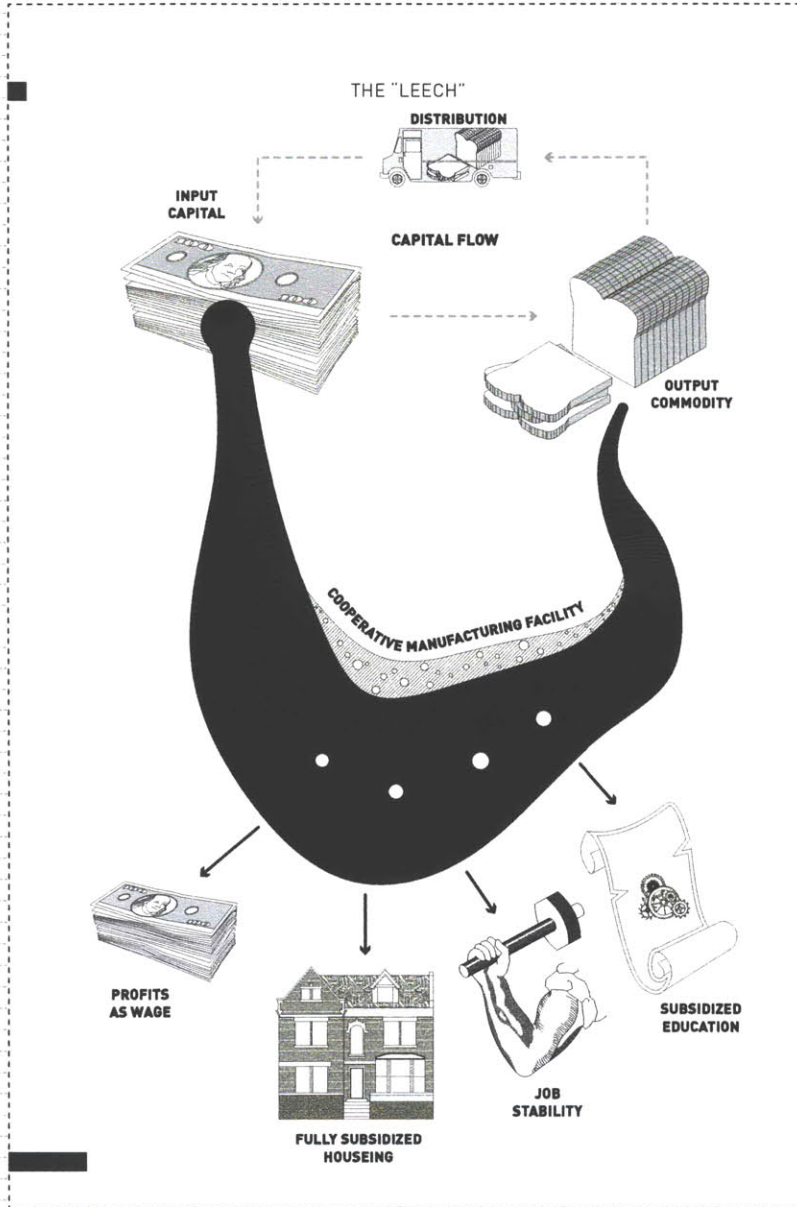


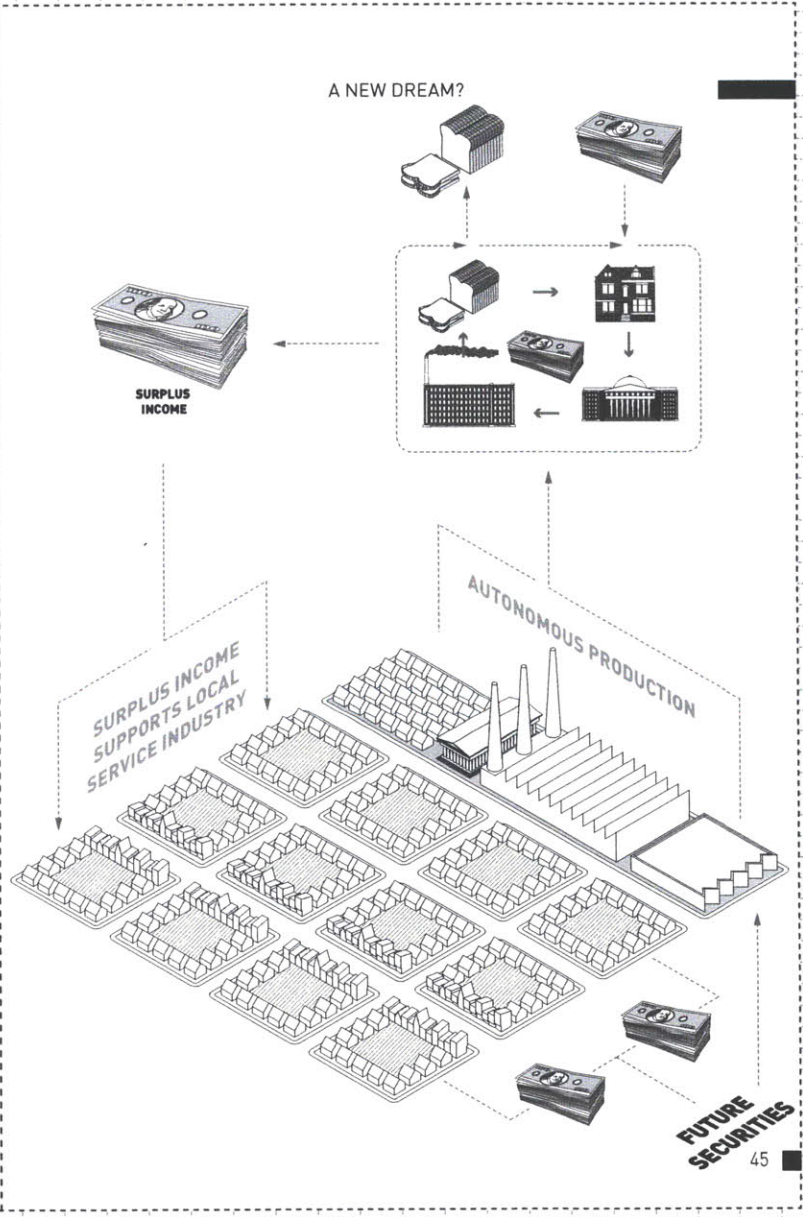
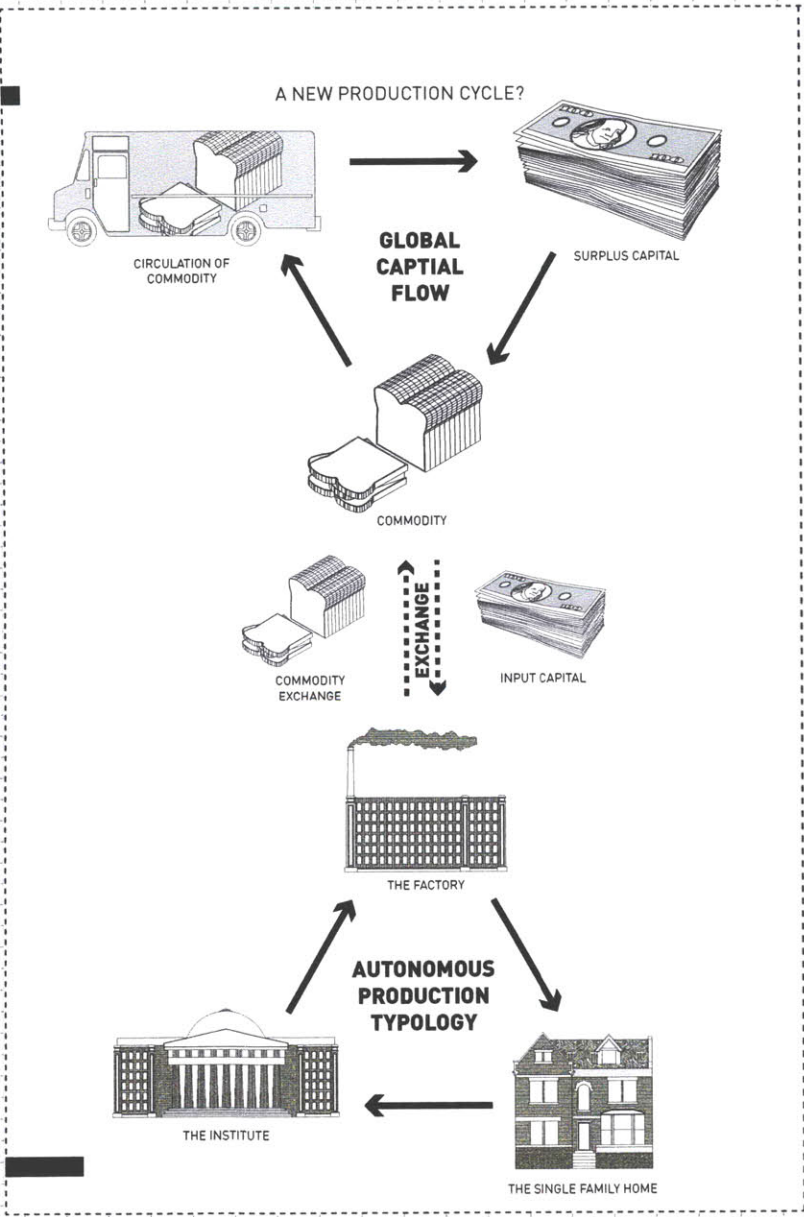
DAVID GRAEBER
-ON-
ANTI-CAPITALIST SETTLEMENTS

COMMUNAL PRODUCTION CYCLE

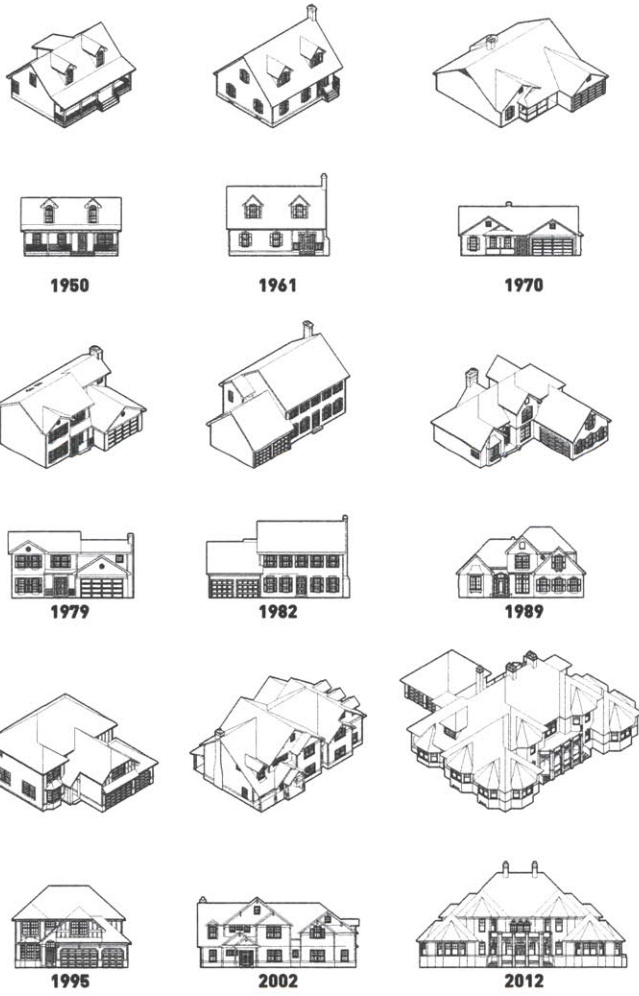


BOT-MART.
"SAVE MONEY, MANUFACTURE BETTER."





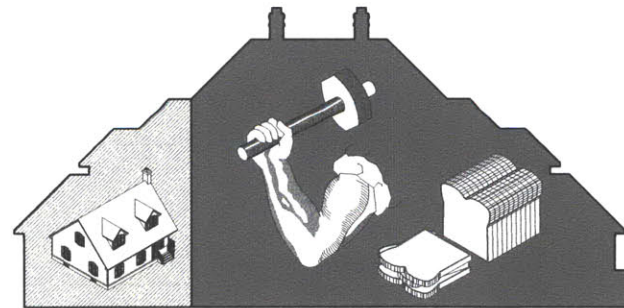
THE EXCESSIVE EXPANSION OF THE DREAM HOME



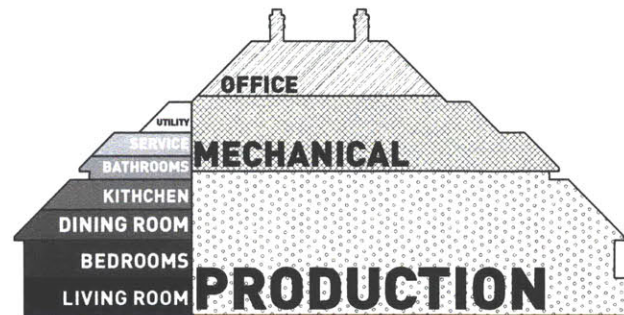
DISGUISED PRODUCTION FACILITY



McMANSION IMAGE



MODEST LIVING + MAXIMAL PRODUCTION

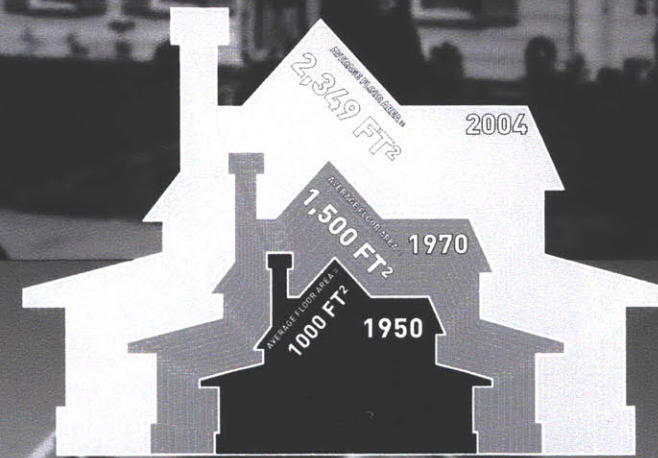


BASIC PROGRAMS

Bot-Mart

Bot-Mart supplies technology and innovation. This research center, disguised as a big-box superstore, is actually far richer, and more productive. Members of the cooperative share general labor demands, while allied technicians within the community develop personal manufacturing equipment for a burgeoning movement. Bot-Mart serves as a means to continually improve manufacturing processes, by giving all employed workers the right to continued education and access to technology, at no cost. Bot-Mart understands that there should be no separation between the manual worker and the brain worker, thus nearly all of the factory line workers are also innovators and engineers. Bot Mart draws real-time information directly from the many production lines, and is able to make immediate adaptations to machinery reduce operational costs and speed production, to satisfy growing demand from citizens who seek commodities from the righteous collective of Reverietown. Bot-Mart is funded by surplus capital from the production process, which is used to develop innovations in manufacturing. Innovations and processes are patented and patent rights are subsequently owned by members of the collaborative, who benefit economically from the sale of patent rights to other manufacturing companies (take that Warren Buffet!). The big-box architectural typology has the capacity to be rewritten as a re-search center, if, minimum 10, large holes are punched through the sprawling, one story volume (think: Rolex Learning Center, SANAA). Above all, Bot-Mart supplies the collective with low-cost, up-to-date manufacturing technologies and machines.....

CAN WE UTILIZE THE EXCESS SPACE OF THE "DREAM HOME" AS A MICRO-MANUFACTORY?



THE EVER EXPANDING AMERICAN DREAM HOUSE



A NEW AMERICAN DREAM TYPOLOGY

A NEW AMERICAN DREAM TYPOLOGY

Existence Optimum is the new ideal. What if the home was the factory? What if your living room was your instead your livelihood room? What if the home had the capacity to generate nearly any-product. What would that home look like? The new American dream home must identify the necessities of domestic space, while ruling out the spaces which are often constructed to enhance the size, and therefore, the "fortress" effect of the American Home. Existence optimum, in terms of a manufacturing household, may mean that the living space is optimized, while the production space is maximized. Let us consider the first kit home of Reverietown, the Jubilee.

Post-Post-Modern home No. 0001, also known as, The Jubilee.²⁵

"The Jubilee is named in celebration of the birth of Reverietown, and the 81st anniversary of the birth of the American Dream. The Jubilee extends its arm of production, to any budding Reverite, as the vehicle to acquiring the next American Dream. The house is split down the middle, with as much living space as production space. Approximately 3,800 square feet", a shy more than the average American Home. The Jubilee offers a patented, saw tooth to gable roof construction to offer occupants the characteristics desired in both a home and a factory. A well lit manufacturing hall, and ample protection from the elements,

respectively. The main living space is open and un-regulated, allowing for a multitude of programmatic uses. The main common area of the home can be a den, a dining room, a living room, a kitchen or whatever else one pleases. The manufactory is only one type of room, though, it is called the "livelihood room" a new space in the American household, which ensures a constant source of economic sustenance.

The livelihood room offers Reverites an un heard of, 15 foot ceiling height, making no job to small for the Jubilee. The space has no divisions, no columns, no obstructions, and the sawtooth roof makes a clear 30ft span, to offer trouble free space, for even the most complicated production lines. The Jubilee is the new standard in the At-Home-Manufacturing revolution. The plan offers a production hall of 1800 square feet, and an adjacent storage area of roughly 400 square feet. The walls are constructed with rubble from the nearby "Defunct Packard Automotive Plant". Significantly reducing the cost of construction. And since this beauty is built on Publicly held land (The Reverietown Public Trust), this home may cost virtually nothing at all. So pack your bags and say "bye, bye" to the old American Dream, and HELLO! to the JUBILEE!

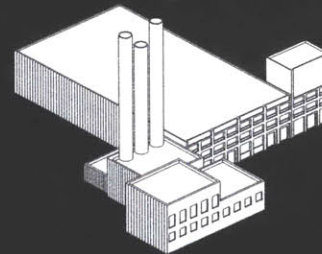
Paid for by the Peoples Revolution of Reverietown.

"THE FIRST INDUSTRIAL REVOLUTION BEGAN IN BRITAIN IN THE LATE 18TH CENTURY, WITH THE MECHANIZATION OF THE TEXTILE INDUSTRY. TASKS PREVIOUSLY DONE LABORIOUSLY BY HAND IN HUNDREDS OF WEAVERS COTTAGES WERE BROUGHT TOGETHER IN A SINGLE COTTON MILL, AND THE FACTORY WAS BORN...THE FACTORY OF THE PAST WAS FOCUSED ON CRANKING OUT ZILLIONS OF IDENTICAL PRODUCTS; FORD FAMOUSLY SAID THAT CAR BUYERS COULD HAVE ANY COLOR THEY LIKED, AS LONG AS IT WAS BLACK... THE FACTORY OF THE FUTURE WILL FOCUS ON MASS CUSTOMIZATION AND MAY LOOK MORE LIKE THOSE WEAVERS' COTTAGES THAN FORDS ASSEMBLY LINE."

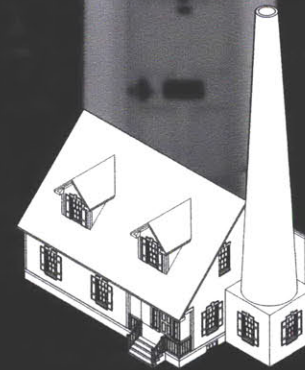
THE COMMODITY EXCHANGE

The Economist

The Third Industrial Revolution
April 21st, 2012



FACTORY?

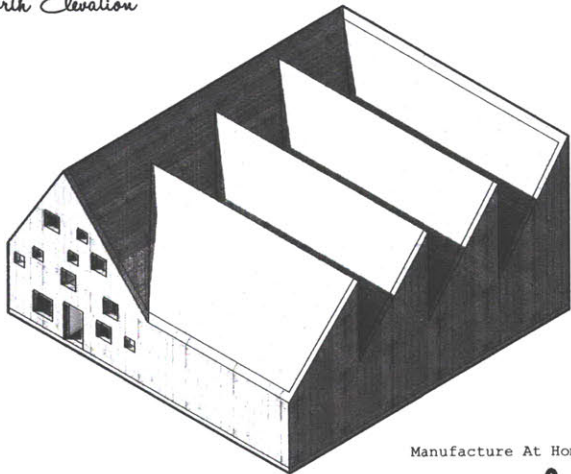


HOUSE

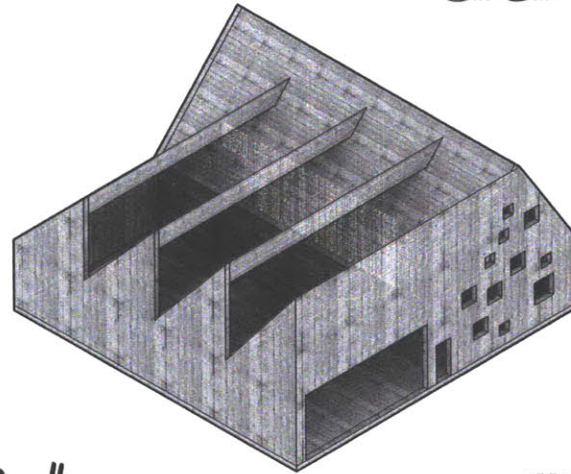




North Elevation



East Elevation



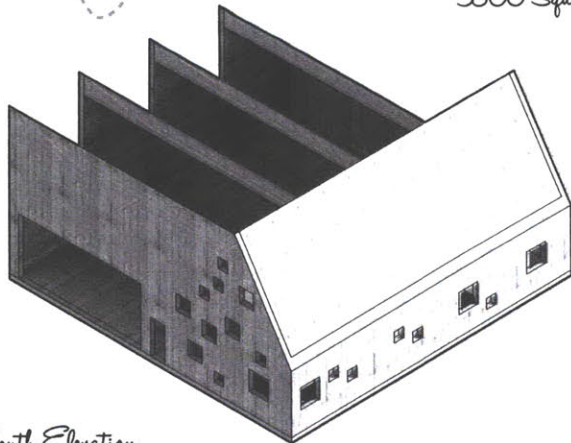
Manufacture At Home with...

» the "Jubilee" «

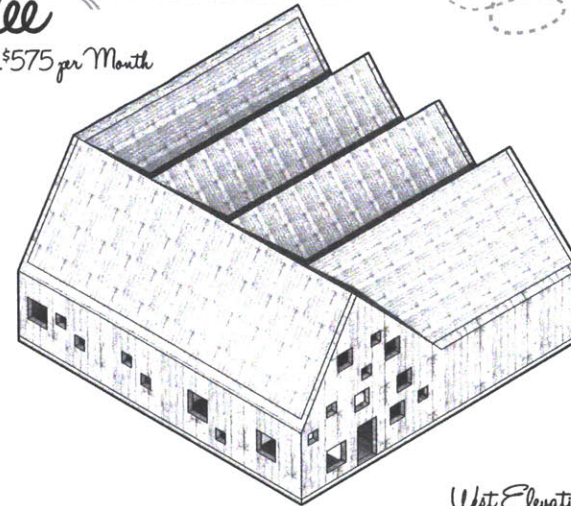
3800 Square Feet

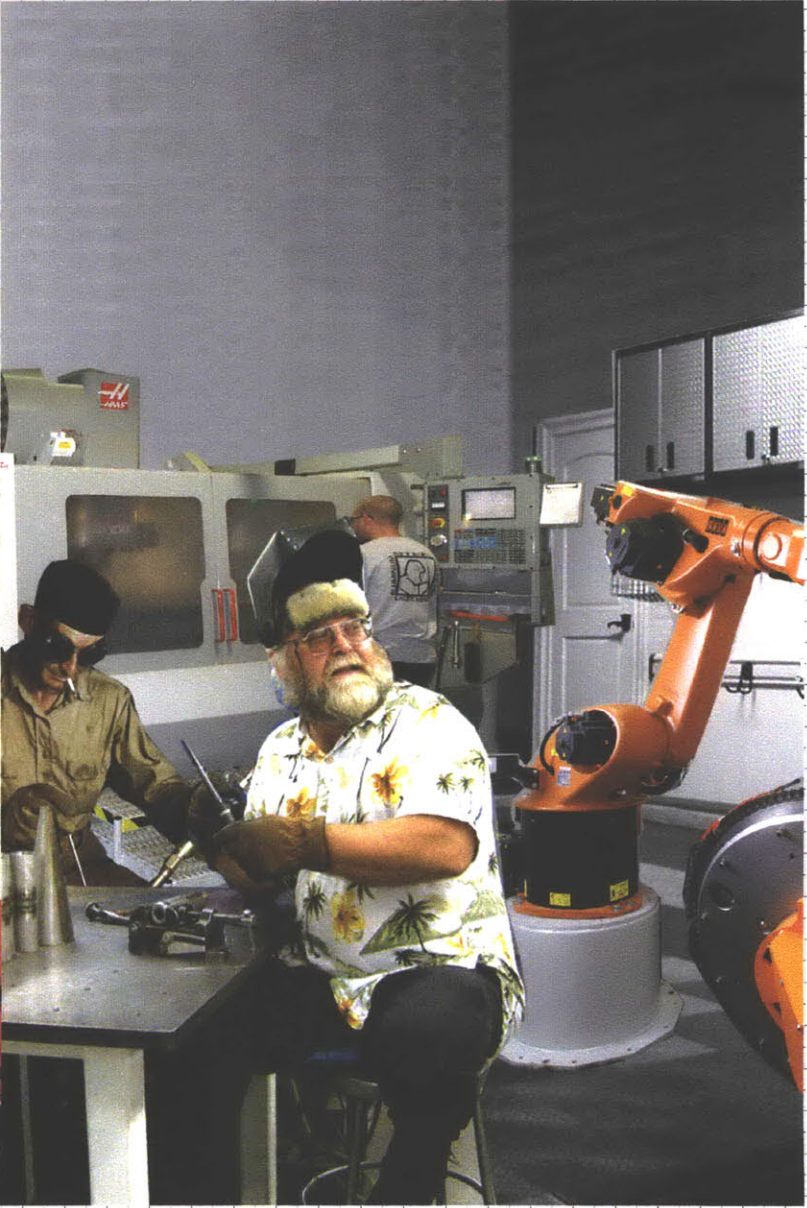
Starting at \$575 per Month

South Elevation



West Elevation



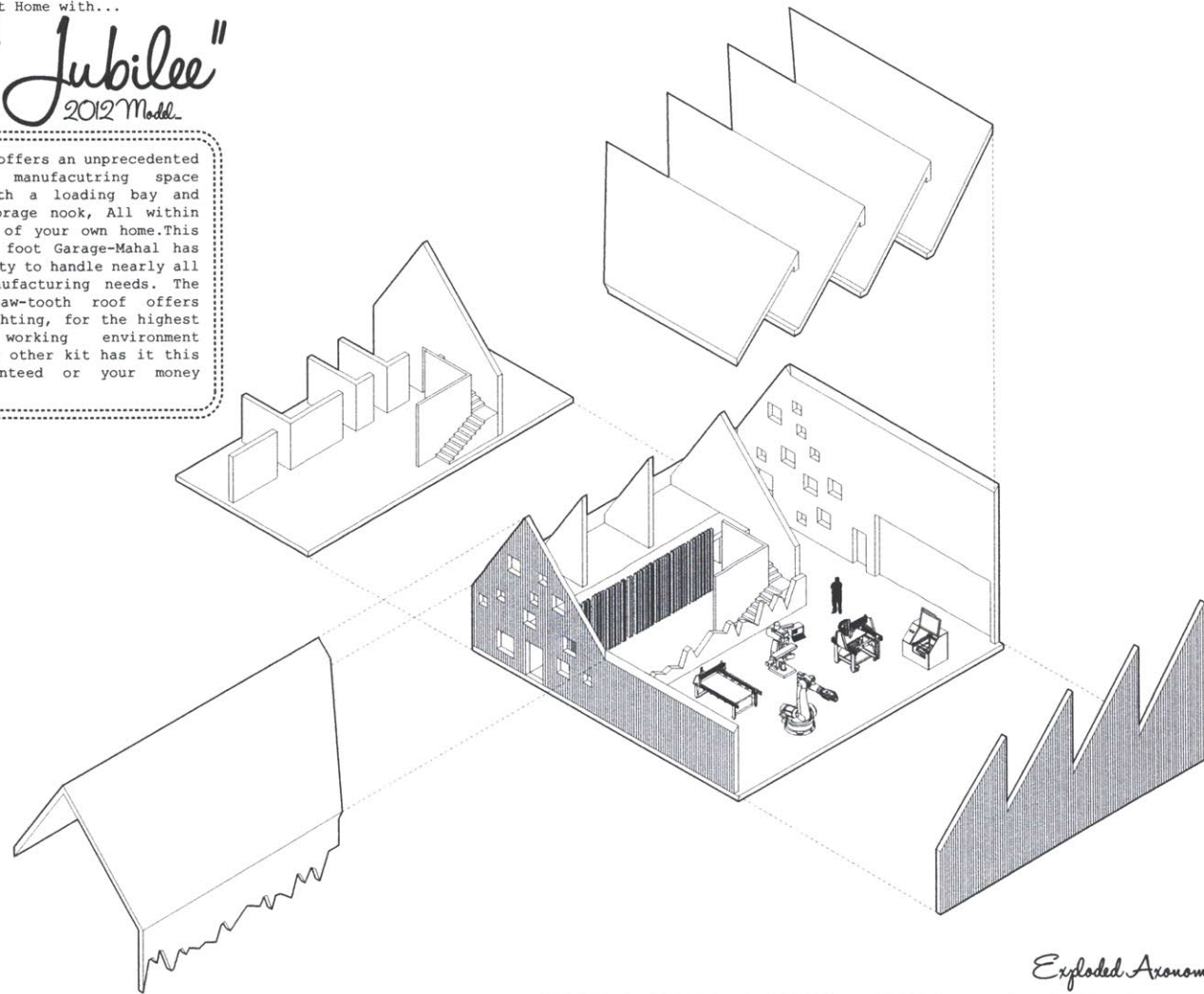


Manufacture At Home with...

the "Jubilee"

All New 2012 Model

The Jubilee offers an unprecedented amount of manufacturing space complete with a loading bay and material storage nook. All within the comfort of your own home. This 3600 square foot Garage-Mahal has the capability to handle nearly all of your manufacturing needs. The Patented saw-tooth roof offers ample daylighting, for the highest precision working environment possible. No other kit has it this good...Gauranteed or your money back.



Exploded Axonometric

FOOTNOTES:

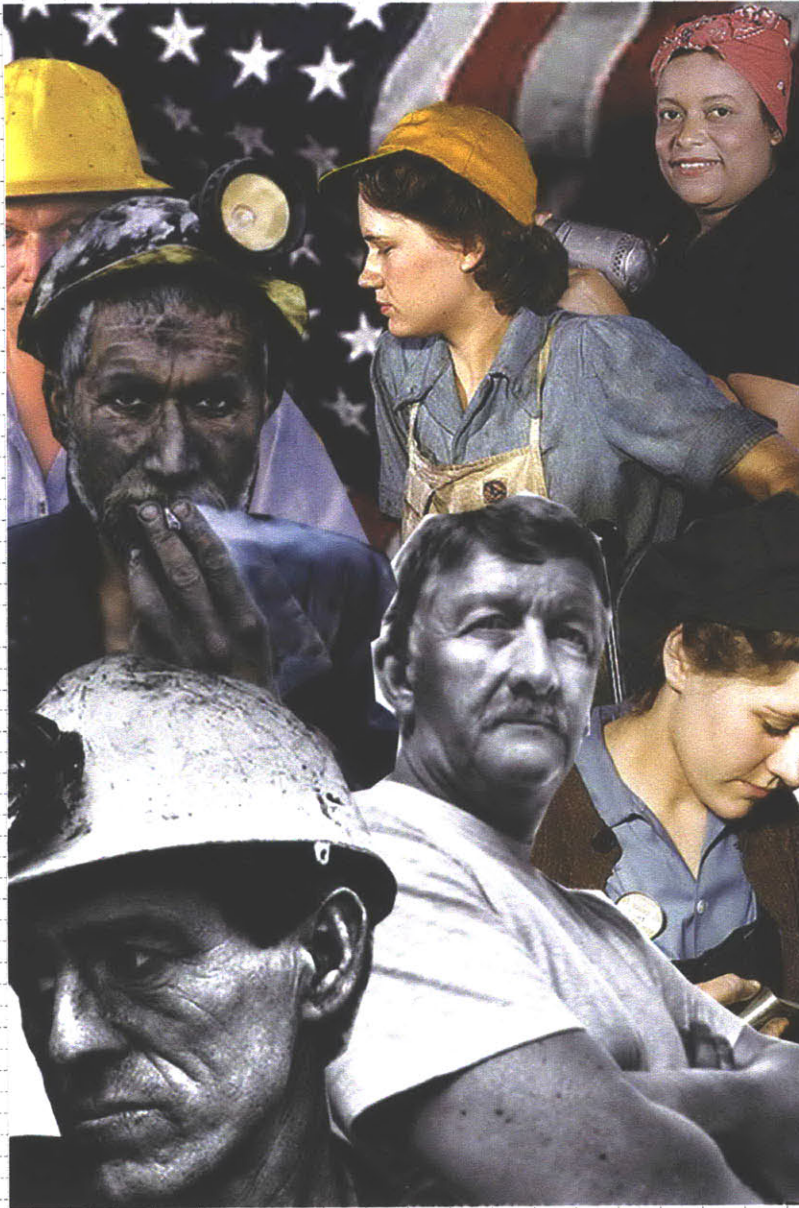
1. In reference to the Housing Bubble and the recent Foreclosure Crisis.
2. Capitalismo, Latin for Capitalism.
3. James Truslow Adams is the originator of the Terminology 'American Dream'
4. This is a wildly inaccurate portrayal of how Truslow's dream was expressed. The original Transcript can be found in "The Epic of America" by James Truslow Adams.
5. [Fisher, 1973] Paraphrased Version of Fisher's Description of the 'Moralistic myth'
6. [Fisher, 1973] Paraphrased Version of Fisher's Description of the 'Materialistic Myth'
7. This is not a real journal, it is however a means to explain the negative impacts of capitalism on a society.
8. [Harvey, The Enigma of Capital and the Crisis of Capitalism, 2010] This is an abbreviated version of the Capitalist mode of production as laid out by David Harvey.
9. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
10. [Hayden, 2002] Sentiments from both texts are condensed into one sentence.
11. See: Denial in the Tire Industry [Tedlow, 2010]
12. [Harvey, The Enigma of Capital and the Crisis of Capitalism, 2010], This segment is paraphrased from an animated short of David Harvey's "The Crisis of Capitalism" found at http://fora.tv/2010/04/26/David_Harvey_The_Crises_of_Capitalism_Animated
13. This should be profoundly clear to anyone at this point. If not see "Income Inequality in The United States" via Wikipedia.
14. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
15. Sub-prime Lending by various financial institutions, SEE: Fannie May or Freddie Mac for any further Questions.
16. This segment is paraphrased and re-cast from a notable quote from J.G. Ballard.
17. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
18. [Fisher, 1973] As mentioned Above.
19. Oxford English Dictionary, Online Search Term "Labor"
20. [Lipson & Kurman, 2010]
21. Type "Cheap 3-D Printer" into the google search tab, and you'll find several companies entrenched in a technology boom, to many to list, and for the sake of brevity, just take my word for it.
22. [Lipson & Kurman, 2010]
23. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
24. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
25. [Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012]
26. This sentence is in reference to the "Modern Home No XXXXX" as seen in early editions of the Sears and Roebuck Catalog.
27. 2,349 Square feet, is the average size of the American Household, According to the Homebuilders Association of America.

PHOTOCREDITS:

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DREAMBUSTERS

BACK TO YOUR REGULARLY SCHEDULED PROGRAMING AFTER THESE MESSAGES...

LIVE, WORK, PRODUCE:

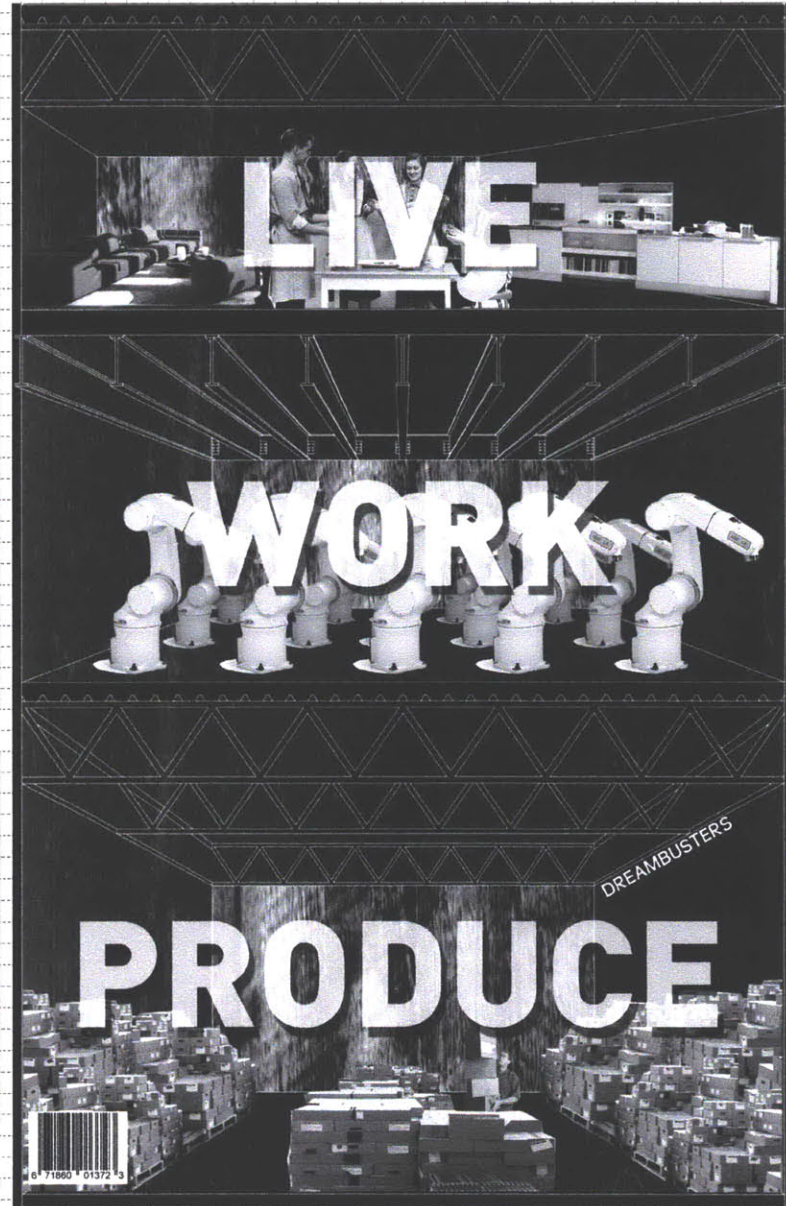
This ad was a first attempt at drawing a section through a building which would serve as a factory and a residential dwelling, all rolled into one complex program. Similar to some of the images found at the end of the Pre-Thesis proposal this Ad was attempting to portray the image of domestic life, intertwined with production. As an early concept, the project was considering the possibility of a future in which production would occur in-between levels of domestic space, hidden to residents living in this construct. Production was initially though to be highly automated, and each occupant of the dwelling would own a robot which would carry out, or replace that occupant as a laborer. It was later decided that the act of laboring, was essential to having a ownership role in a manufacturing settlement.

THE AMERICAN DREAM IS SINKING!

This ad was merely an attempt to portray the American dream in a sort of post-industrial fallout, or ruinous state. The image of a house abandoned an sinking into the mud is an exaggeration on the state of actual homes in the City of Detroit.

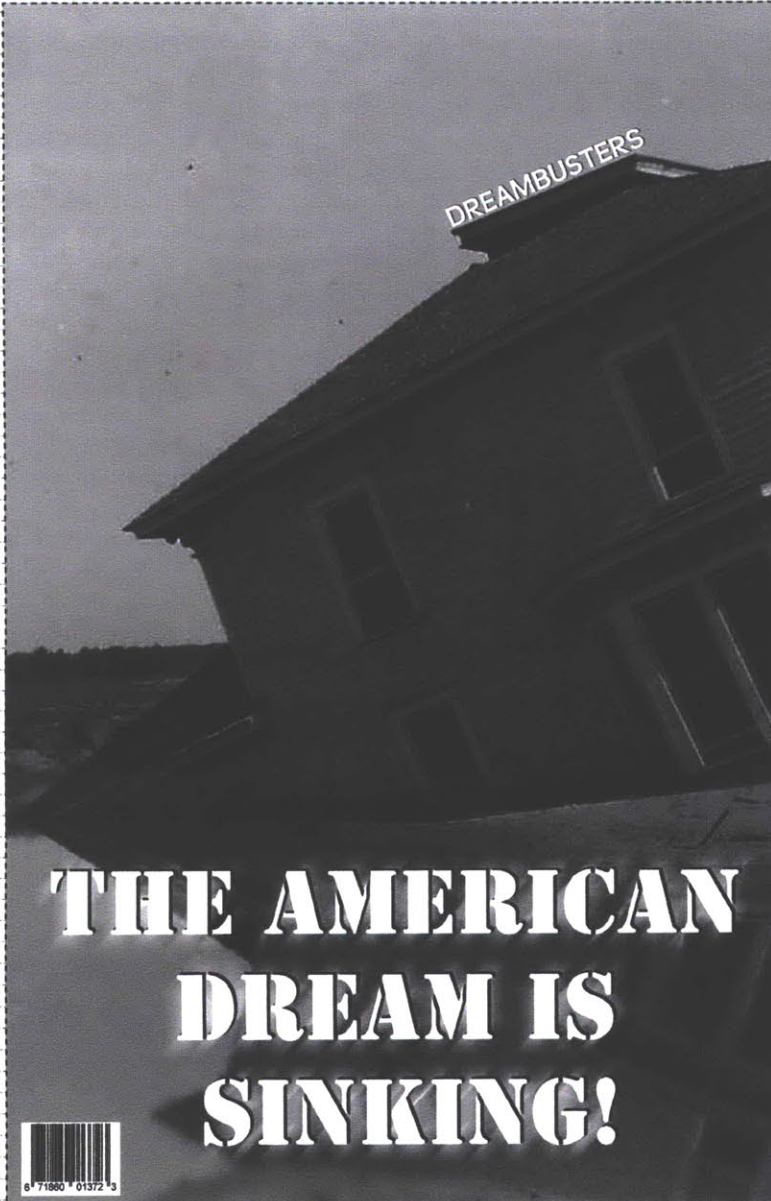
PUT TRASH IN ITS PLACE:

This ad is a sort of lashing out against the glorification of the "McMansion" or a more contemporary belief about American Dream. The concept of not only owning a home, but owning a "Dream Home" has been glorified to the point of absurdity in American Culture. These so called Mega-Homes are desired by so many Americans, and this unrelenting desire is likely the cause the Lending and Mortgage Crisis of 2008.



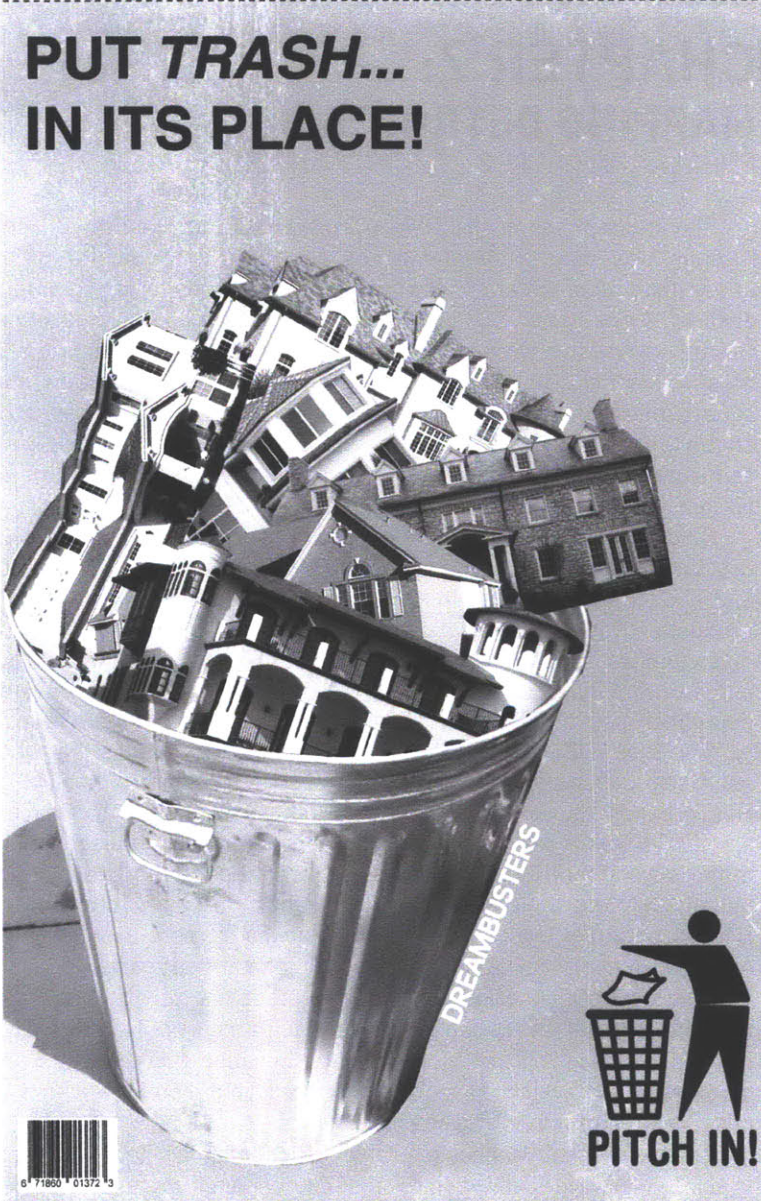
DREAMBUSTERS

**THE AMERICAN
DREAM IS
SINKING!**




6 71860 01372 3

**PUT TRASH...
IN ITS PLACE!**



DREAMBUSTERS



PITCH IN!

6 71860 01372 3

CHAPTER 2: MAPPING DETROIT'S DECLINE

POPULATION DECLINE, VACANCY AND RELOCATION

___The Initial phase of the Thesis project explored the City of Detroit, through a series of mappings, in an attempt to gain a broader understanding of situations that may have led to the largest population decline of any major city in the United States. Population decline in Detroit has led to a variety of social and physical alterations to the City, most importantly, the City of Detroit currently owns and maintains 40 square miles of vacant land. This has put a remarkable financial burden on the City, causing the Mayor Dave Bing, to consider drastic plans such as neighborhood relocation and an unparalleled residential demolition project.

___Since the Mid 1950's the City of Detroit has steadily lost nearly two thirds of its population, due to a wide variety of social, political and economic situations. Most notably, the Exodus of manufacturing production, has caused a noteworthy decline in employment opportunities, causing many Detroit to consider relocating to other cities, or regional areas in search of work. The mass Exodus of residential population has left behind a massive assortment of architectural ruins.

___The City of Detroit is no stranger to vacant buildings, with some estimates placing the number of vacant structures around 45,000. This has wreaked havoc on city resources, because the vacant structures are a favorite target for local "scrappers" to collect unused building materials and metals. In the process of removing metals from buildings, usually with portable oxyacetylene torches, fires are often started. Beyond Scrapper fires, vacant buildings in Detroit are easy targets for Arson, with nearly 5,000 fires occurring on an annual basis.

The Detroit Data collaborative released statistics in February of 2010, detailing that of the 343,850 residential parcels in Detroit, 123,786 parcels are vacant. This is problematic because there are not entire neighborhoods which have been vacated, but rather Vacancy has occurred in a much more piecemeal way.

___This piecemeal vacancy is problematic, because the City of Detroit is burdened with having to provide city services for a city that once

held 2.3 million inhabitants, with the budget of a city of 713,000 citizens. City services include basic needs such as Police, Fire, EMT, Water, Electricity and Sewage. Currently Detroit is losing its ability to provide these services to residents, due to dwindling government financial resources. Widespread vacancy has led city leadership to believe that the only realistic way to deal with the problem is to shrink the city.

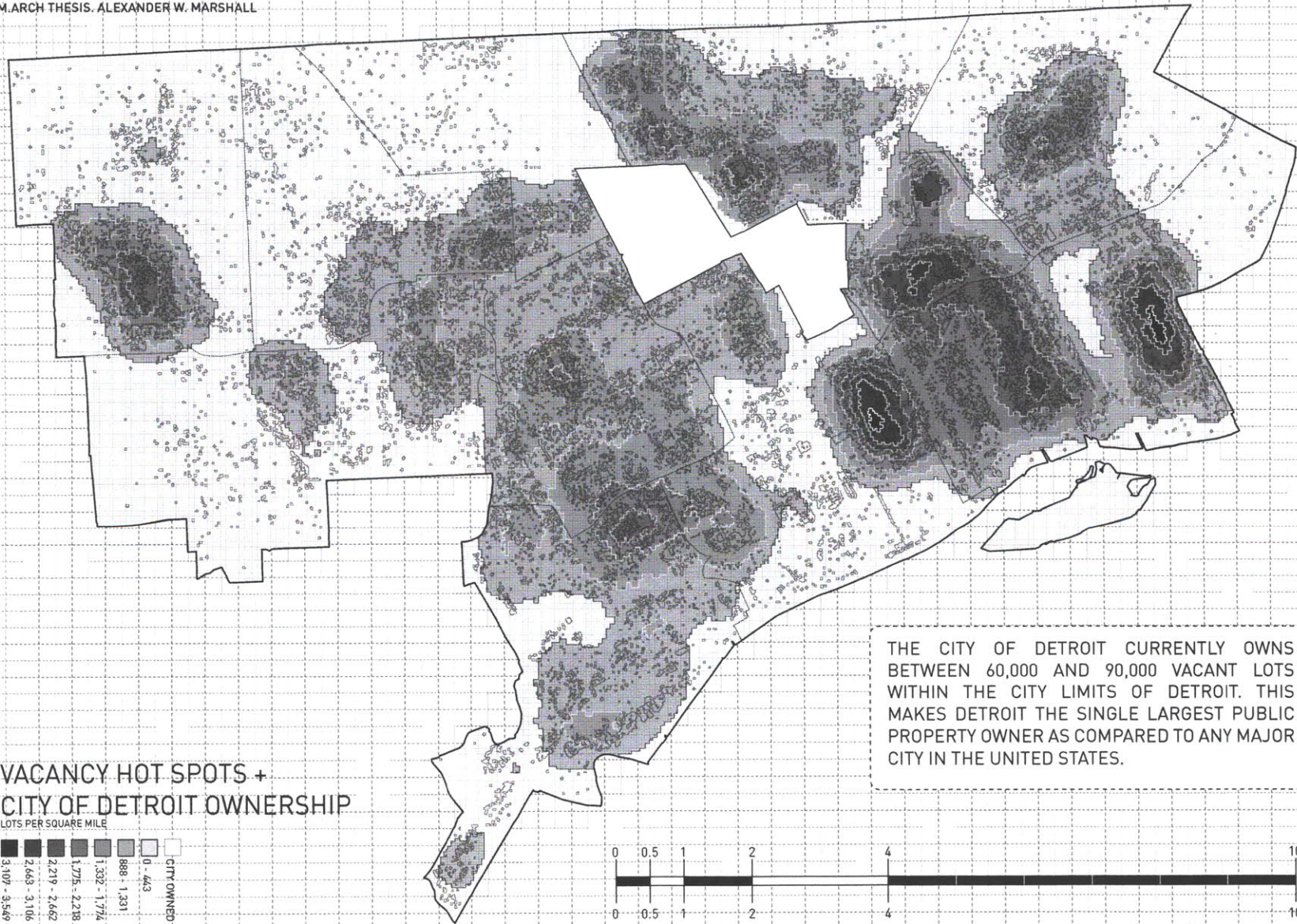
___In order to shrink the city, Detroit has hatched a plan to buy out remaining residents in heavily vacated neighborhoods, and offer them the chance to relocate to a new or more densely populated neighborhood. However, there is one major problem: Residents of depopulated neighborhoods are reluctant to move, since many of them have weathered the storm, and continued living in their homes, despite the mass exodus around them.

___Based on the demographic information that was discovered during the mapping phase of the project, it has become clear that there are other options. Vacancy and abandoned parcels have generated a staggering degree of Blight, and residential real estate values have dropped dramatically. New urban strategies which would allow for the intermixing of light industrial and residential parcels could help to solve the crisis of open land in Detroit, simply by filling up unused ground. Further, if residents of Detroit possessed the capacity to generate sustenance, then relocation would be unnecessary. It has also become clear that new urban strategies could be employed to refill existing neighborhoods with new types of small scale manufacturing facilities. Since manufacturing is intrinsically linked to the history and culture of Detroit, it only makes sense to take advantage of vacant land, and begin generating a new future for Detroit.

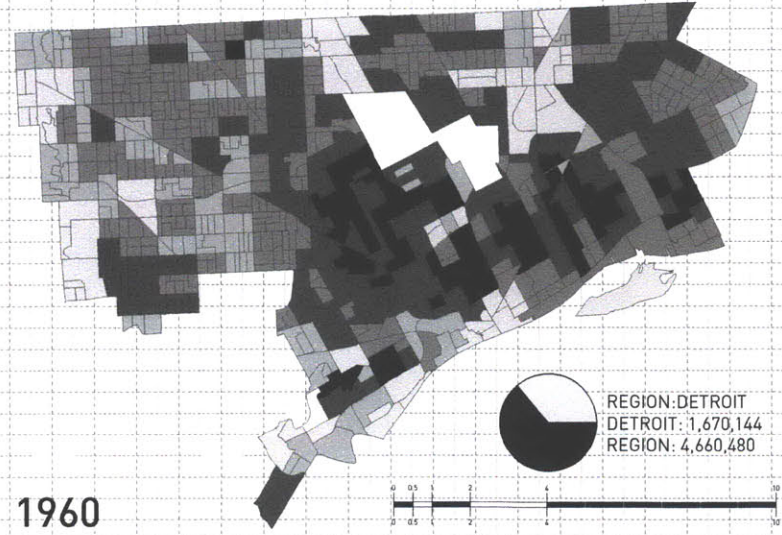
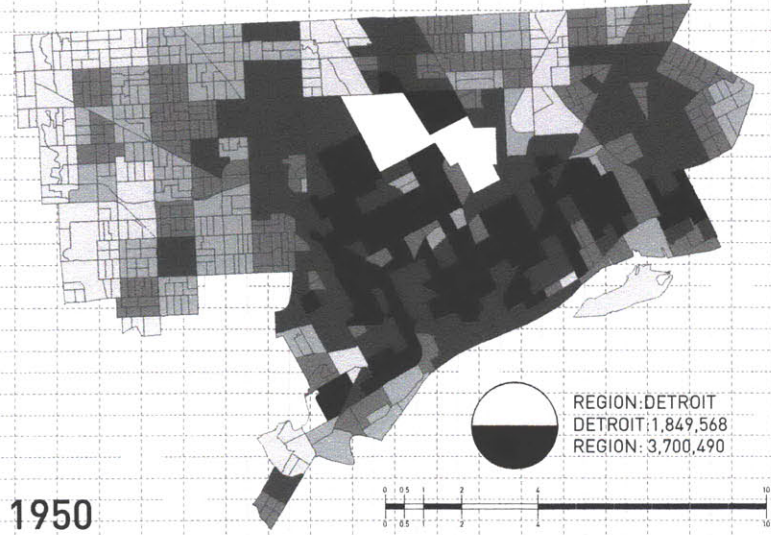
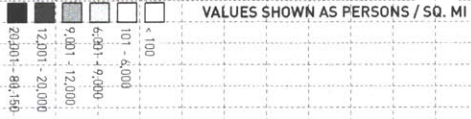
___Using Data collected from a variety of sources, the following pages are a series of visual representations of compiled data. Sources for the mapping exercise include: The City of Detroit, Data Driven Detroit, The Detroit Data Collaborative and The US Census Bureau. The mappings produced combine and re-draw existing data into a series of mappings which isolate Population Decline, Vacancy and Relocation Proposals.

AFTER EXODUS: A PROPOSITION FOR ENGAGED WITHDRAWAL

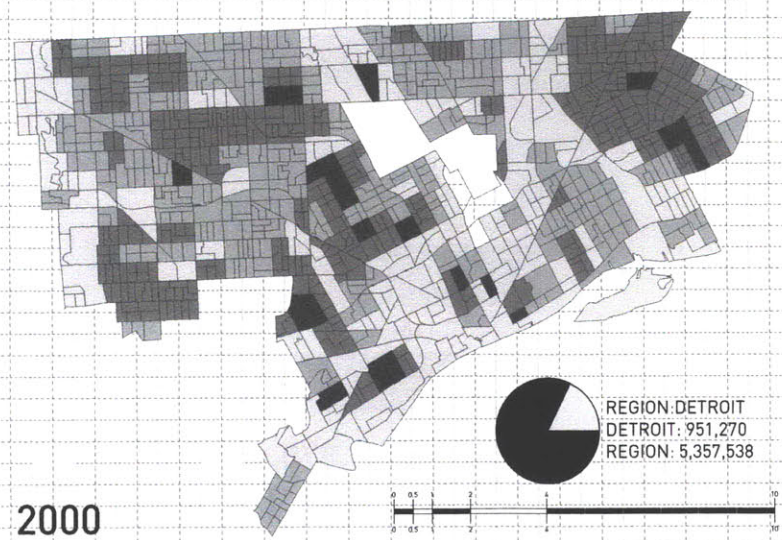
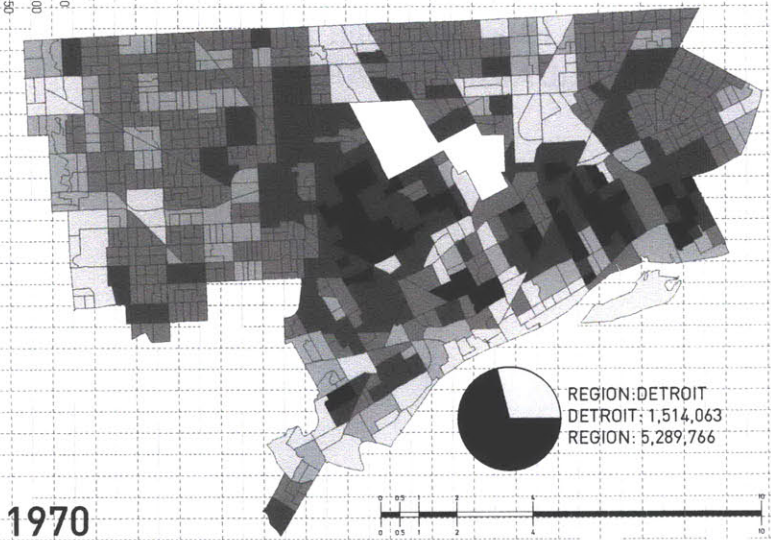
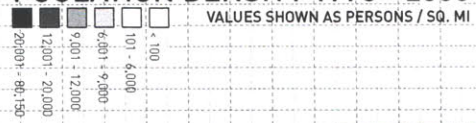
MARCH THESIS, ALEXANDER W. MARSHALL

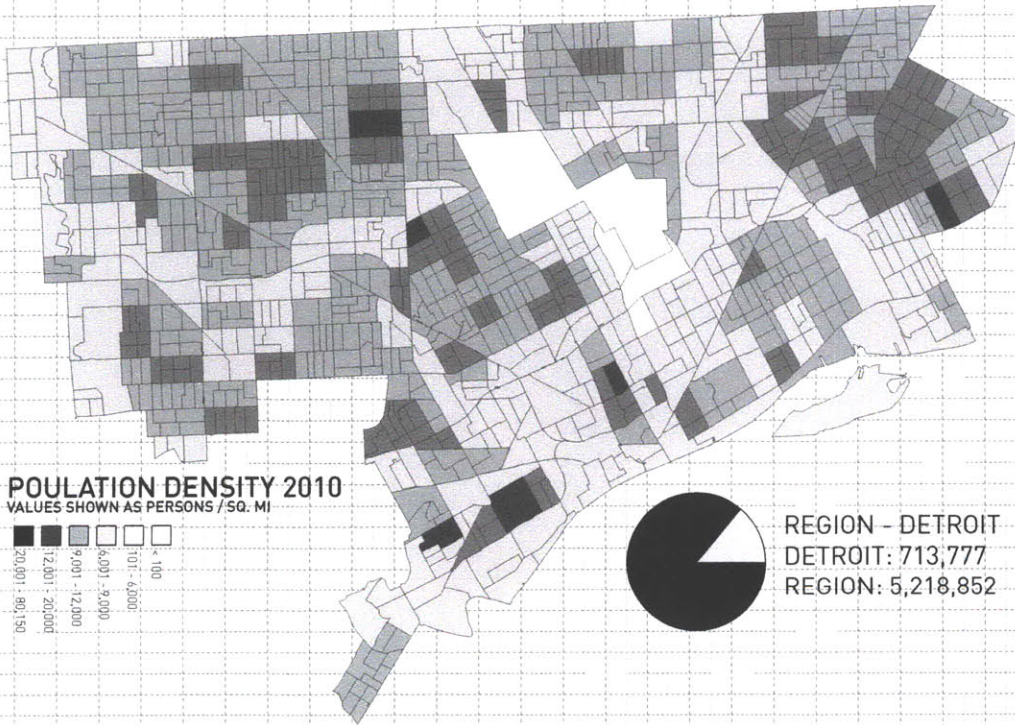


POUPLATION DENSITY 1930 - 1960



POUPLATION DENSITY 1970 - 2000



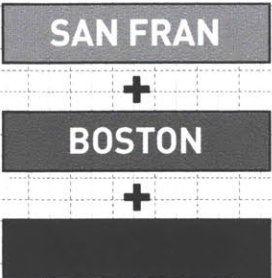


DETROIT

POPULATION: 713,777
SQUARE MILE AREA : 138.88



REGION - DETROIT
DETROIT: 713,777
REGION: 5,218,852

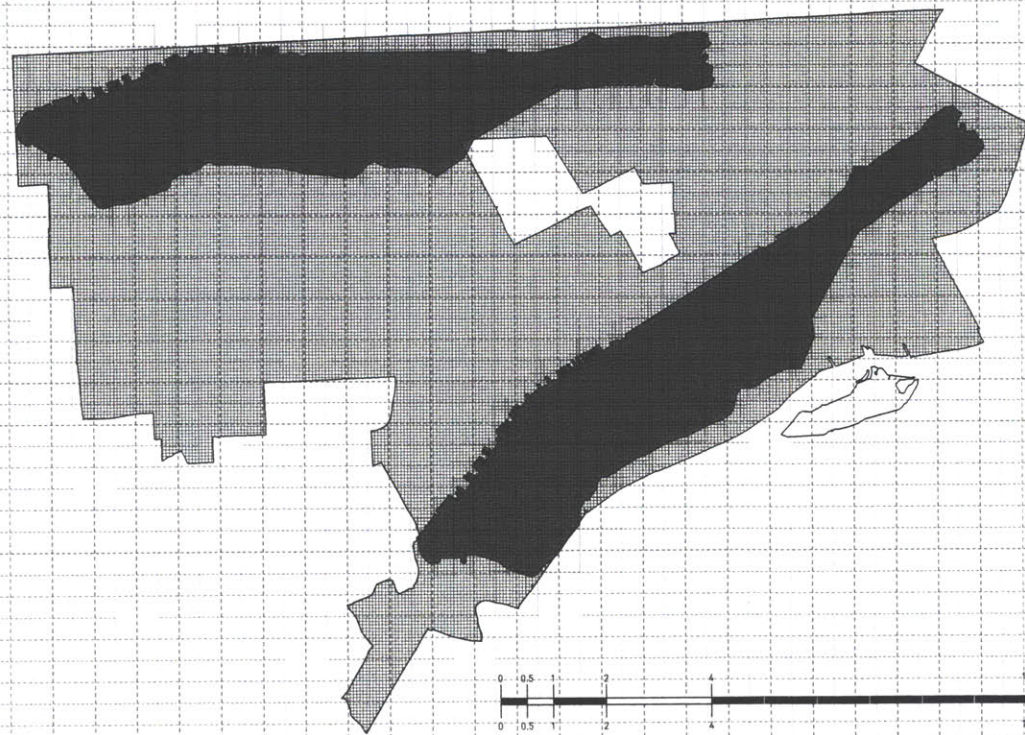


POPULATION: 2,870,493
SQUARE MILE AREA : 118.08

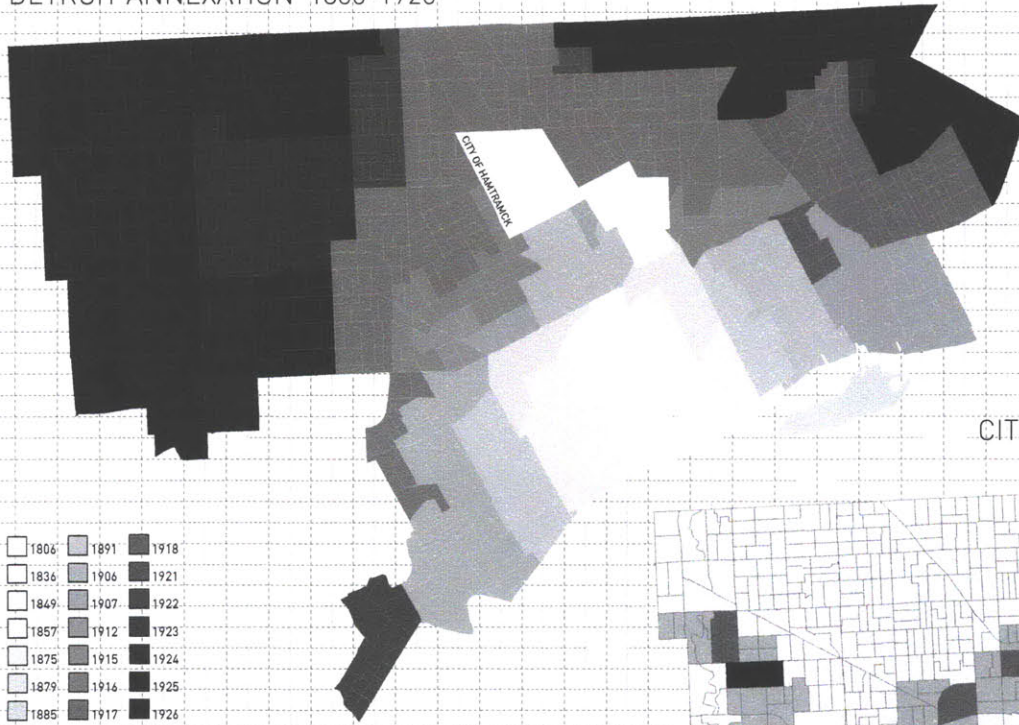




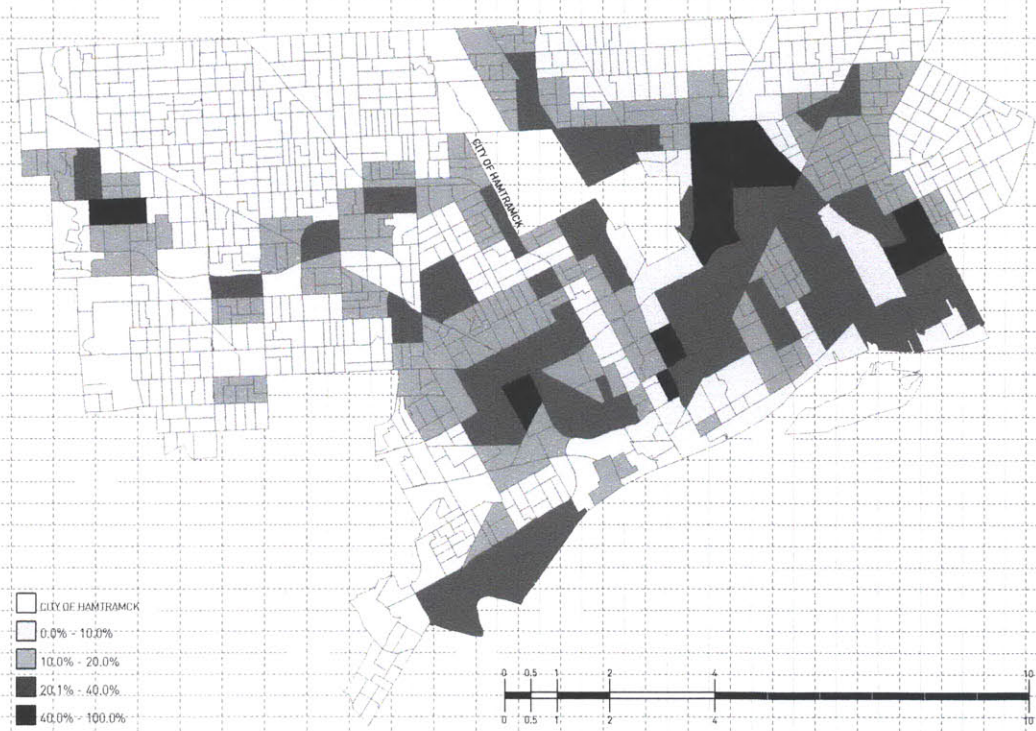
THE CITY OF DETROIT HAS MORE LAND AREA THAN BOSTON, SAN FRANCISCO, AND MANHATTAN COMBINED, WITH JUST 24% OF THE COMBINED POPULATION OF THESE CITIES. CURRENTLY, DETROIT HAS **40** SQAURE MILES OF VACANT LAND. THIS IS APPROXIMATLEY THE AREA EQUIVALENT OF TWO MANHATTANS. WIDESPREAD VACANCY HAS CONTRIBUTED TO A MULTITUDE OF SOCIAL ISSUES. THIS POPULATION DECLINE HAS LARGELY BEEN CREATED BY A MASS EXODUS OF MANUFACTURING COMPANIES MOVING PRODUCTION TO FORIEGN NATIONS, LEAVING DETROITERS UNEMPLOYED.



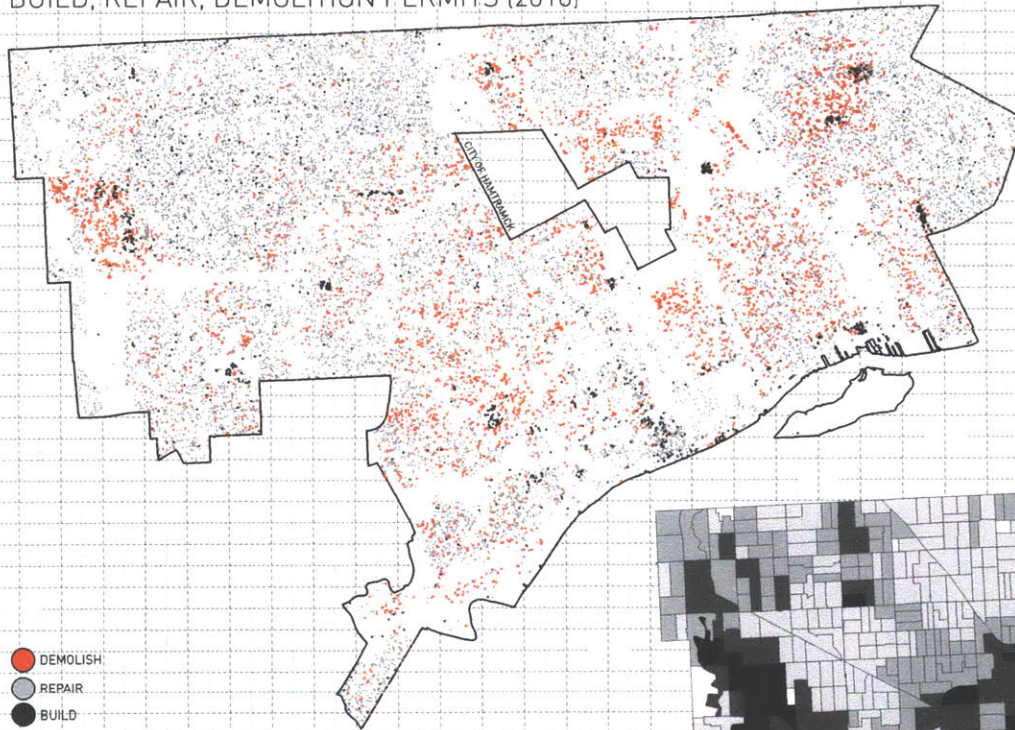
DETROIT ANNEXATION 1806-1926



CITY OF DETROIT PROPERTY OWNERSHIP (% OF AREA)

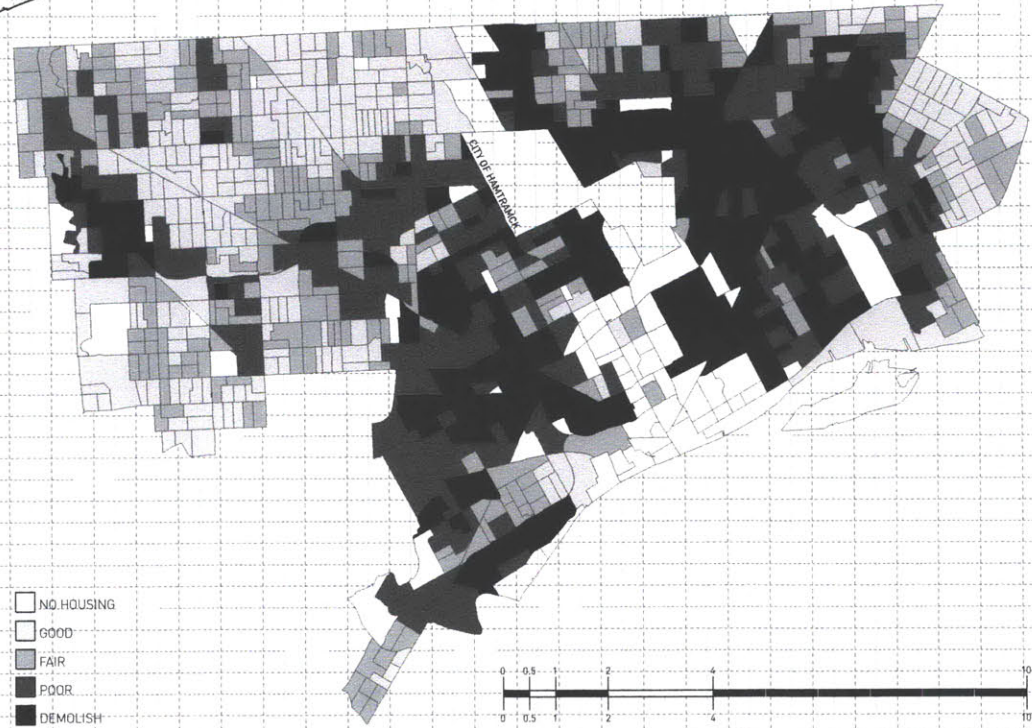


BUILD, REPAIR, DEMOLITION PERMITS (2010)



- DEMOLISH
- REPAIR
- BUILD

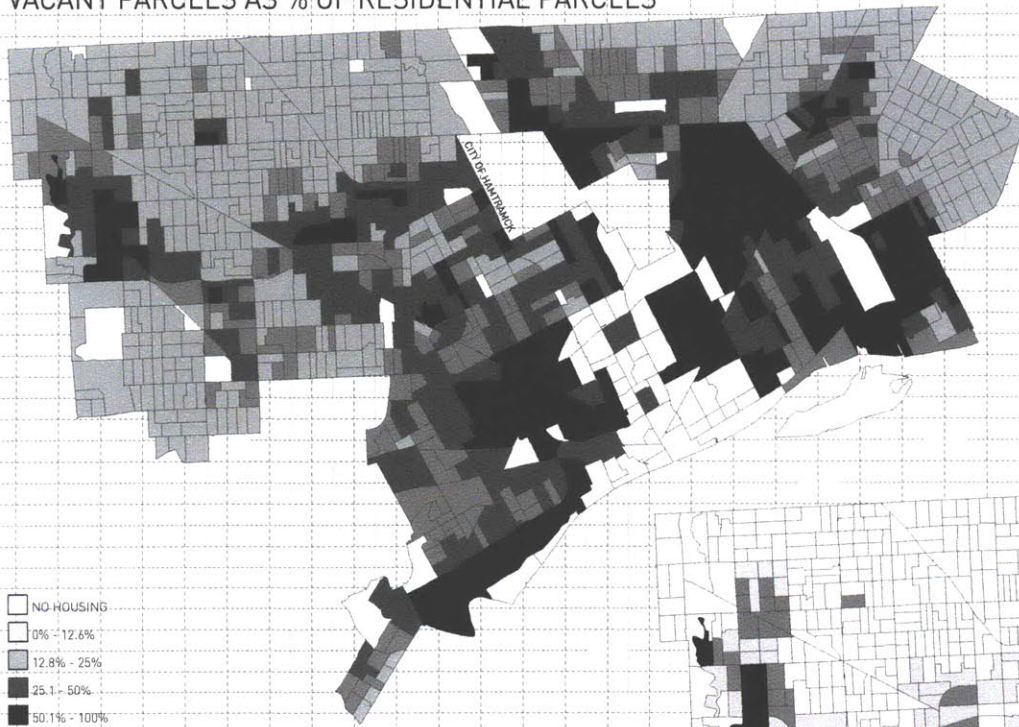
AVERAGE HOUSING CONDITION



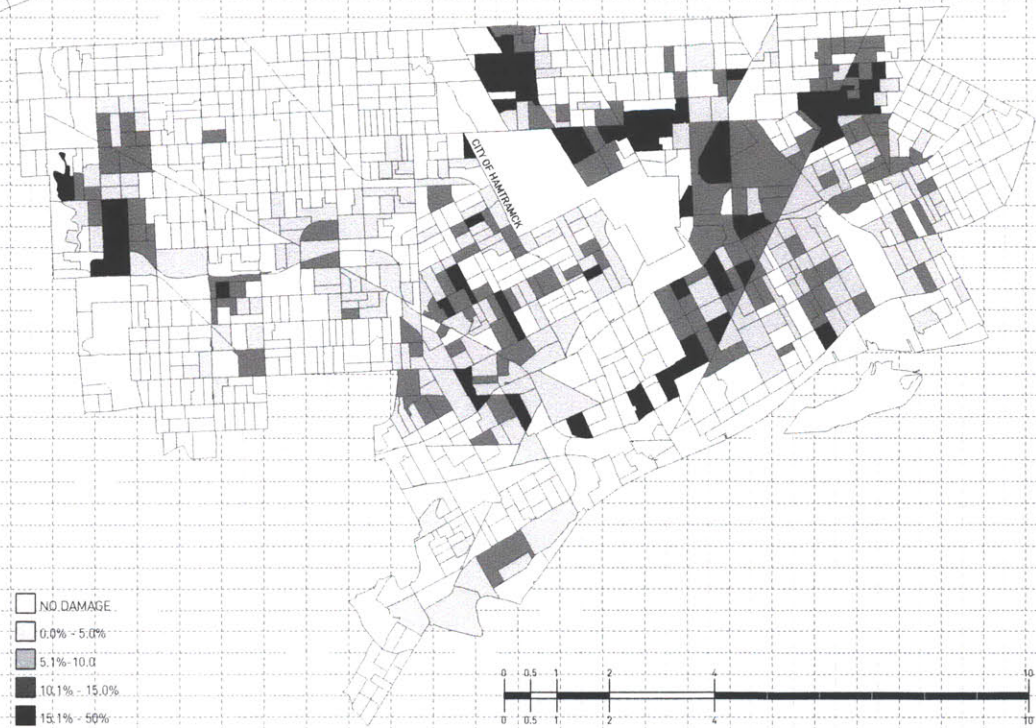
- NO HOUSING
- GOOD
- FAIR
- POOR
- DEMOLISH



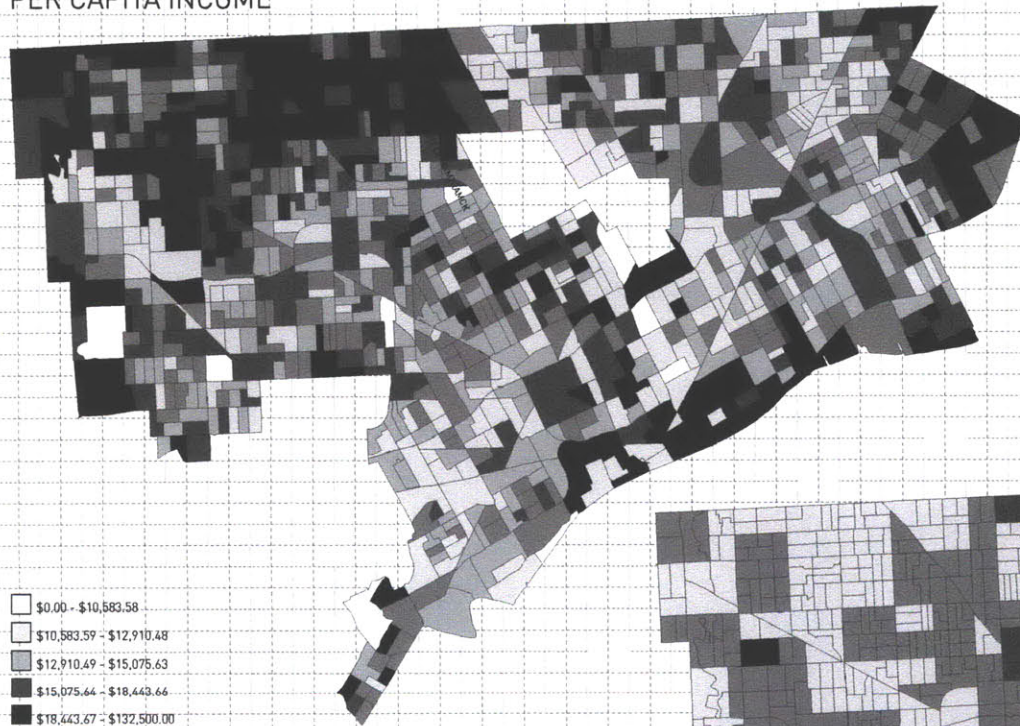
VACANT PARCELS AS % OF RESIDENTIAL PARCELS



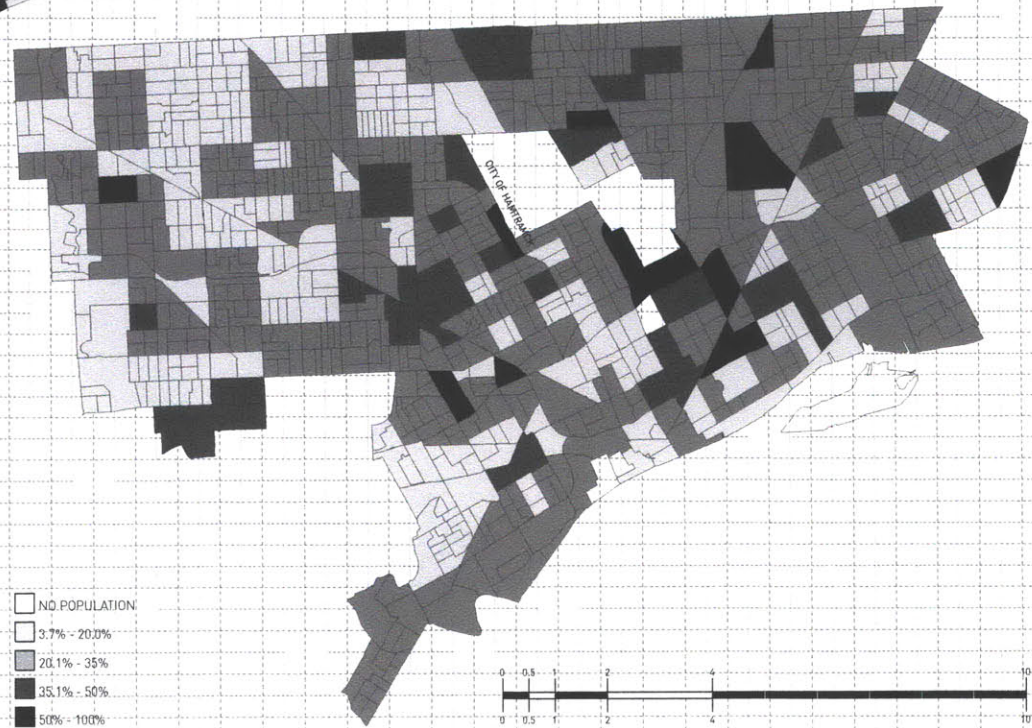
FIRE DAMAGE, VOD, AND NEEDS DEMOLITION



PER CAPITA INCOME



STATISTICAL UNEMPLOYMENT (2010)



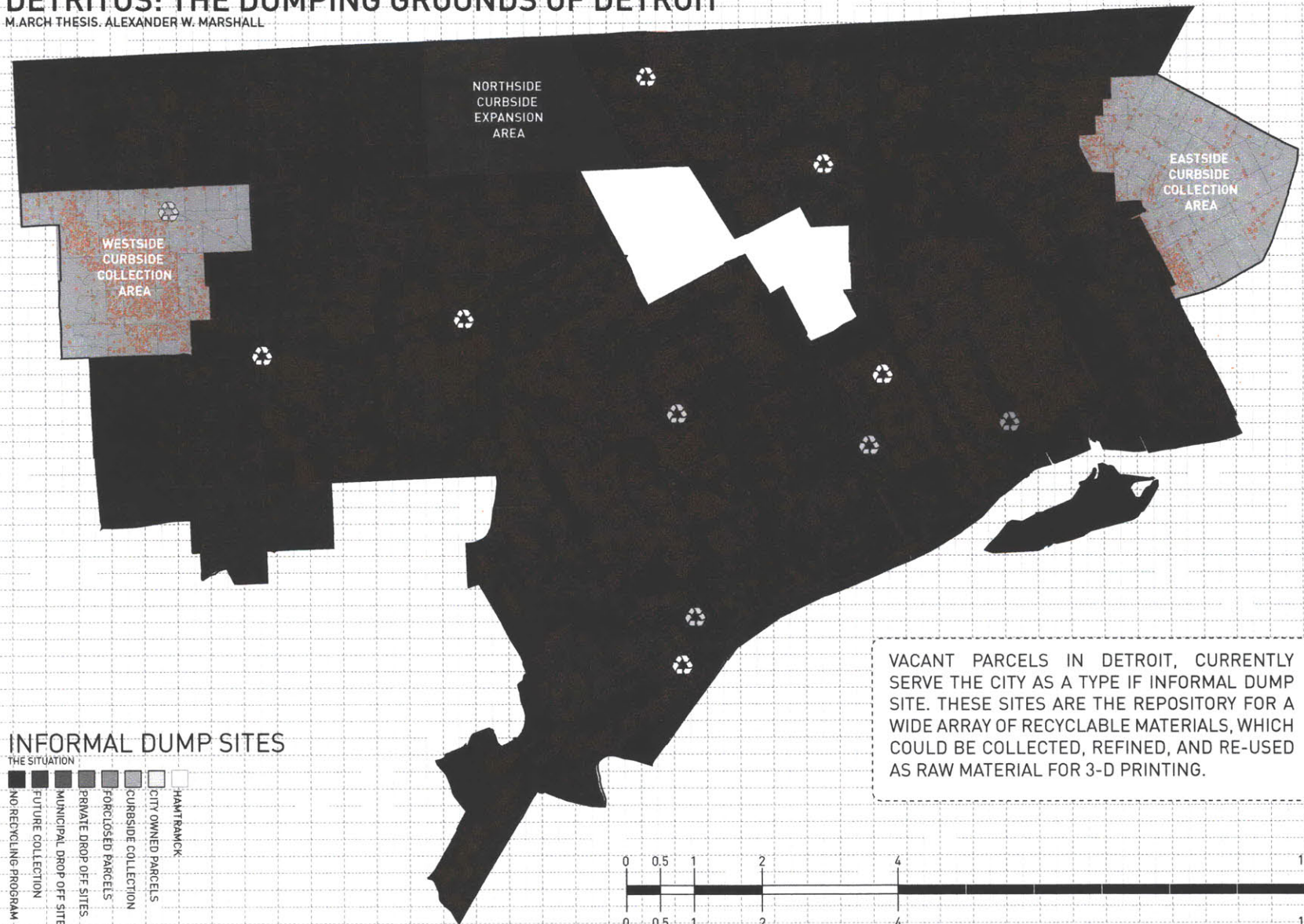
FORECLOSURE, LAND GRABS, RELOCATION, AND COLLECTIVE VALUE

M.ARCH THESIS. ALEXANDER W. MARSHALL



DETRITUS: THE DUMPING GROUNDS OF DETROIT

M.ARCH THESIS. ALEXANDER W. MARSHALL



INFORMAL DUMP SITES

- THE SITUATION
- HAMTRAMCK
 - CITY OWNED PARCELS
 - CURBSIDE COLLECTION
 - FORCLOSED PARCELS
 - PRIVATE DROP OFF SITES
 - MUNICIPAL DROP OFF SITES
 - FUTURE COLLECTION
 - NO RECYCLING PROGRAM

VACANT PARCELS IN DETROIT, CURRENTLY SERVE THE CITY AS A TYPE OF INFORMAL DUMP SITE. THESE SITES ARE THE REPOSITORY FOR A WIDE ARRAY OF RECYCLABLE MATERIALS, WHICH COULD BE COLLECTED, REFINED, AND RE-USED AS RAW MATERIAL FOR 3-D PRINTING.

VACANCY?

THE EXODUS OF PRODUCTION

The diagram at right is thought to be a generic scenario, and it is necessary to explain the toxic relationship of working class neighborhoods, in relation to the factories that support them.

CRISIS TALKS, MONEY WALKS:

When manufacturer's are confronted by certain challenges such as overbearing labor unions, stagnant innovation, or rising costs of production, the default strategy is to exit the situation. Since Capital has no borders, Financiers are free to move production overseas at will. This has a direct impact on cities like Detroit. Factory owners support their Laborers with a finite amount of sustenance, leaving many perpetually at the fringe of insolvency. When a factory leaves a neighborhood, it isn't long before the banks come knocking, looking for their monthly mortgage payments.

THE EXODUS OF PRODUCTION CAPITAL:

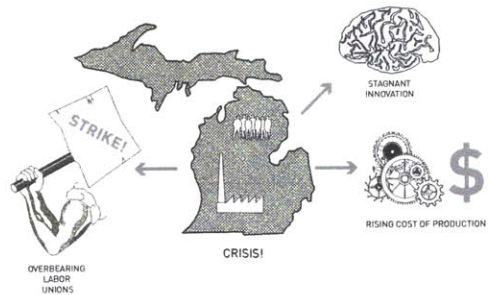
When the factories leave, so do the laborers. Without a means to generate wealth, laborers are left with little choice than to vacate a city, leaving behind massive swaths of Vacant households. Certain choices in urban planning, especially in Detroit, have grouped households into massive tracts, with few commercial or industrial facilities within neighborhoods. The increasing distance between places of work and places of domesticity, causes a sort of urban chaos.

BOOM AND BUST, THE CYCLE REPEATS:

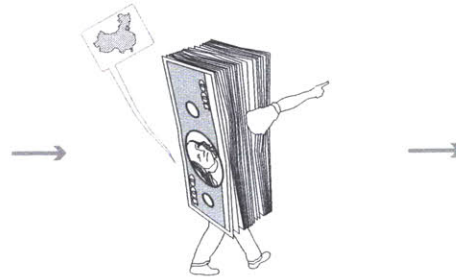
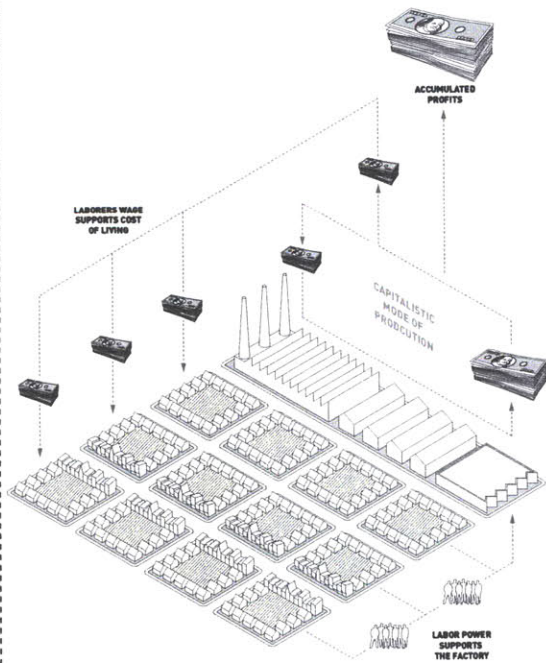
This cycle is, and will not only be a United States problem. As long as capital is free to rove the planet, Industrialized cities will inevitably be susceptible to this vicious cycle.

THE EXODUS

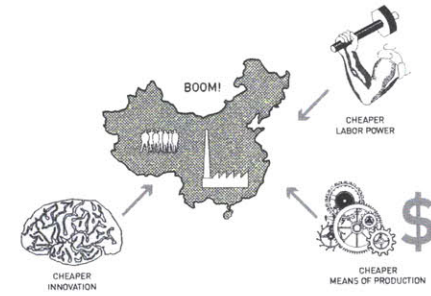
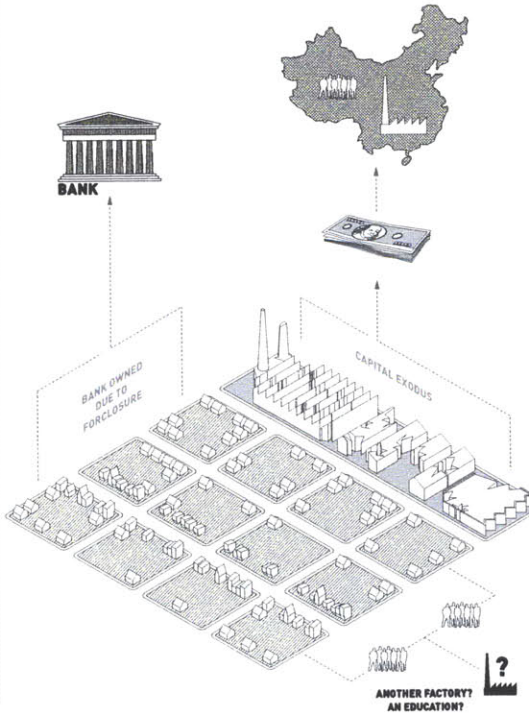
A POSSIBLE REASON FOR DETROIT'S DECLINE?



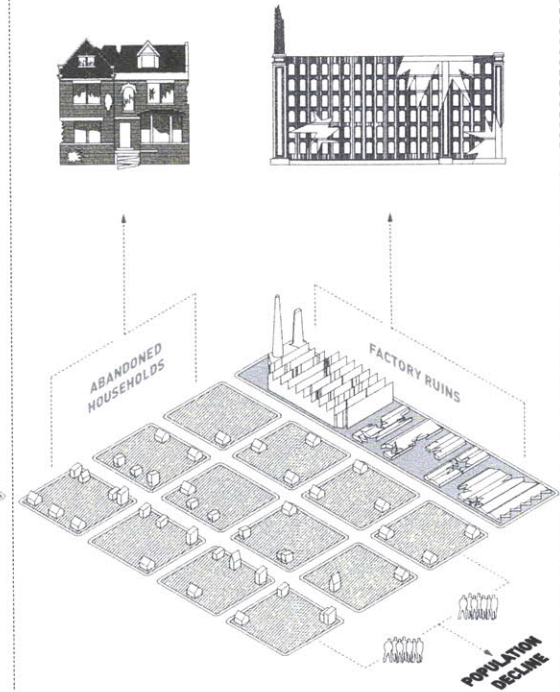
CRISIS TALKS, MONEY WALKS.



THE EXODUS OF PRODUCTION CAPITAL

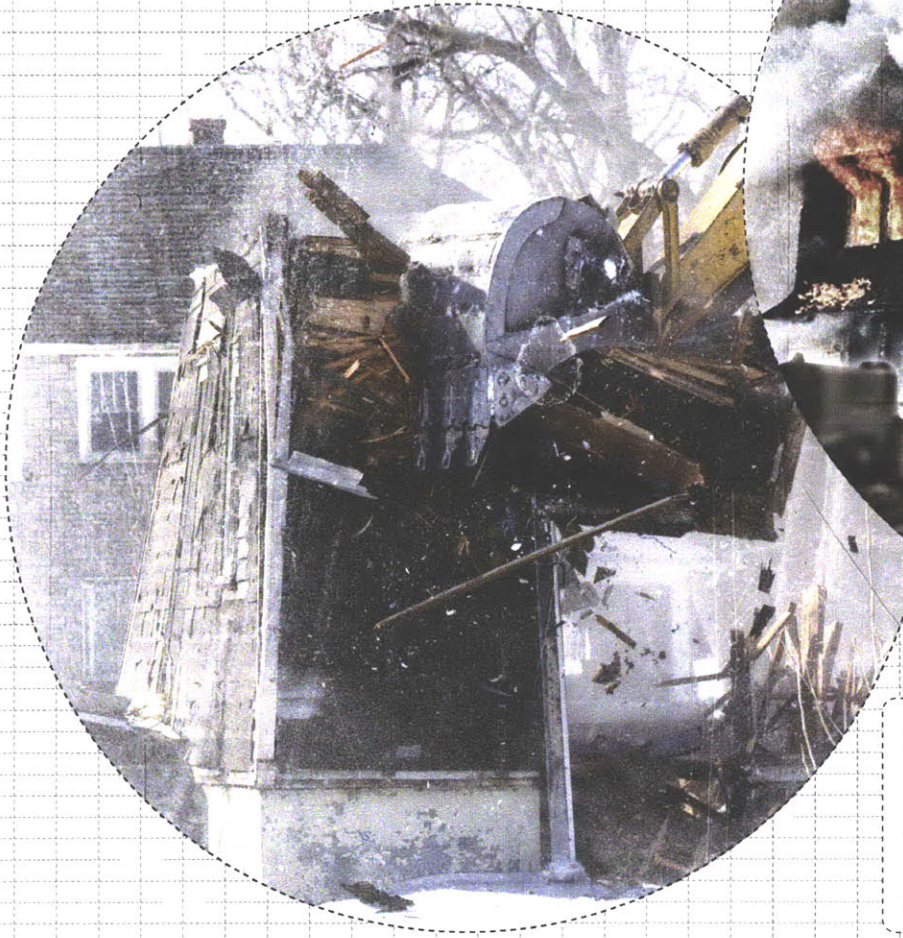


BOOM AND BUST, THE CYCLE REPEATS.



RESIDENTIAL DEMOLITION:

DUE TO THE OVERWHELMING NUMBER OF VACANT HOMES, THE CITY OF DETROIT PLANS TO DEMOLISH NEARLY 10,000 HOMES BETWEEN 2012 AND 2013. CURRENT ESTIMATES PLACE THE NUMBER OF VACANT STRUCTURES WITHIN THE CITY AT AROUND 90,000. THIS MASS DEMOLITION WILL LEAVE DETROIT VACANT.



RAMPANT CRIME:

THE CITY OF DETROIT BARELY HAS ENOUGH MONEY TO KEEP FIRE, EMT AND POLICE SERVICES AFLOAT. ARSON, GUN CRIMES, ROBBERIES, DRUG TRADE AND OTHER VIOLENT CRIMES ARE ON A STEADY INCLINE, WITH NO FORSEEABLE SOLUTION. WITHOUT ADEQUATE CITY SERVICES, DETROIT IS SEEMINGLY LAWLESS.

WIDESPREAD ILLEGAL DUMPING:

GIVEN THE FACT THAT OVER 40 SQUARE MILES OF DETROIT LAY VACANT, FORMER NEIGHBORHOODS HAVE BEEN REDUCED TO RUBBLE AND PILES OF GARBAGE. CURRENTLY VACANT LOTS ARE USED FOR THE DISPOSAL OF ANYTHING RANGING FROM PLASTIC BOTTLES TO DEAD BODIES.



DEVILS NIGHT (ARSON)

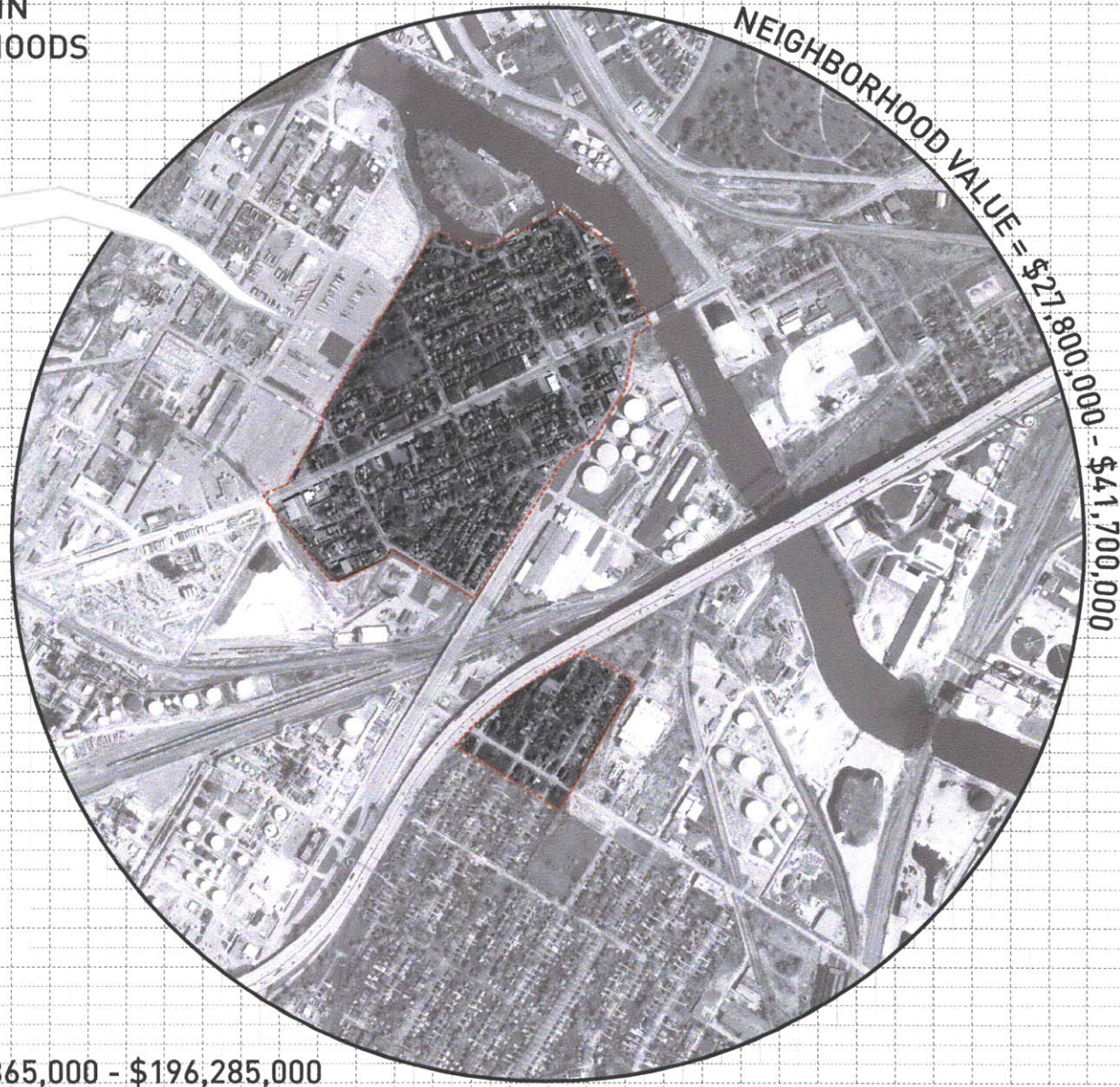
ON HALLOWEEN EVE, DETROIT IS SUCCUMBED BY A YEARLY TRADITION KNOWN AS 'DEVILS NIGHT'. ON AN ANNUAL BASIS, NEARLY 200 STRUCTURES ARE SET ABLAZE, PUTTING A NOTABLE STRAIN ON EMT AND FIRE SERVICES. THOUSANDS OF DANGEROUS BURNED OUT RESIDENTIAL BUILDINGS NOW LITTER DETROIT.

RELOCATION AT A GLANCE IN FOUR DETROIT NEIGHBORHOODS

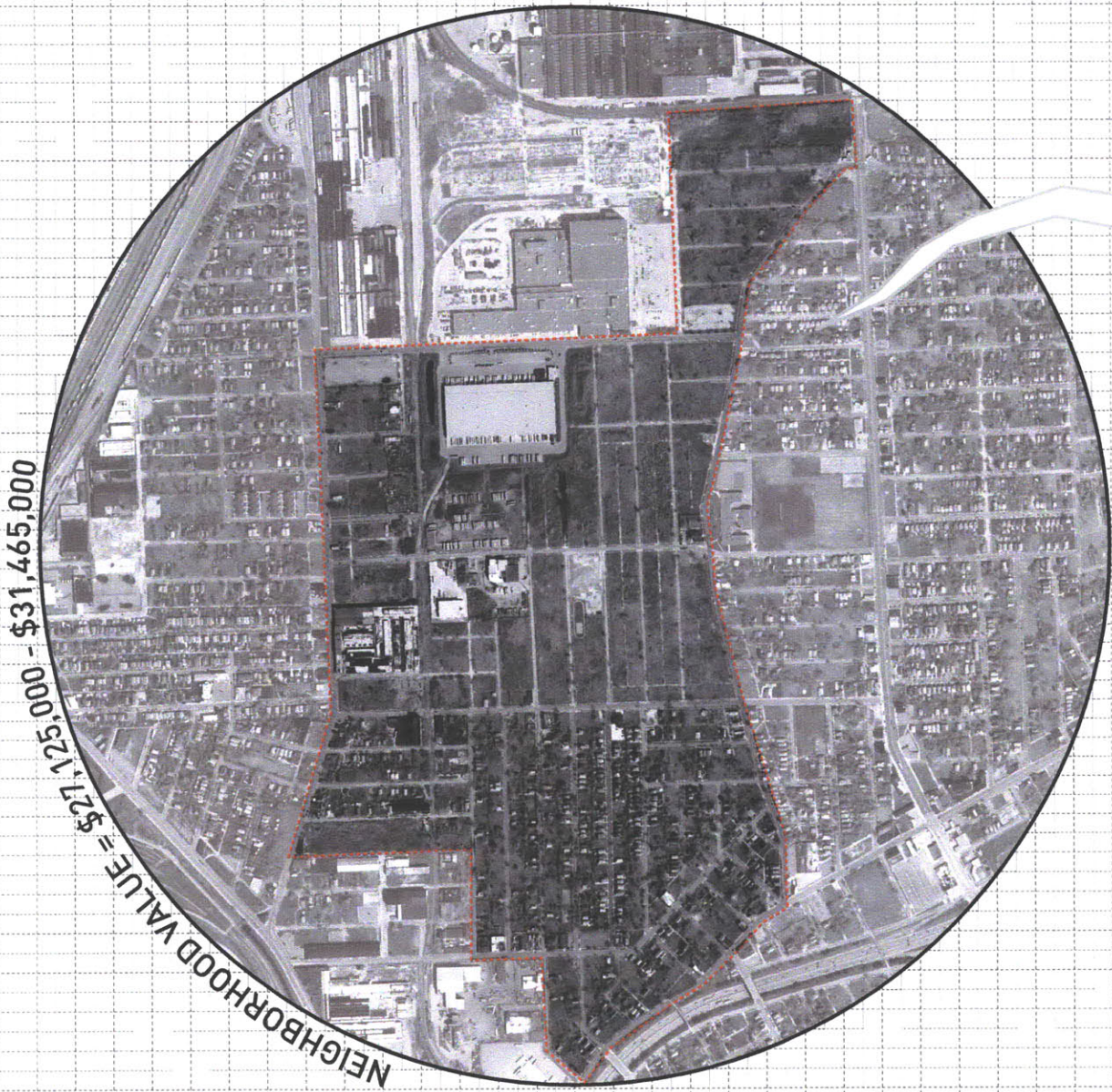
TOTAL NUMBER OF HOMES = 1085
 DISPLACED CITIZENRY = 3,672 PERSONS
 POTENTIAL WORKFORCE = 1,863
 RELOCATION COST PER HOME - \$50,000

1.
MARATHON REFINERY EXPANSION
 OAKWOOD AND BOYNTON NEIGHBORHOODS
 PROJECT NAME: SELL OR ELSE...
 ESTIMATED HOUSES REMAINING: 278
 ESTIMATED POPULATION: 826
 BUY-OUT OFFER: \$50,000 (PLUS RELOCATION COSTS)
 ASKING PRICE: \$100,000

THE MARATHON REFINERY WILL SERVE AS THE PRIMARY REFINERY LOCATION FOR THE ALBERTA TAR SANDS PROJECT. THE SITE WILL CONTINUE TO GROW AS MARATHON IS BUYING LAND FROM INDIVIDUAL RESIDENTS. CURRENTLY RESIDENTS ARE HOLDING OUT BECAUSE THE OFFERS BEING MADE BY MARATHON ARE NOT ENOUGH TO COVER DOWN PAYMENTS FOR NEW HOUSING OPPORTUNITIES. RESIDENTS ARE FACED WITH A DOUBLE EDGE SWORD -- TAKE THE OFFER AND LEAVE, OR FACE GREATER REDUCTIONS IN FAIR MARKET VALUE AS THE AREA BECOMES MORE BLIGHTED. CURRENTLY MUCH OF THE AREA IS EITHER UNDER CITY OWNERSHIP, OR IS UP FOR AUCTION IN THE 2012 WAYNE COUNTY TAX FORECLOSURE AUCTION. MARATHON WILL PROVE TO BE A MAJOR BUYER IN THIS REGION FOR YEARS TO COME. RECENTLY, THE DETROIT FREE PRESS RATED THIS NEIGHBORHOOD AS THE MOST POLLUTED ZIP-CODE IN THE STATE OF MICHIGAN.



COLLECTIVE VALUE = \$168,365,000 - \$196,285,000



2.
I-94 INDUSTRIAL PARK
AIRPORT NEIGHBORHOOD
PROJECT NAME: GHOST-TOWN
ESTIMATED HOUSES REMAINING: 217
ESTIMATED POPULATION: 780
BUY-OUT OFFER: \$75,000 (PLUS RELOCATION COSTS)
ASKING PRICE: \$95,000

IN JULY 1999, THE CITY OF DETROIT ESTABLISHED THE I-94 INDUSTRIAL PARK PROJECT, AN INDUSTRIAL REDEVELOPMENT PROJECT LOCATED IN THE AREA BOUNDED BY MT. ELLIOT, HUBER, GRINNELL, ST. CYRIL AND MILLER. THE PLAN CALLED FOR THE ACQUISITION OF PRIVATELY OWNED PROPERTY TO BE COMBINED WITH THE CITY'S OWNERSHIP WITHIN THE 189-ACRE SITE TO PROVIDE LAND FOR A MODERN INDUSTRIAL PARK. THE PROJECT IS MANAGED BY THE DETROIT ECONOMIC GROWTH CORPORATION AND THE CITY OF DETROIT. CURRENTLY THE PROJECT SITE IS OCCUPIED BY TWO ANCHOR TENANTS -- TDS US AND EXCEL, BOTH ARE MAJOR SUPPLIERS TO DAIMLER CHRYSLER. CURRENTLY THERE ARE NO OTHER INTERESTED PARTIES. THE NEIGHBORHOODS ON THE BOUNDING EDGE OF THE INDUSTRIAL PARK ARE OVER 50 PERCENT VACANT, A NUMBER WHICH WILL CONTINUE TO RISE. THE AREAS SURROUNDING THE SITE IS A STATE OF MICHIGAN RENAISSANCE ZONE, WHICH ARE TAX FREE LANDS FOR FURTHER COMMERCIAL AND INDUSTRIAL DEVELOPMENT.

RELOCATION AT A GLANCE IN FOUR DETROIT NEIGHBORHOODS

TOTAL NUMBER OF HOMES = 1085
 DISPLACED CITIZENRY = 3,672 PERSONS
 POTENTIAL WORKFORCE = 1,863
 RELOCATION COST PER HOME = \$50,000

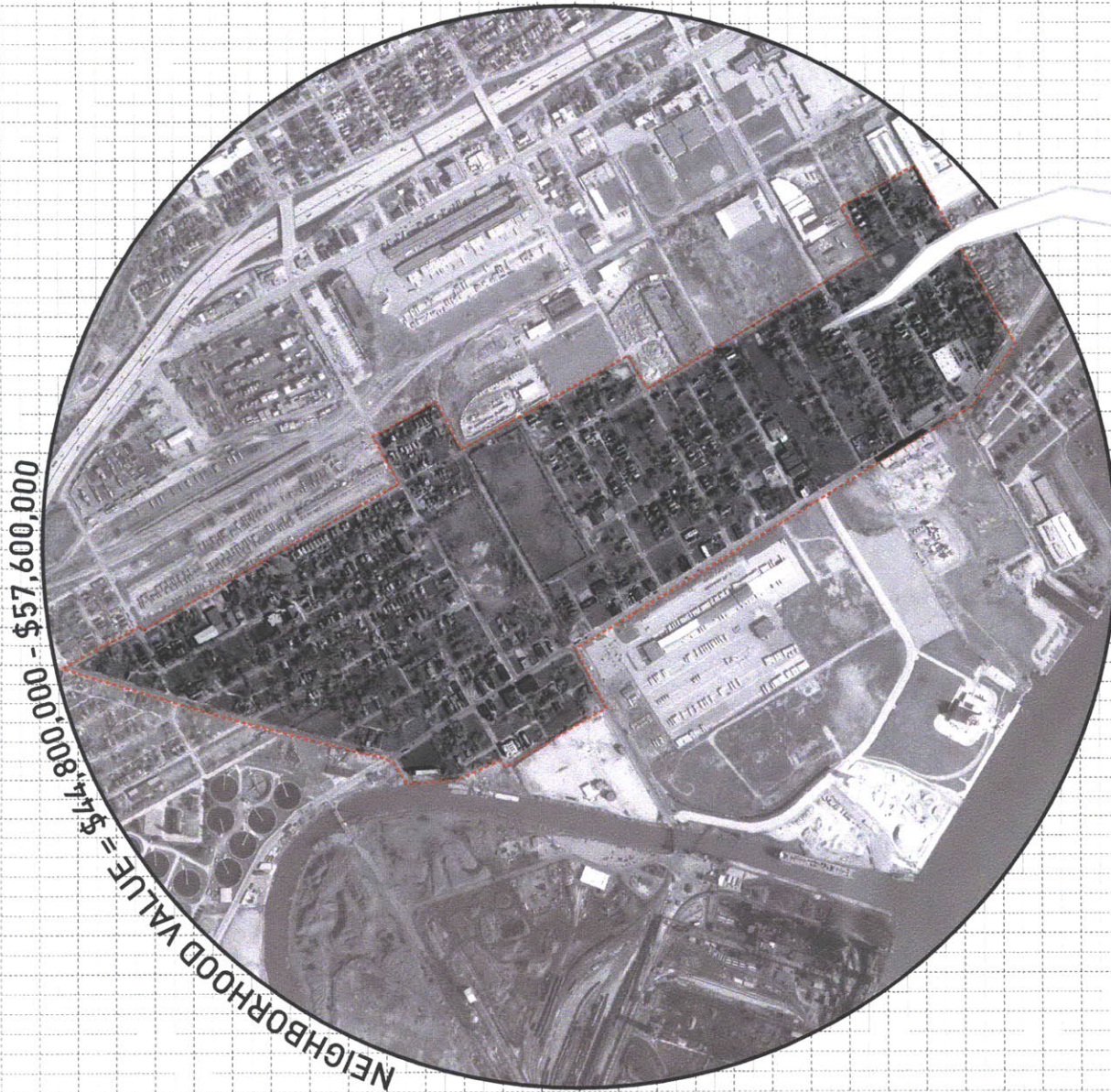
3.

COLEMAN A. YOUNG AIRPORT EXPANSION
 AIRPORT NEIGHBORHOOD
 PROJECT NAME: FRENCH ROAD MINI-TAKE
 ESTIMATED HOUSES REMAINING: 334
 ESTIMATED POPULATION: 1169
 BUY-OUT OFFER: \$65,000 (PLUS RELOCATION COSTS)
 ASKING PRICE = \$145,000

THE FRENCH ROAD MINI-TAKE WAS INITIATED BY THE CITY OF DETROIT IN 1994, IN ORDER TO CREATE AN FAA RECOMMENDED SAFETY BUFFER AROUND THE RUNWAYS, AND PROVIDE SPACE FOR FUTURE EXPANSION. THE PROJECT WAS SLATED TO RUN FOR 18 MONTHS, BUT HAS TAKEN 13 YEARS, DUE TO THE INCREASED COMPLEXITY OF ACQUIRING LAND FROM THE NEIGHBORHOODS WHICH SURROUND THE AIRPORT. OF THE 500+ HOMES IN THE 'MINI-TAKE' AREA, 334 REMAIN. ACCORDING TO RESIDENTS, THE CITY IS ALLOWING DEPOPULATION TO TAKE ITS COURSE, AS FAIR MARKET VALUES WILL DROP, ALLOWING THE CITY TO BUY OUT THE REMAINING HOUSES AT ROCK BOTTOM PRICES. THE OVERALL LENGTH OF THE PROJECT HAS STRAINED THE NEIGHBORHOOD, AND AS THE DETROIT CRISIS HAS UNFOLDED, THE CITY HAS ONLY CONTRIBUTED TO THE PROBLEMS IN THIS NEIGHBORHOOD.



COLLECTIVE VALUE = \$168,365,000 - \$196,285,000



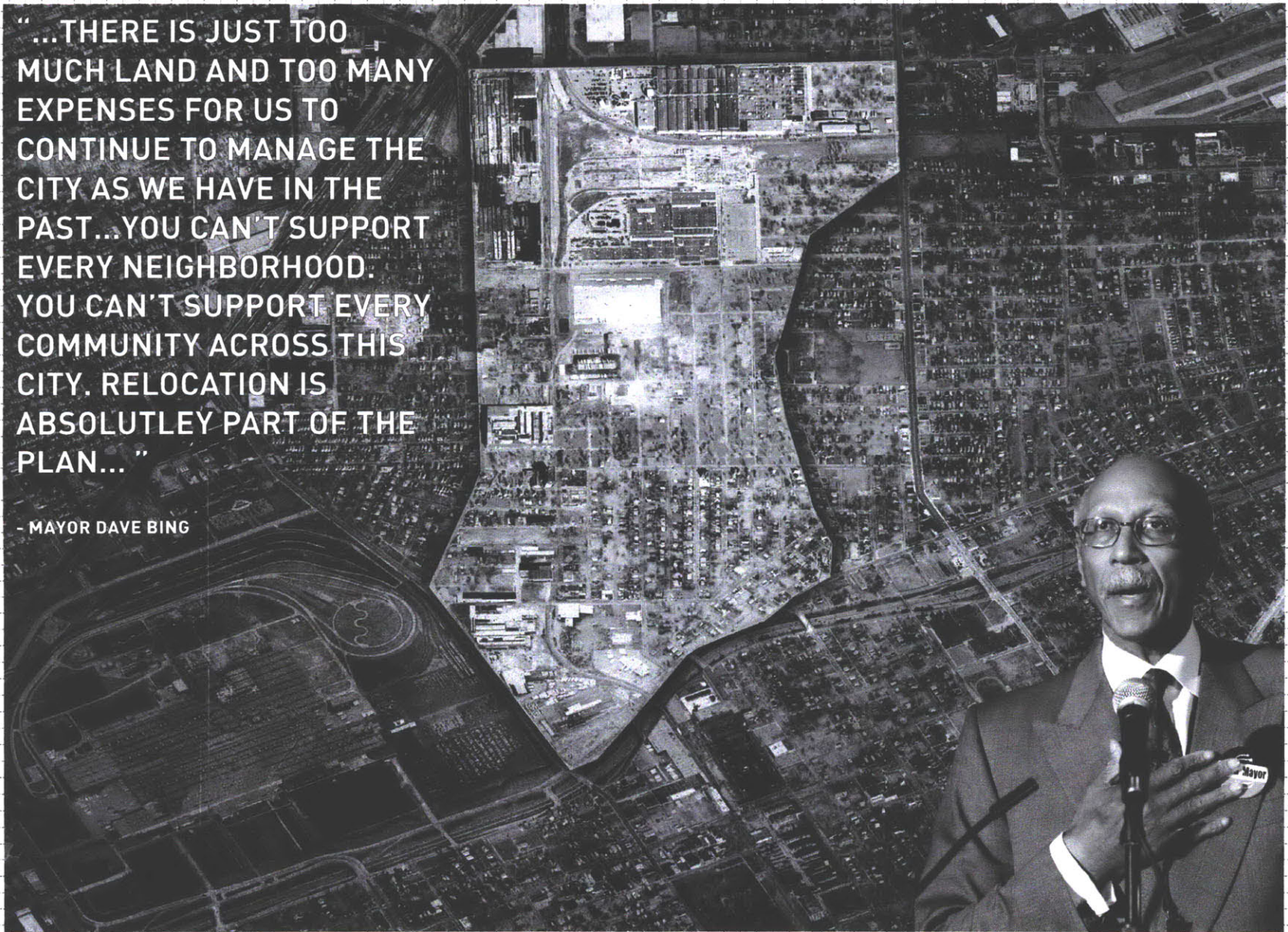
NEIGHBORHOOD VALUE = \$14,800,000 - \$57,600,000

4.
DETROIT INTERNATIONAL RIVER CROSSING
DELRAY NEIGHBORHOOD
PROJECT NAME: FROM BLIGHT TO BRIDGE!
ESTIMATED HOUSES REMAINING: 256
ESTIMATED POPULATION: 896
BUY-OUT OFFER : \$125,000 (PLUS RELOCATION COSTS)
ASKING PRICE: \$175,000

A JOINT PARTNERSHIP BETWEEN THE UNITED STATES AND NEIGHBORING CANADA, WILL EVENTUALLY RESULT IN THE CONSTRUCTION OF A NEW INTERNATIONAL BORDER CROSSING AND CUSTOMS TERMINAL, TO BE LOCATED IN THE CENTER OF DELRAY. CURRENTLY THE NEIGHBORHOOD HAS HIGH VACANCY RATES, AND THE REMAINING PROPERTIES WILL LIKELY NOT BRING HIGH VALUES IN THE REAL ESTATE MARKET. RESIDENTS WILL BE OFFERED MONEY FOR THEIR LAND, RELOCATION PACKAGES, AND POTENTIALLY RIGHTS TO WORK AT OR ON THE NEW BRIDGE PROJECT. THIS BORDER CROSSING WILL SERVE AS THE PRIMARY CONNECTION BETWEEN CANADA AND DETROIT, AND WILL ALLOW TRUCKS CARRYING TAR SANDS FROM ALBERTA, A DIRECT CONNECTION WITH THE MARATHON REFINERY, LOCATED TO THE WEST OF DELRAY. THIS PROJECT WILL LIKELY WIPE-OUT THE ENTIRE NEIGHBORHOOD. THIS IS AN UNDESIRABLE LOCATION FOR A NEW MANUFACTURING SETTLEMENT, AS THE BRIDGE PROJECT IS IMMINENT.

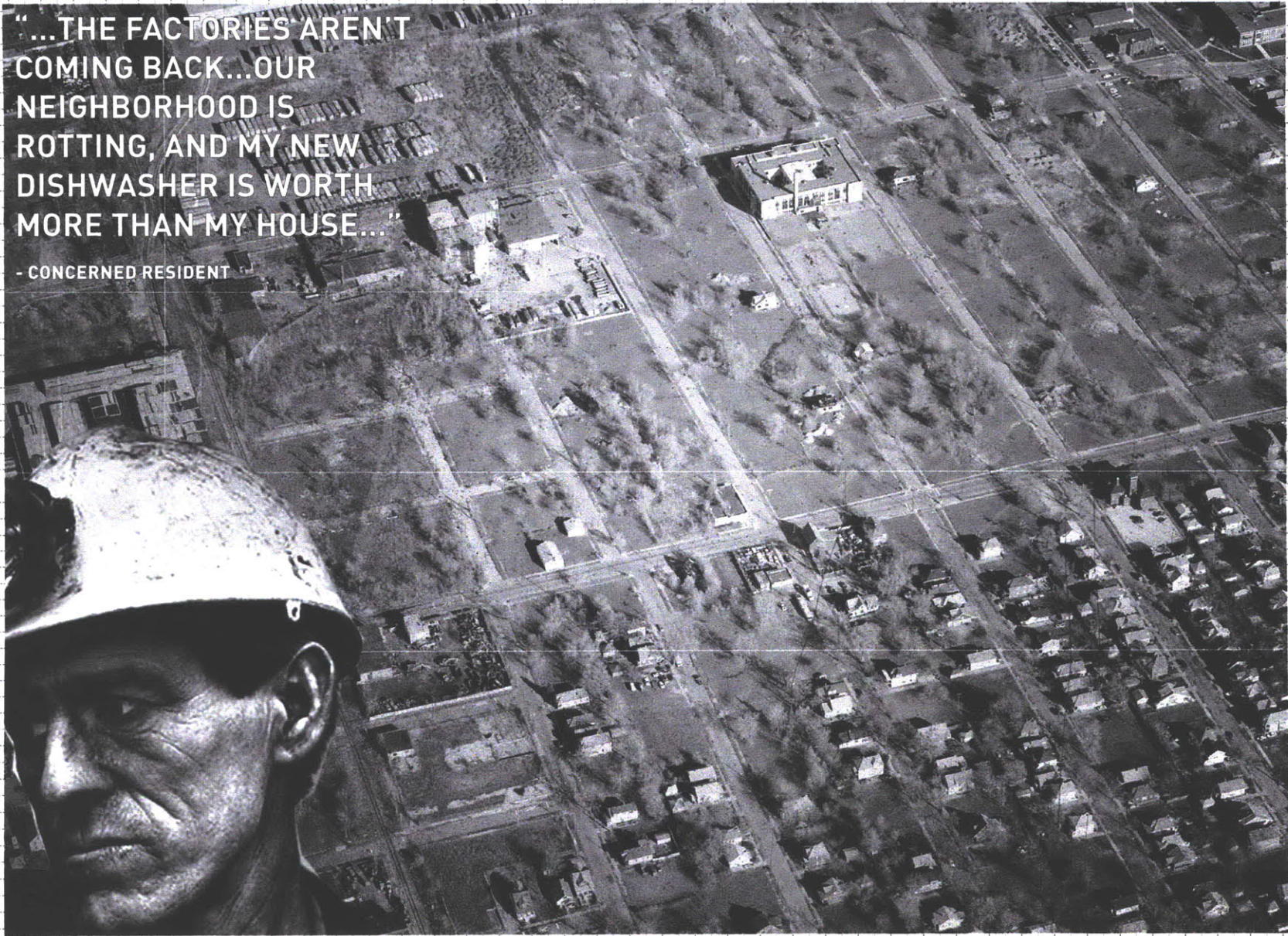
“...THERE IS JUST TOO MUCH LAND AND TOO MANY EXPENSES FOR US TO CONTINUE TO MANAGE THE CITY AS WE HAVE IN THE PAST...YOU CAN'T SUPPORT EVERY NEIGHBORHOOD. YOU CAN'T SUPPORT EVERY COMMUNITY ACROSS THIS CITY. RELOCATION IS ABSOLUTELY PART OF THE PLAN...”

- MAYOR DAVE BING



"...THE FACTORIES AREN'T
COMING BACK...OUR
NEIGHBORHOOD IS
ROTTING, AND MY NEW
DISHWASHER IS WORTH
MORE THAN MY HOUSE..."

- CONCERNED RESIDENT



CHAPTER 3: DISRUPTIVE TECHNOLOGY

3-D PRINTING IN A NEW ERA OF MANUFACTURING

Q: What do you get when you cross cheap, accessible, open source Manufacturing Technology with a pile of garbage?

A: Karl Marx might say: Means of Production.

___ Means of production, or the Factors of Production are defined by Karl Marx in *Das Kapital* in three broad reaching categories: Labor, The Instruments of Labor and The Subjects of Labor. The instruments of Labor are the tools, machines, factories and infrastructure, while the Subjects of Labor are the Raw Materials which are manufactured into useful objects. Labor, is the Human factor and a Laborer is responsible for operating the Instruments of Labor in order to transform The Subjects of Labor into usable goods. Traditionally, Means of Production are owned by a privileged few, those who gain substantial financial benefits from their ownership. Laborers, as we know, are given little of the profits from a manufacturing operation.

___ But what happens to this model when low cost Open Source manufacturing technology enters the manufacturing sphere? We could be witness to a pivotal moment in the history of industrial production. As 3-D printing technology gains a foothold as a useful production process, we could see a broad-acre change in the realm of manufacturing. It is no longer impossible to imagine a world in which the average Laborer could have the financial capacity to own Means of Production, rather than be owned by it.

___ In order to gain a deeper understanding of how 3-D printing or Additive Manufacturing could effect the physical scale of a production process, a series of drawings have been produced which take into consideration traditional and emerging manufacturing paradigms in the manufacture of the Engine Block. The following text seeks to describe the drawings in this section:

___ In a traditional manufacturing process, the engine block requires 42

cast iron molds which produce 23 zircon sand and epoxy cores. These cores are injection molded and assembled on an automated assembly line which requires 9 molding apparatuses and 15 robotic arms.

___ Once the mold is assembled, it is filled with molten aluminum from a jet furnace, powered by a few thousand gallons of petroleum and pressurized oxygen. The block is then moved into a furnace where the mold is baked away, and the aluminum is tempered.

___ In an additive manufacturing process, a digital model of an engine block is sliced into several thousand layers, roughly 20 microns thick, and sent into a direct metal laser sintering machine. The machine builds the engine by affecting a bed of powdered aluminum with a 400w laser, building it layer by layer. This technology has the capacity to produce conformal cooling channels and other impossible assemblies which were not previously achievable with traditional manufacturing processes.

___ Additive manufacturing boasts fast turn-around and a cost benefit to manufacturers, because it is not limited by a traditional mold making process. Independent manufacturers can produce anything from end use commodities to parts for other products. This dexterity affords one the ability to simultaneously engage in multiple markets such as the automotive, aerospace and medical industries.

___ THIS IS DISRUPTIVE TECHNOLOGY. Open Source 3-D printers are accessible, as plans for many types of machines can be downloaded for free from the Internet. Most of these machines can be made from common components found at your local hardware store, or Internet supplier of electronic goods. Machine platforms such as REP-RAP, or "Replicating Rapid Prototyper", can be built for a few hundred dollars. These systems offer manufacturers a fabrication process called Fused Filament Fabrication, or the additive layering of plastic, which is capable of producing durable plastic goods for general purpose use.

___ The following drawings will attempt to establish the difference in scale between a traditional manufacturing process and an additive one, in order to begin proposing a smaller scale approach to contemporary manufacturing.

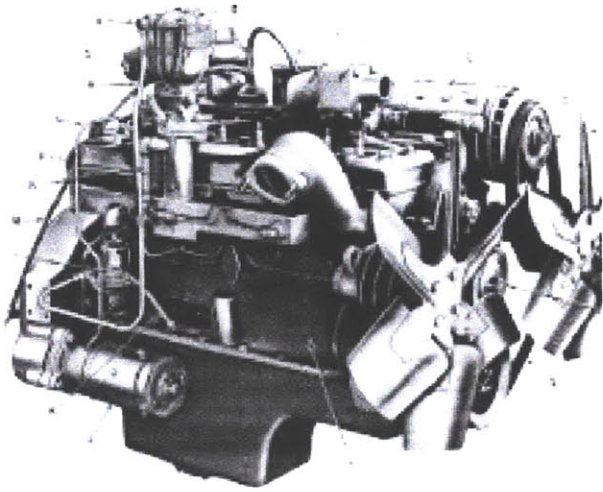
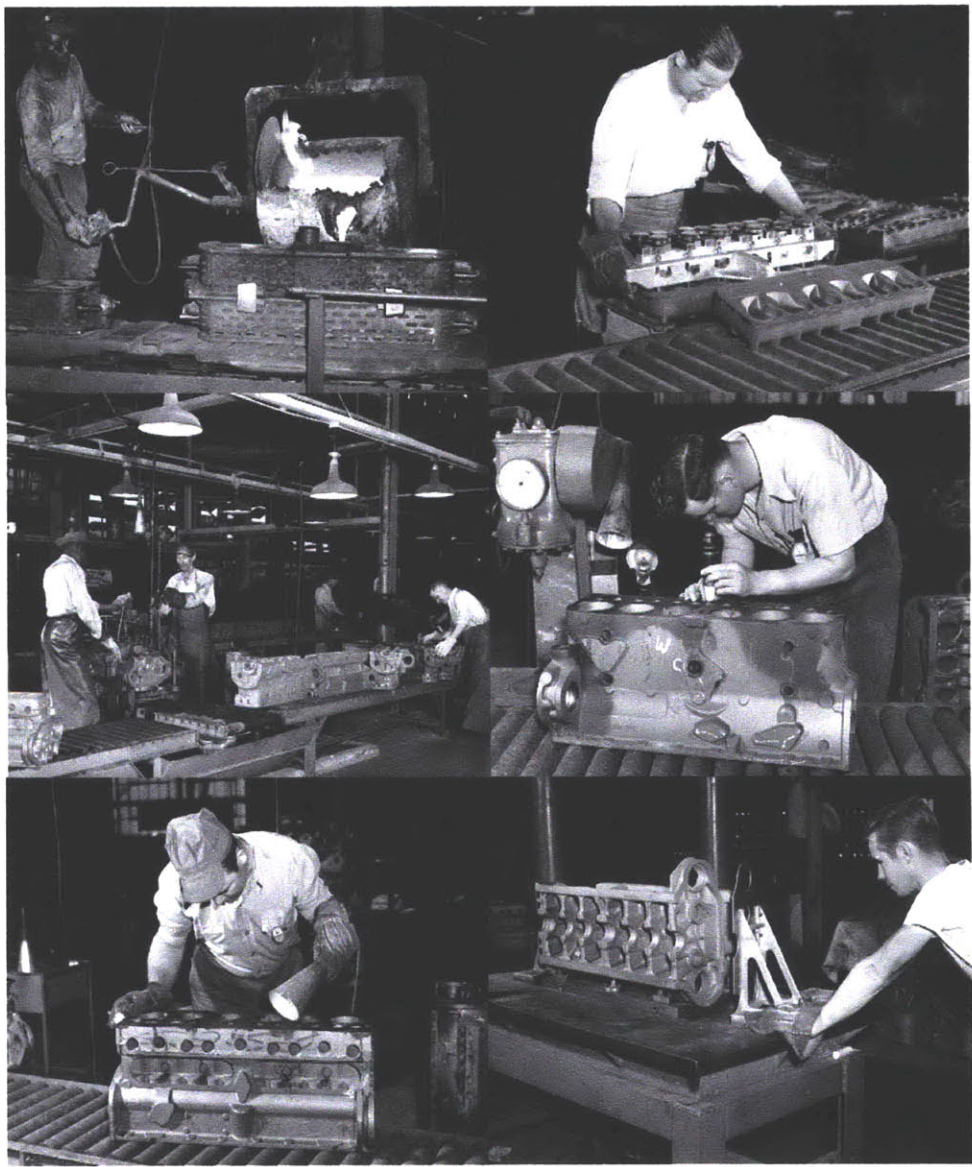


FIGURE 01-1 HERCULES ENGINE LEFT REAR VIEW
OLD MODEL

Item	Part	Part No.	QTY.
A	CRANK	4551340	1
B	CAMSHAFT	19 8301	1
C	GENERATOR	141248 A	1
D	WIPER	14 2351 F	1
E	FLY WHEEL	141248	1
F	VALVE P. TRK. PL.	14 8378	2
G	WALL	14 481 A	1
H	WALL	14 481 B	1
I	WALL	14 481 C	1
J	WALL	14 481 D	1
K	WALL	14 481 E	1
L	WALL	14 481 F	1
M	WALL	14 481 G	1
N	WALL	14 481 H	1
O	WALL	14 481 I	1
P	WALL	14 481 J	1
Q	WALL	14 481 K	1
R	WALL	14 481 L	1
S	WALL	14 481 M	1
T	WALL	14 481 N	1
U	WALL	14 481 O	1
V	WALL	14 481 P	1

BUICK 241



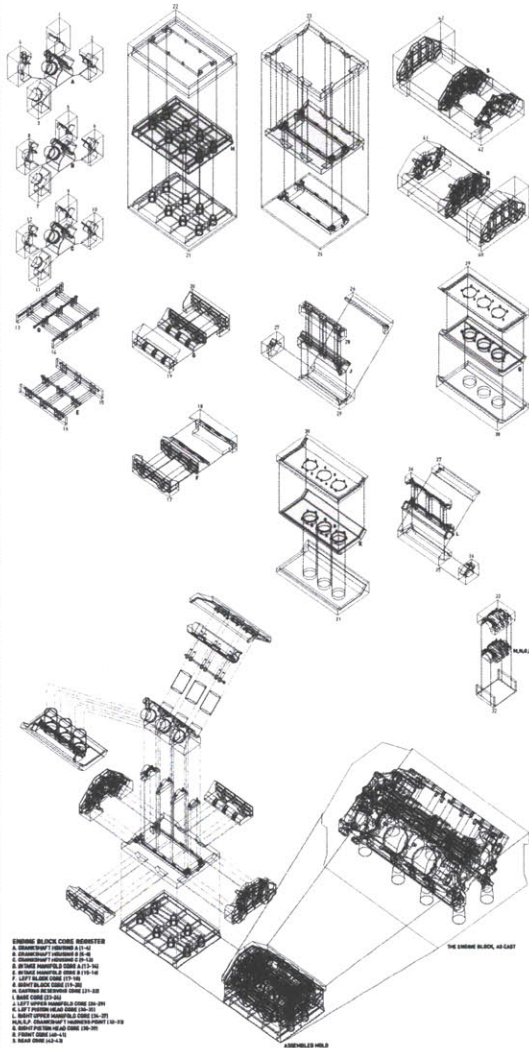
MANUFACTURING THE BUICK HERCULES ENGINE BLOCK
A TRADITIONAL MANUFACTURING PROCESS (IMAGE SOURCE: BUICK)

THE ENGINE BLOCK: TWO MANUFACTURING PROCESSES

THREE DRAWINGS, SHOWN IN NINE PARTS.

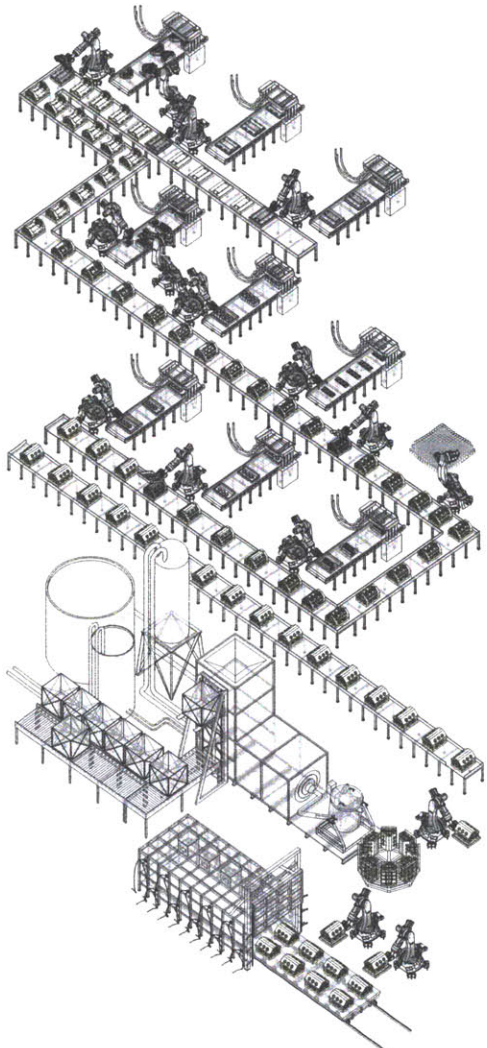
THE ENGINE BLOCK: TRADITIONAL MANUFACTURING

BY JACQUES HERZ, ALEXANDER H. NORDHALL



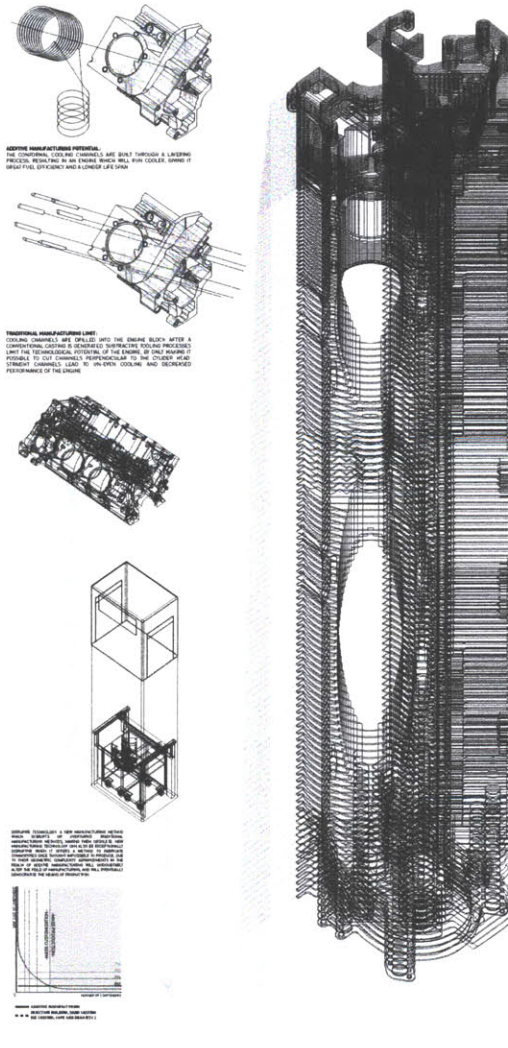
THE ENGINE BLOCK: TRADITIONAL MANUFACTURING

BY JACQUES HERZ, ALEXANDER H. NORDHALL



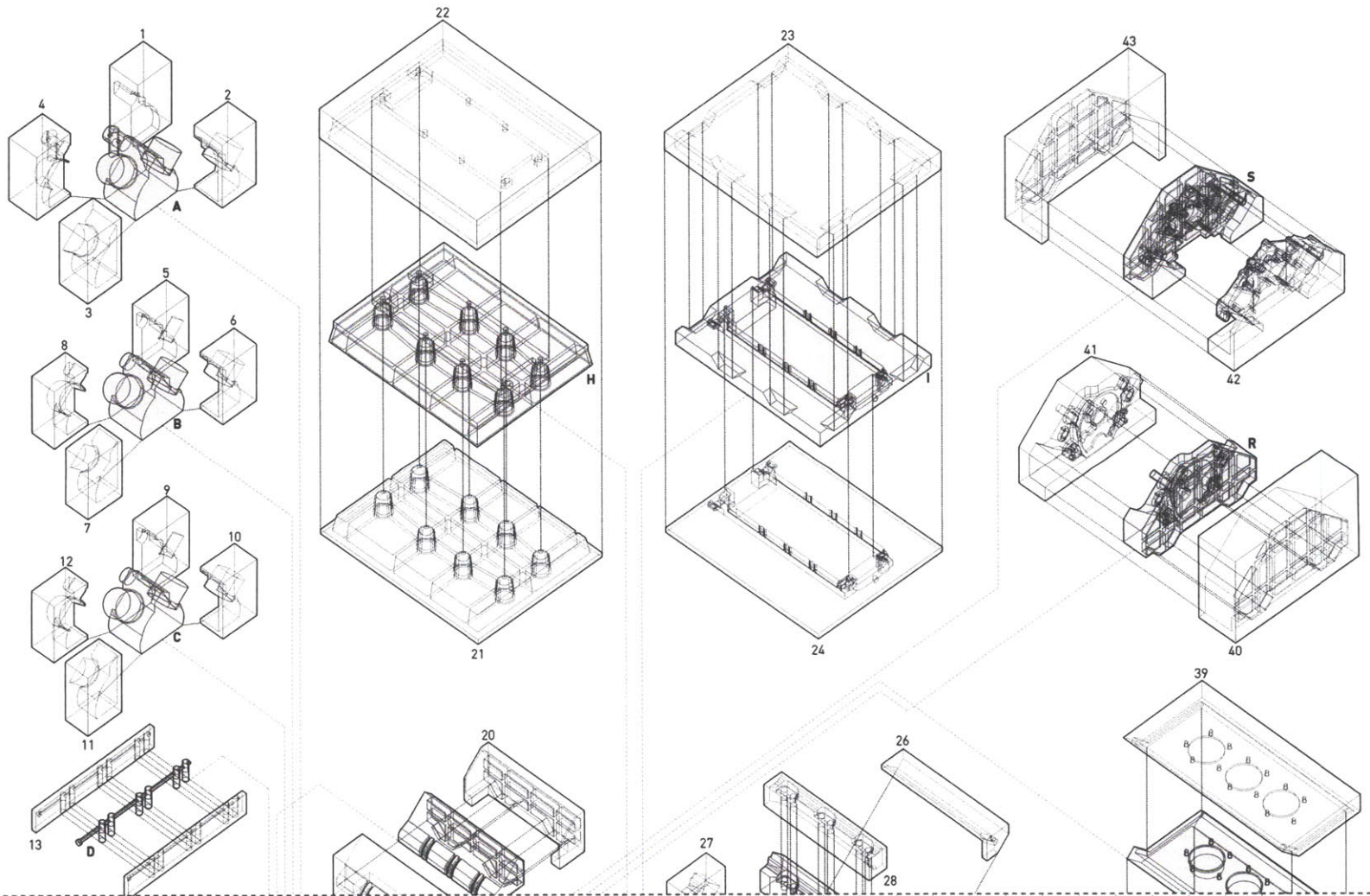
THE ENGINE BLOCK: ADDITIVE MANUFACTURING (DMLS)

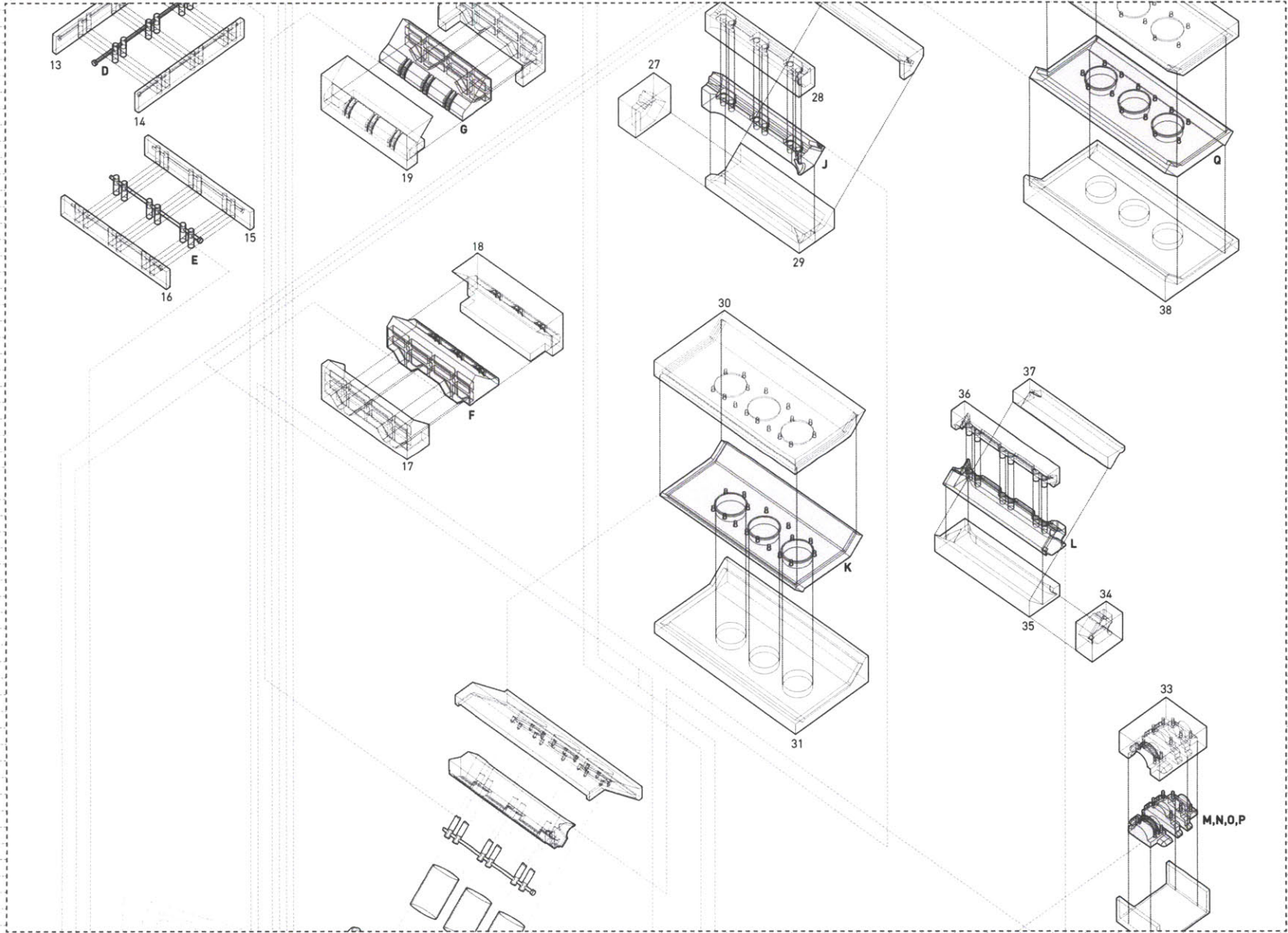
BY JACQUES HERZ, ALEXANDER H. NORDHALL

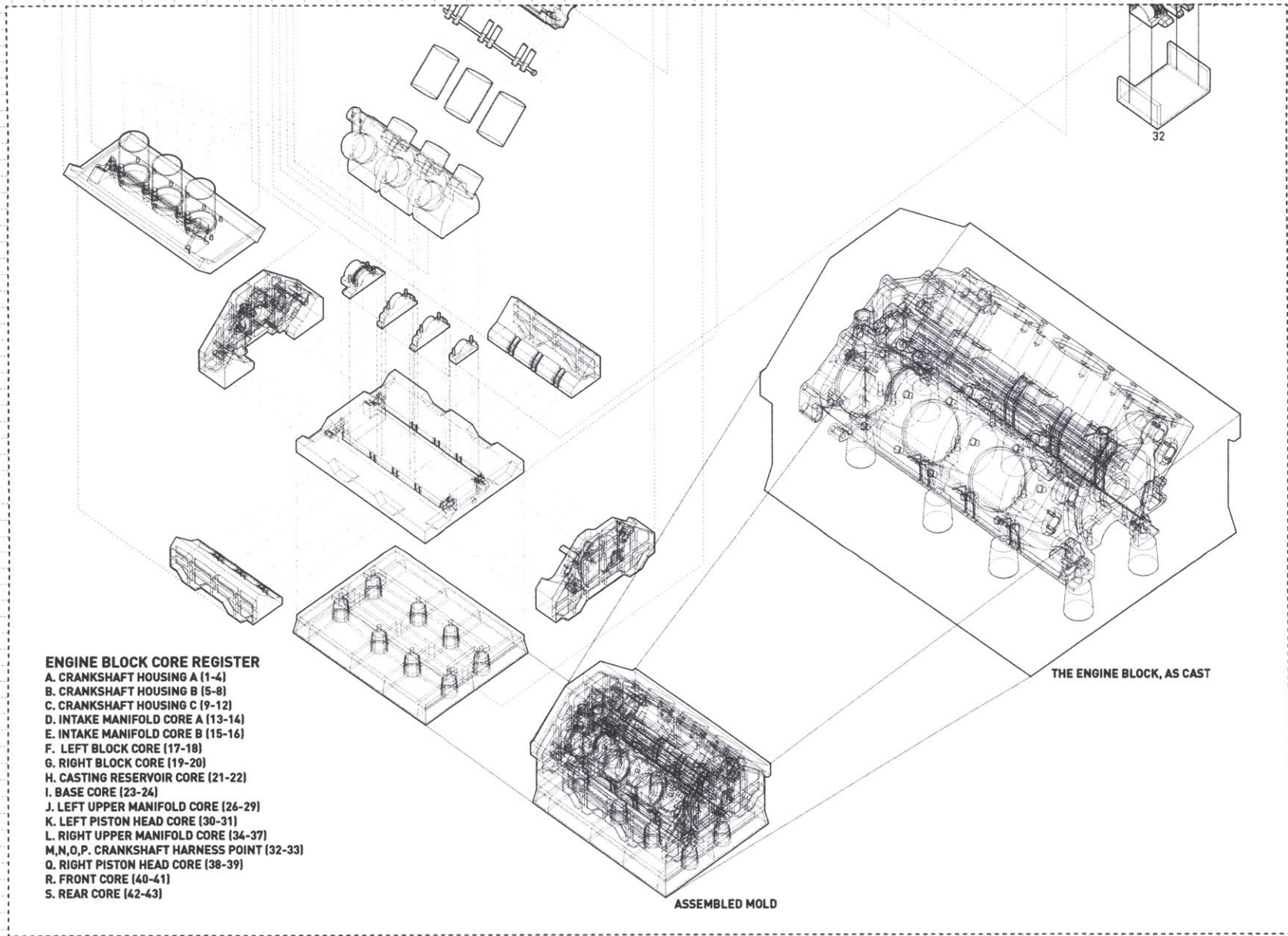


THE ENGINE BLOCK: TRADITIONAL MANUFACTURING

M.ARCH THESIS. ALEXANDER W. MARSHALL

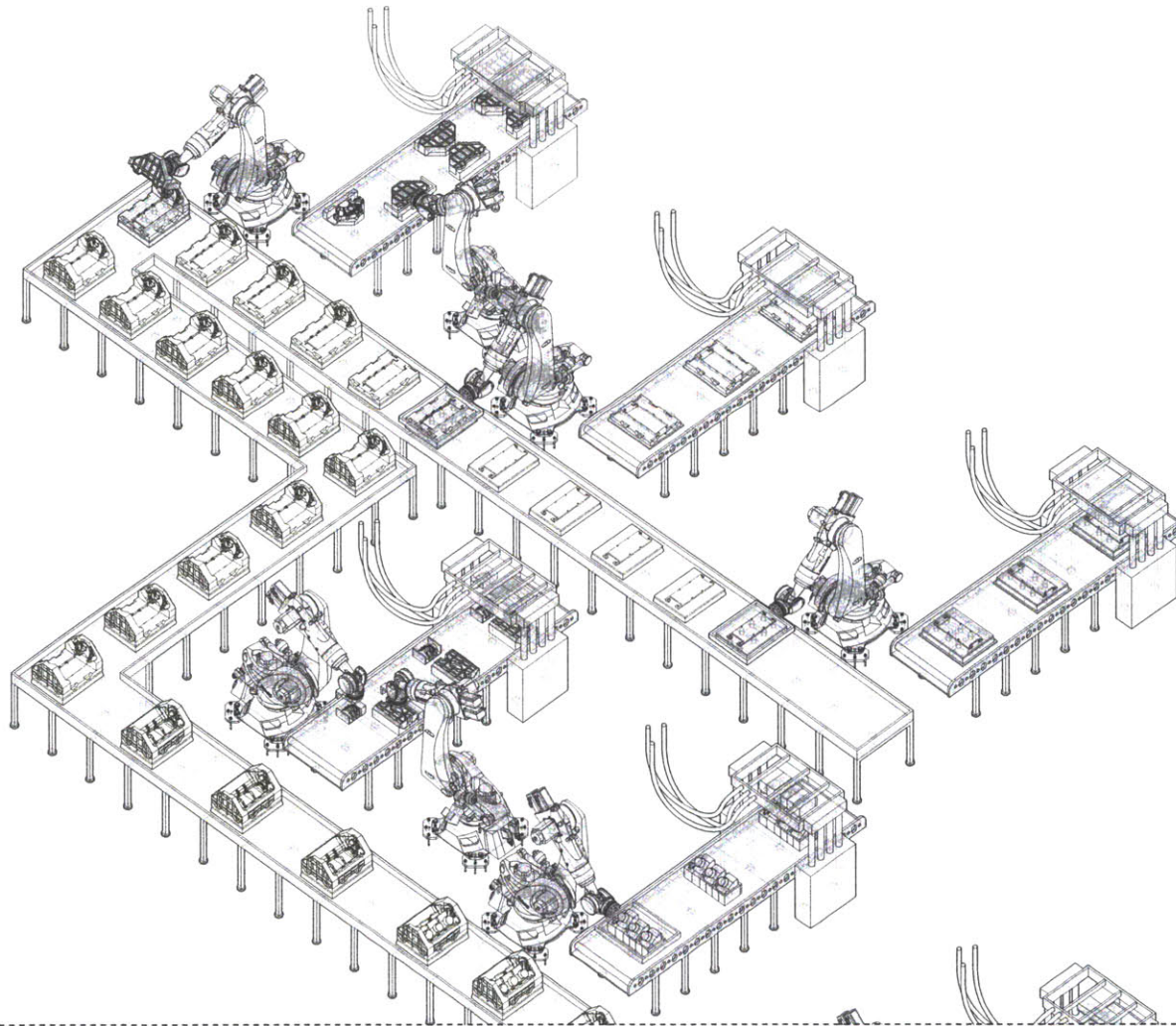


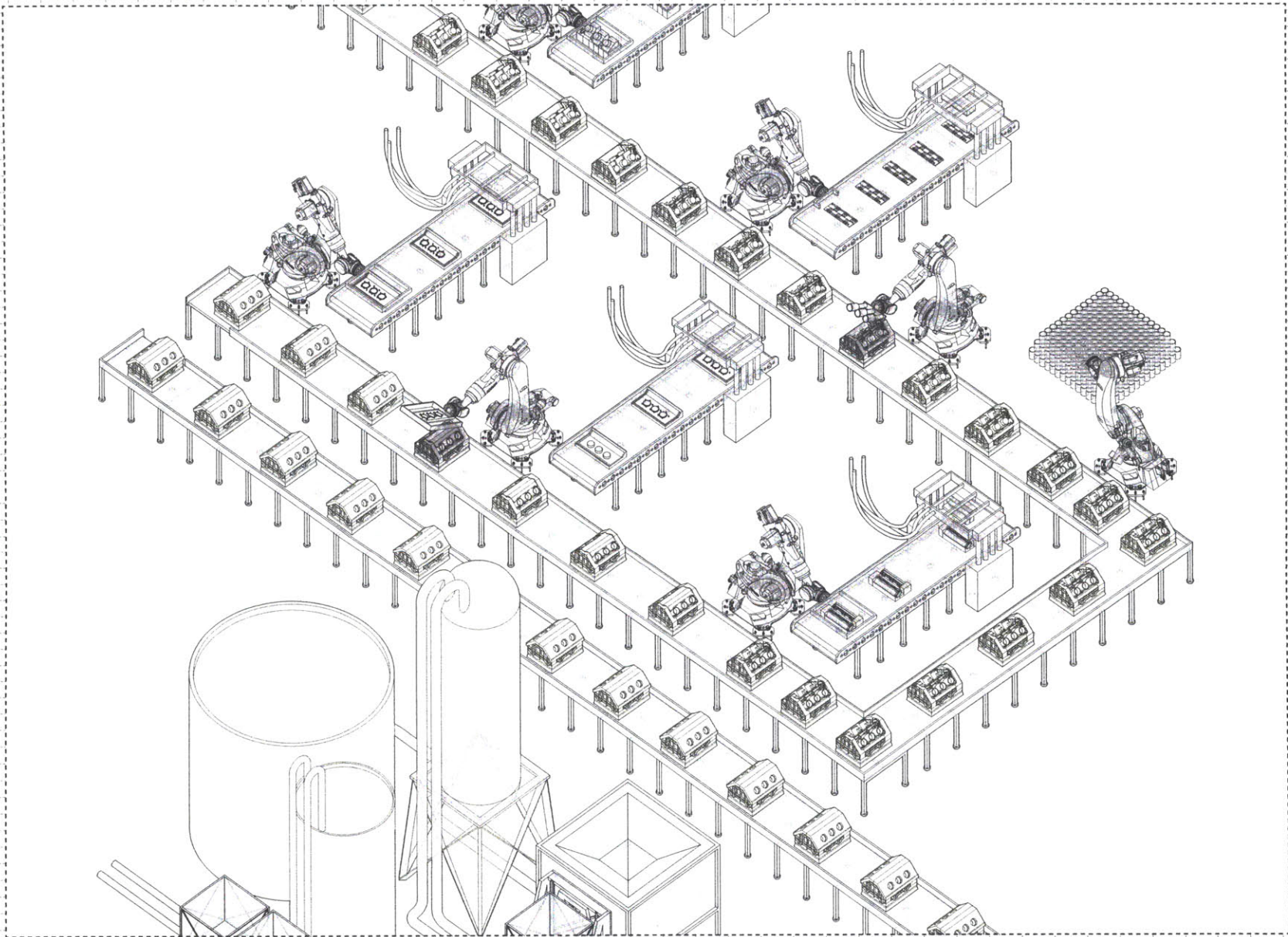


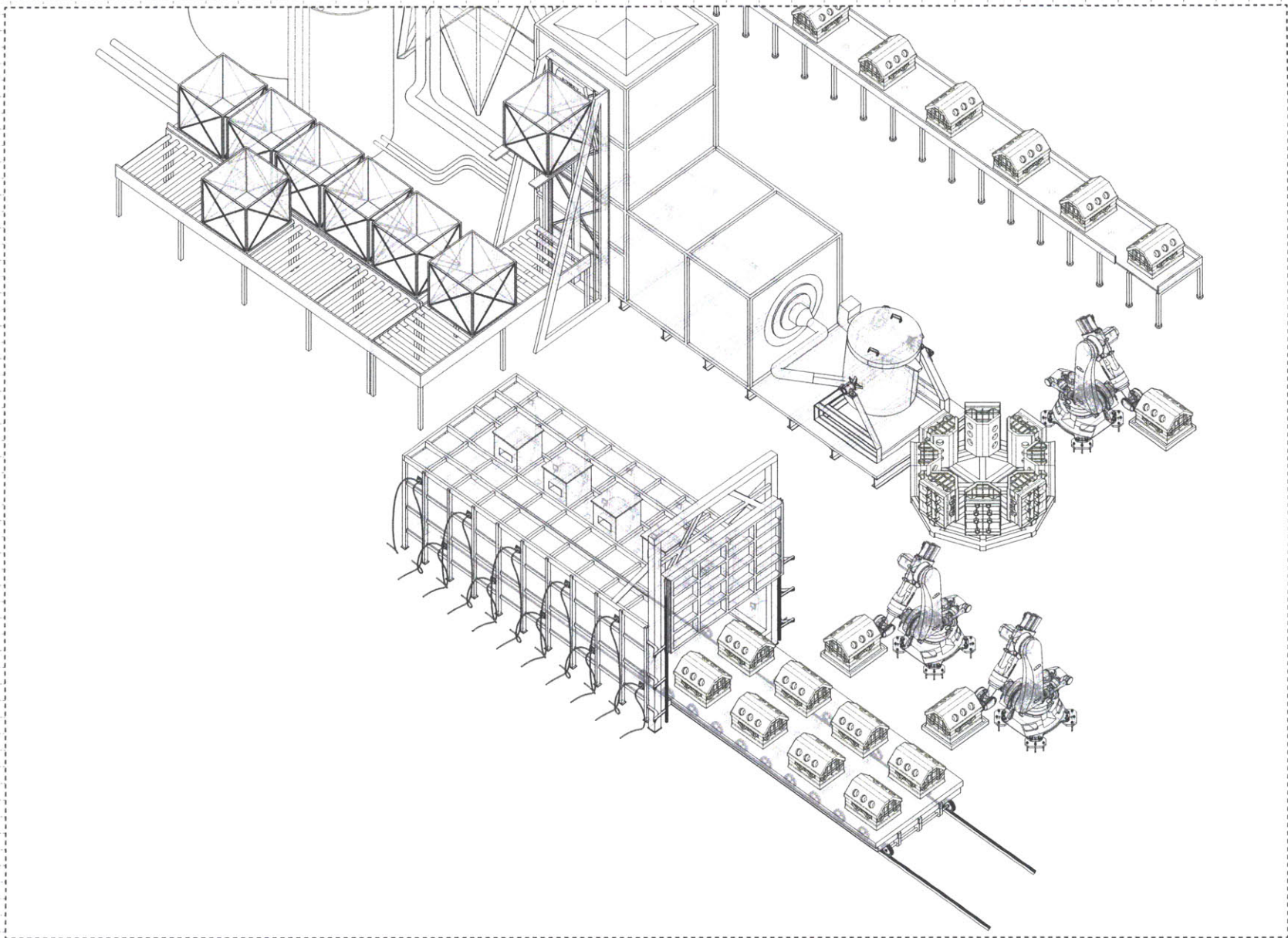


THE ENGINE BLOCK: TRADITIONAL MANUFACTURING

M.ARCH THESIS. ALEXANDER W. MARSHALL

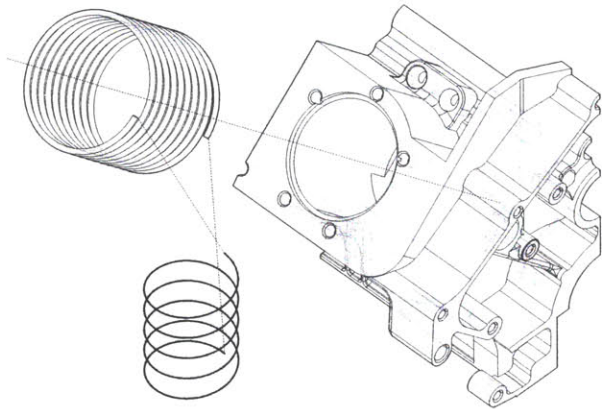






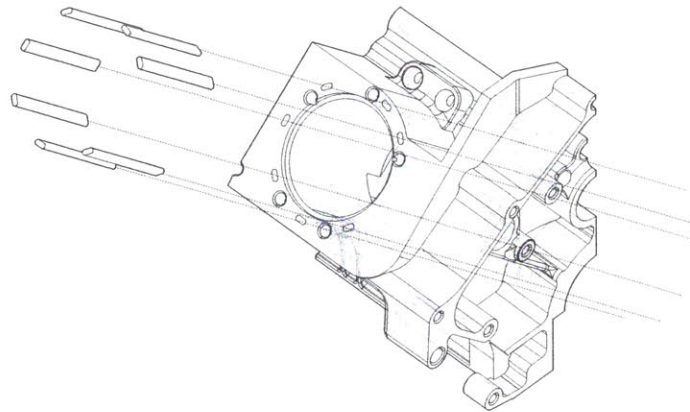
THE ENGINE BLOCK: ADDITIVE MANUFACTURING (DMLS)

M.ARCH THESIS. ALEXANDER W. MARSHALL



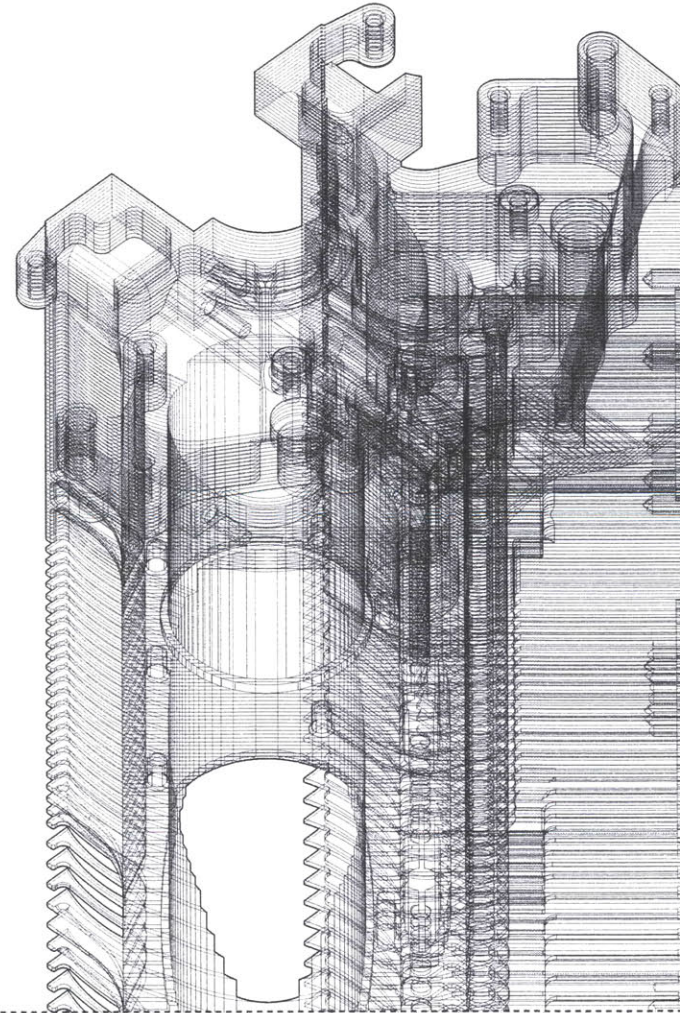
ADDITIVE MANUFACTURING POTENTIAL:

THE CONFORMAL COOLING CHANNELS ARE BUILT THROUGH A LAYERING PROCESS, RESULTING IN AN ENGINE WHICH WILL RUN COOLER, GIVING IT GREAT FUEL EFFICIENCY AND A LONGER LIFE SPAN.



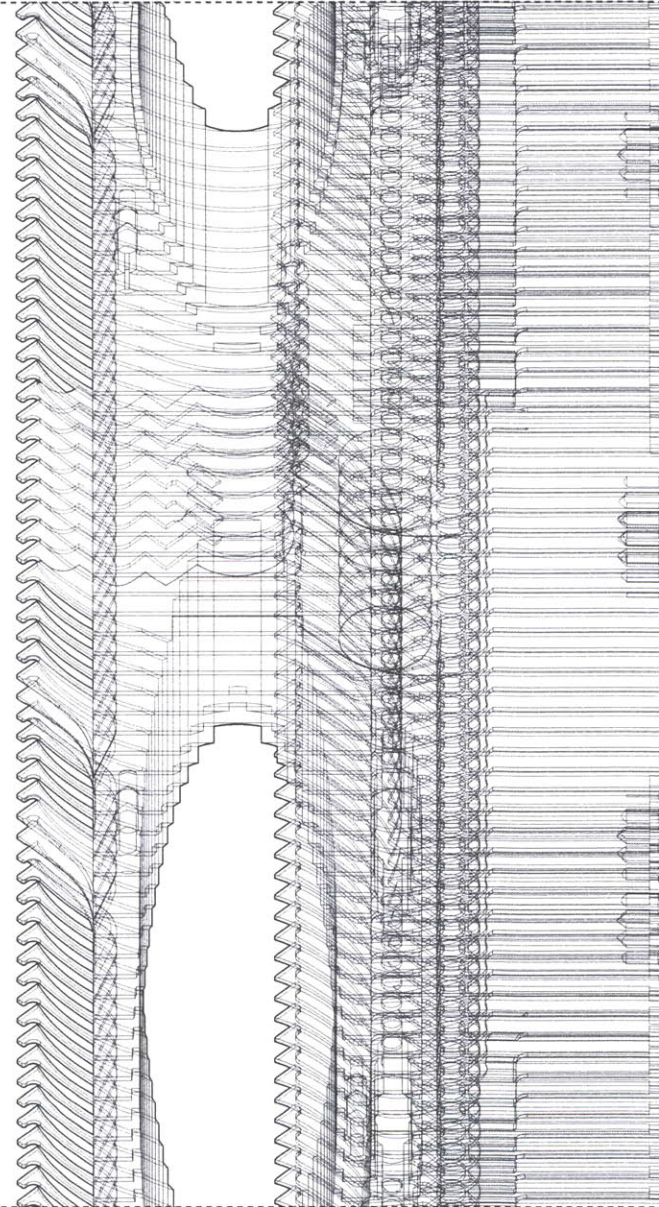
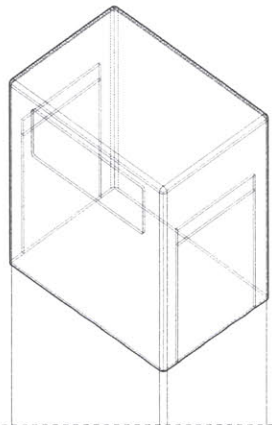
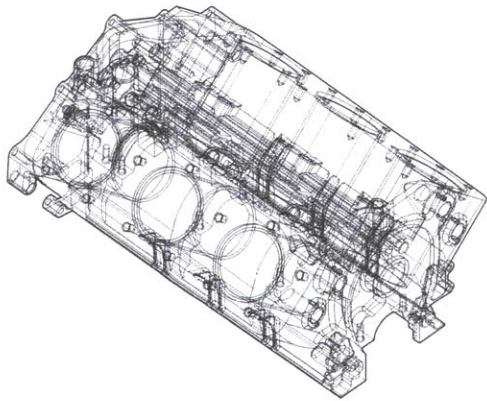
TRADITIONAL MANUFACTURING LIMIT:

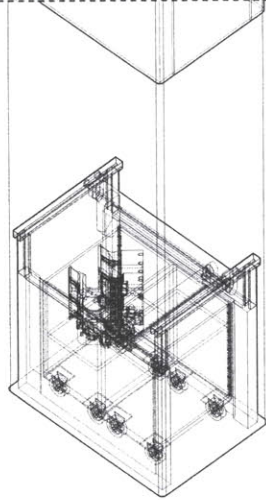
COOLING CHANNELS ARE DRILLED INTO THE ENGINE BLOCK AFTER A CONVENTIONAL CASTING IS GENERATED THROUGH SUBTRACTIVE TOOLING PROCESSES.



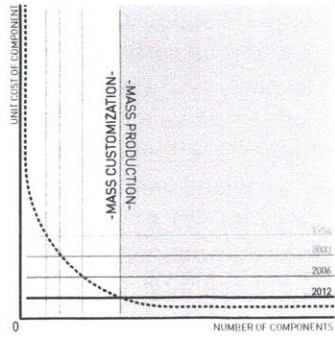
TRADITIONAL MANUFACTURING LIMIT:

COOLING CHANNELS ARE DRILLED INTO THE ENGINE BLOCK AFTER A CONVENTIONAL CASTING IS GENERATED. SUBTRACTIVE TOOLING PROCESSES LIMIT THE TECHNOLOGICAL POTENTIAL OF THE ENGINE, BY ONLY MAKING IT POSSIBLE TO CUT CHANNELS PERPENDICULAR TO THE CYLINDER HEAD. STRAIGHT CHANNELS LEAD TO UN-EVEN COOLING AND DECREASED PERFORMANCE OF THE ENGINE.

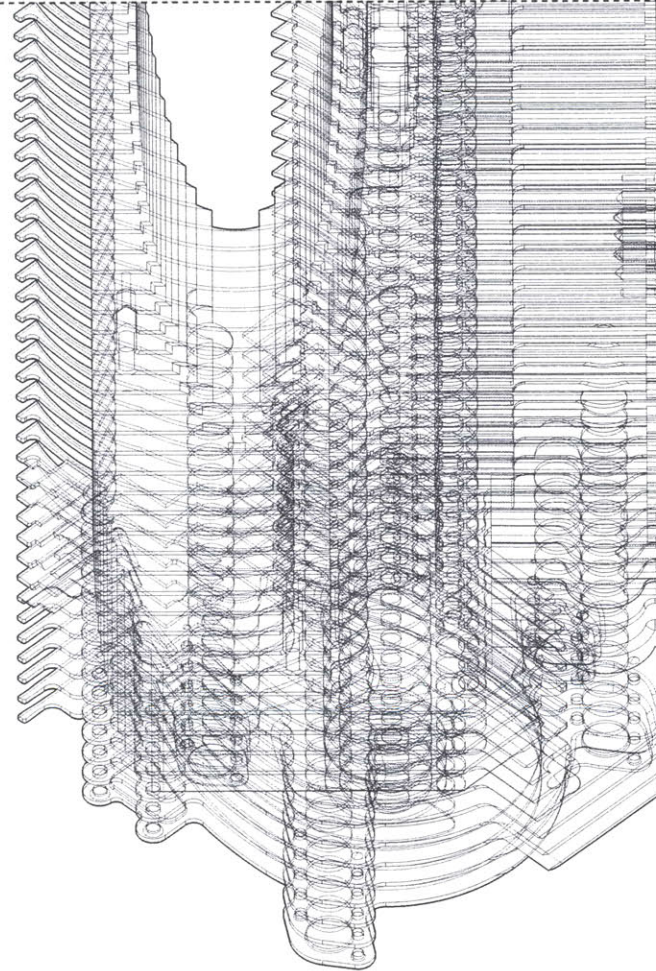




DISRUPTIVE TECHNOLOGY: A NEW MANUFACTURING METHOD WHICH DISRUPTS OR OVERTURNS TRADITIONAL MANUFACTURING METHODS, MAKING THEM OBSOLETE. NEW MANUFACTURING TECHNOLOGY CAN ALSO BE EXCEPTIONALLY DISRUPTIVE WHEN IT OFFERS A METHOD TO FABRICATE COMMODITIES ONCE THOUGHT IMPOSSIBLE TO PRODUCE, DUE TO THEIR GEOMETRIC COMPLEXITY. ADVANCEMENTS IN THE REALM OF ADDITIVE MANUFACTURING WILL UNDOUBTABLY ALTER THE FIELD OF MANUFACTURING, AND WILL EVENTUALLY DEMOCRATIZE THE MEANS OF PRODUCTION.



- ADDITIVE MAUFACTURING
- - - INJECTION MOLDING, SAND CASTING
- · · DIE CASTING, COPE AND DRAG (ETC.)





BELL B-29 SUPER FORTRESS ASSEMBLY LINE
MARIETTA, GA, 1943 (COURTESY OF THE US AIR FORCE)

BELL BOMBER PLANT

MEGA-SCALE FACTORY FOR THE B-29 SUPER FORTRESS

A Historic Marker Found at the Site of the Bell Bomber Plant, Near Marietta, GA reads as follows:

Bell Bomber (B-29) Plant
1943 - 1946

A plan to lift rural Cobb County out of the Great Depression by building a commercial airport changed course when America entered WWII and Marietta (GA) was chosen as the location for a new aircraft assembly plant. Wartime necessity had rival companies collaborating as when Bell Aircraft Company of Buffalo, NY was awarded a contract to build the B-29 Super-fortress designed by Boeing. Standing 29 feet tall with a wingspan of 141 feet, the four engine plane had a 4,000 mile range, a ceiling above 30,000 feet and a maximum speed exceeding 350 MPH. In total 668 B-29's were produced here. Peak employment surpassed 28,000 people with both skilled and unskilled jobs commanding higher wages that were found elsewhere. At the end of the war the B-29 contract was canceled, employees were laid off and Bell sold its assets. But the plant left an enduring legacy of prosperity in terms of increased wealth and workforce capabilities. Used primarily for storage until the onset of the Korean War, the Plant was reopened in 1951 with a contract awarded to Lockheed.

(SOURCE: Cobb County Historic Marker Project - 2009)

Barbara Flack
July 15, 2009



BELL B-29 SUPER FORTRESS ASSEMBLY LINE
MARIETTA, GA, 1943 (COURTESY OF THE US AIR FORCE)



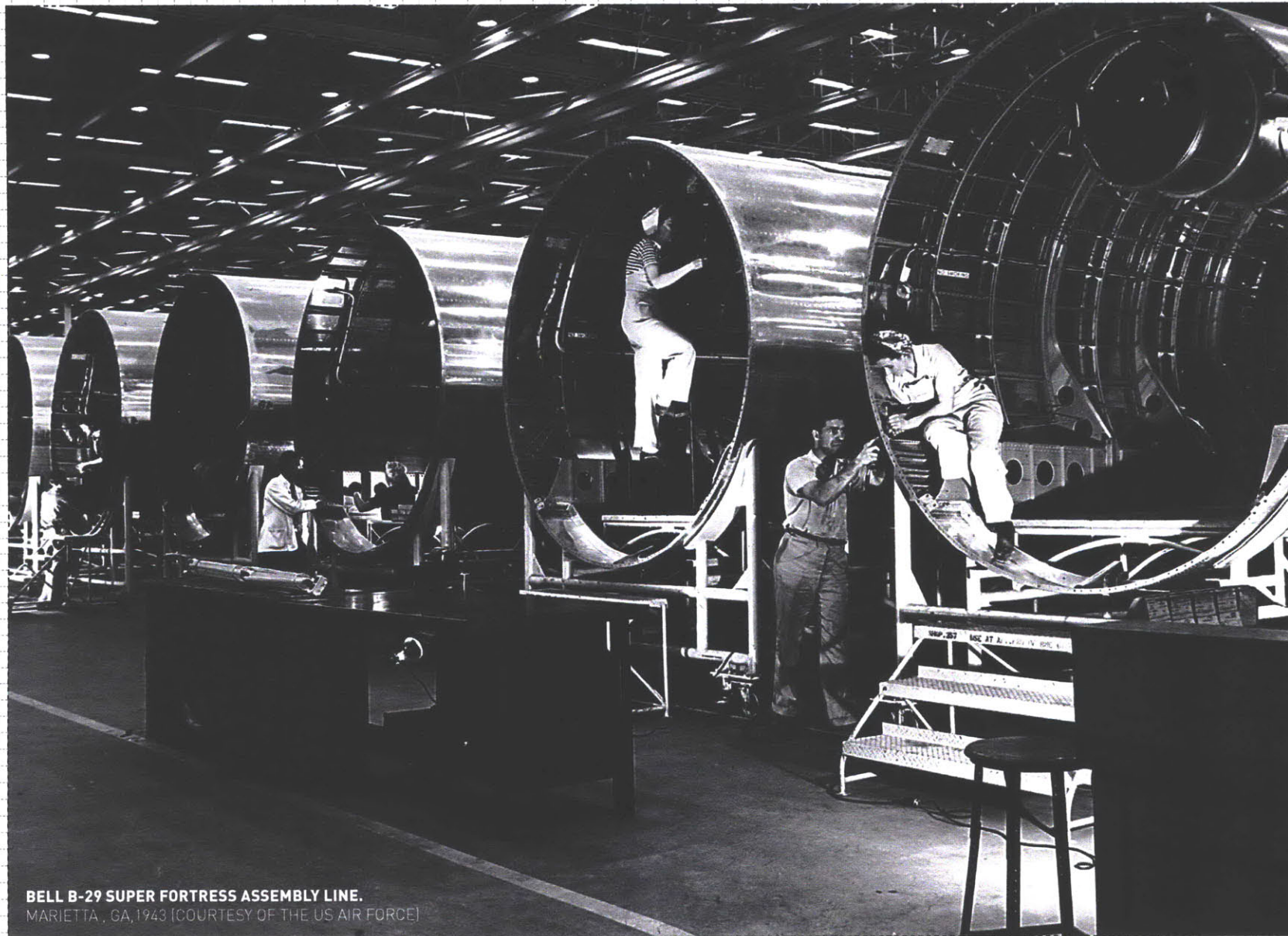
BELL B-29 SUPER FORTRESS ASSEMBLY LINE
MARIETTA, GA, 1943 [COURTESY OF THE US AIR FORCE]



BELL B-29 SUPER FORTRESS ASSEMBLY LINE
MARIETTA, GA, 1942 (COURTESY OF THE US AIR FORCE)



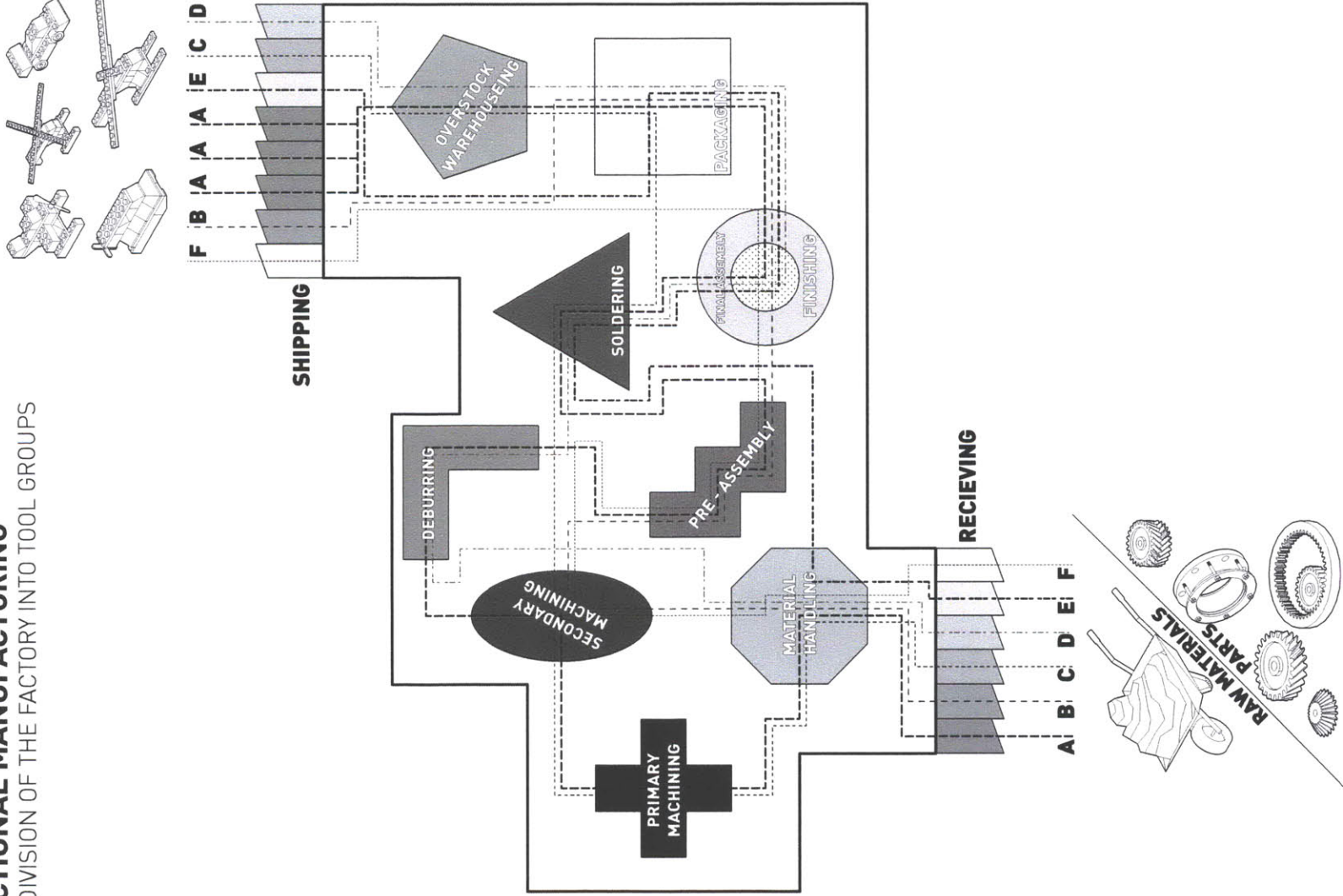
BELL B-29 SUPER FORTRESS ASSEMBLY LINE.
MARIETTA, GA, 1943 (COURTESY OF THE US AIR FORCE)



BELL B-29 SUPER FORTRESS ASSEMBLY LINE.
MARIETTA, GA, 1943 [COURTESY OF THE US AIR FORCE]

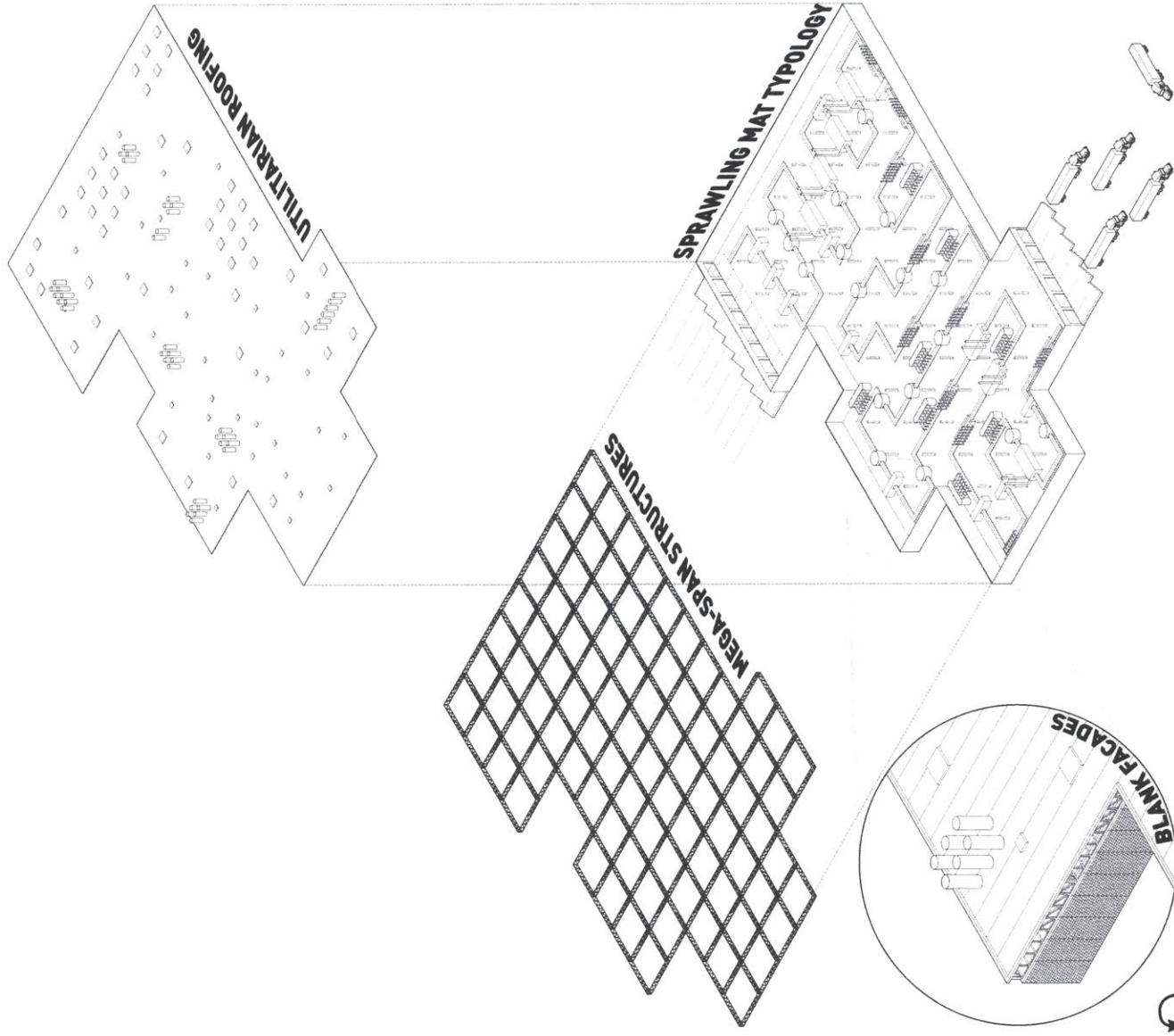
FUNCTIONAL MANUFACTURING

SUB-DIVISION OF THE FACTORY INTO TOOL GROUPS



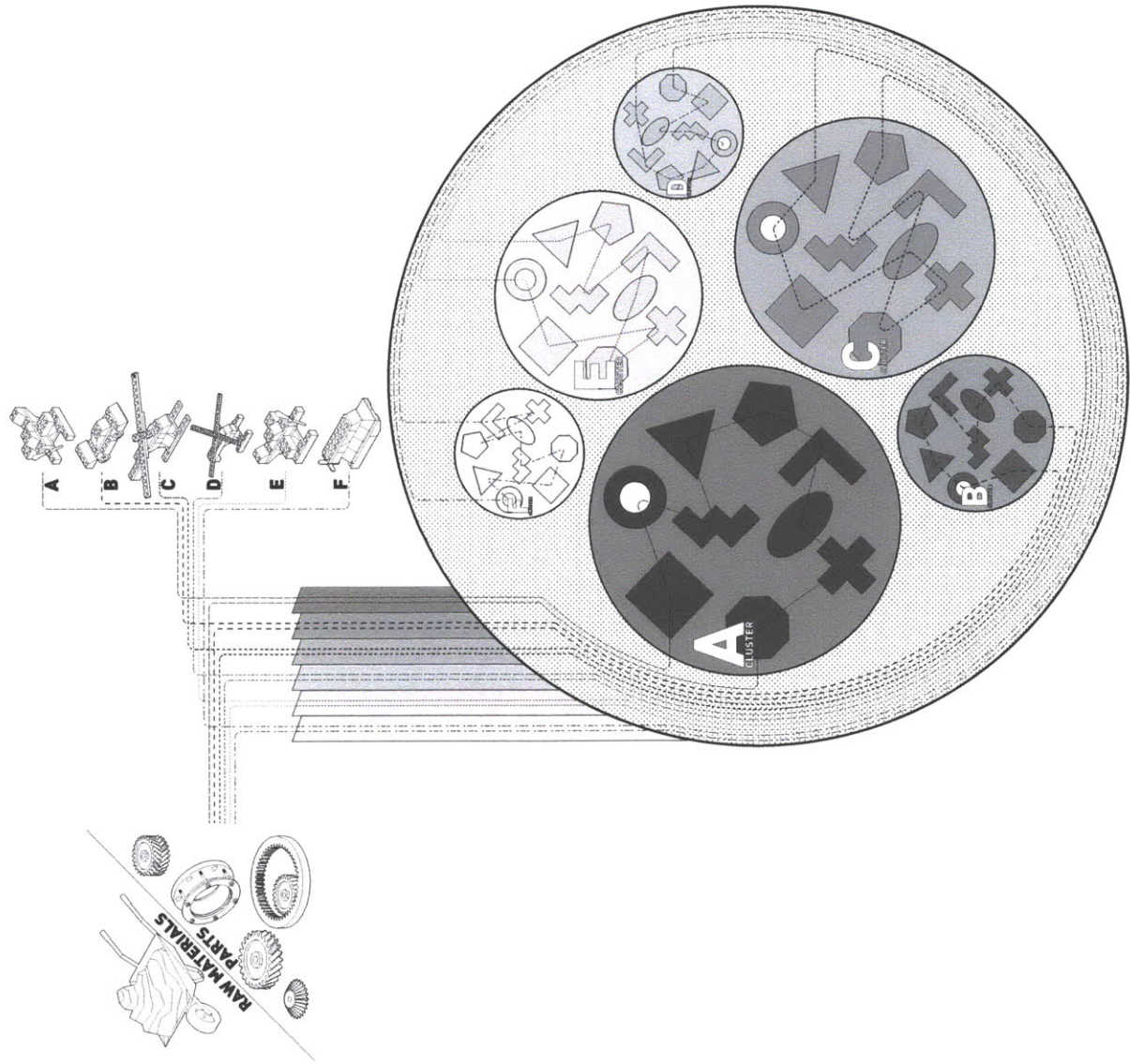
THE MAT FACTORY TYPOLOGY

FUNCTIONAL MANUFACTURING CREATES MEGA-BUILDINGS



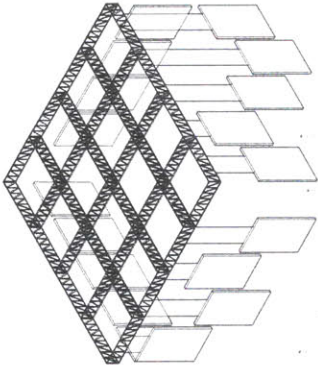
ROTATE SPREAD

CLUSTER MANUFACTURING
BREAKING DOWN SCALES

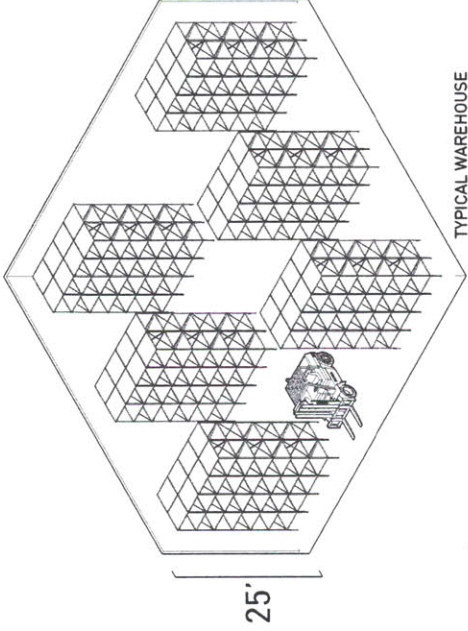


NEW PARADIGMS IN MANUFACTURING
 FACTORY CLUSTERS AND AUTONOMOUS WAREHOUSING

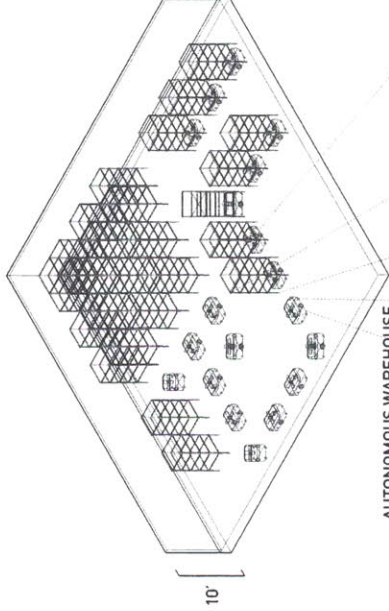
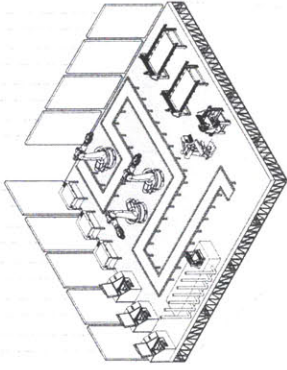
10 MICRO-FACTORIES, 1 BUILDING...OR?



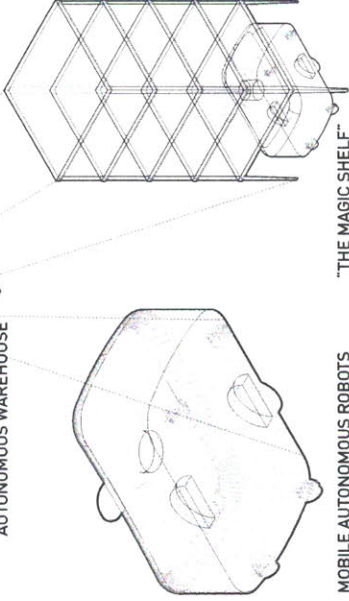
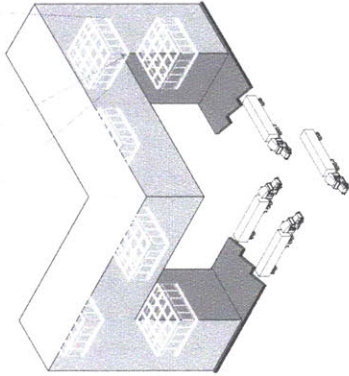
ADAPTIVE WAREHOUSING SYSTEMS?



TYPICAL WAREHOUSE



AUTONOMOUS WAREHOUSE



MOBILE AUTONOMOUS ROBOTS

"THE MAGIC SHELF"

ROTATE SPREAD

THE REP-RAP TEST

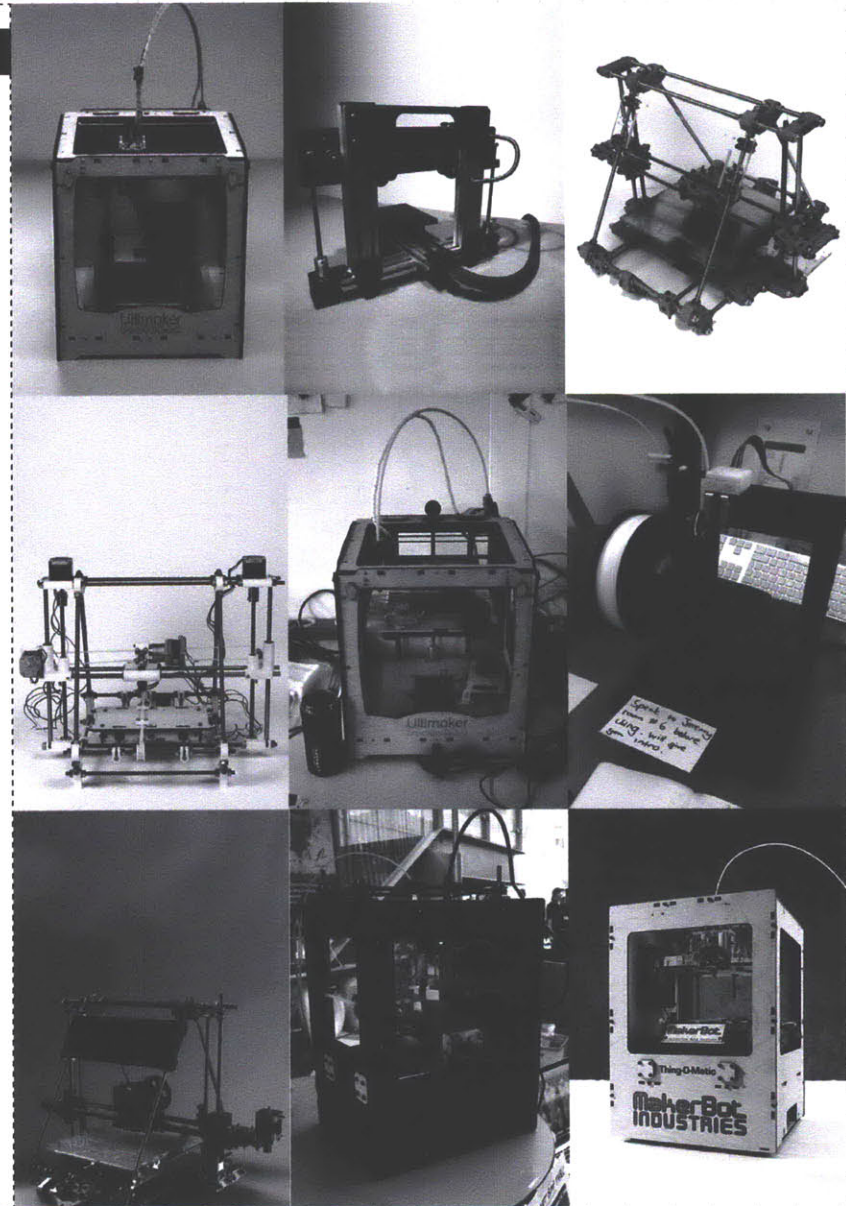
MADE IN MY LIVINGROOM, MANUFACTURING AT HOME.

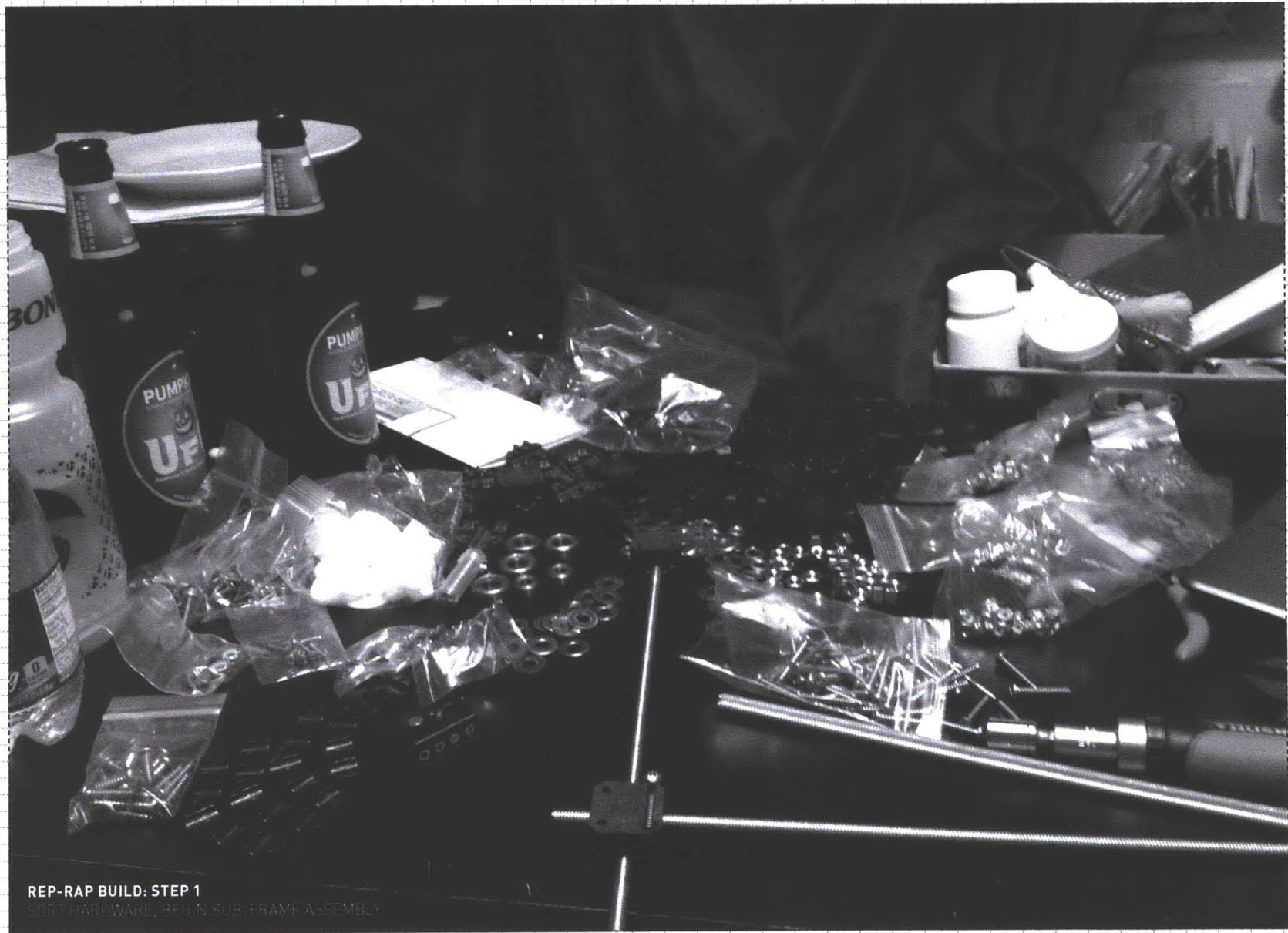
___The following images are a collection of photographs documenting the production of a 3-D printer that was purchased for \$500.00, and constructed in my living room. Throughout the course of the semester this machine building project was my Friday night break from Architecture. I started building the printer at the beginning of the Thesis semester, and by November I had successfully printed my first object, a .5" x .5" x .5" calibration cube. This was a fantastic experiment, and it was living proof that machinery which was once financially and technologically out of reach, could in fact be built on a budget in my living room.

___The project was initiated in order to test whether or not it was possible for someone with a finite knowledge of programming and machine building, could actually make a machine capable of printing durable objects. I also wanted to test the open source communities which have sprung up on the Internet, as a way to gain knowledge and information about this type of project.

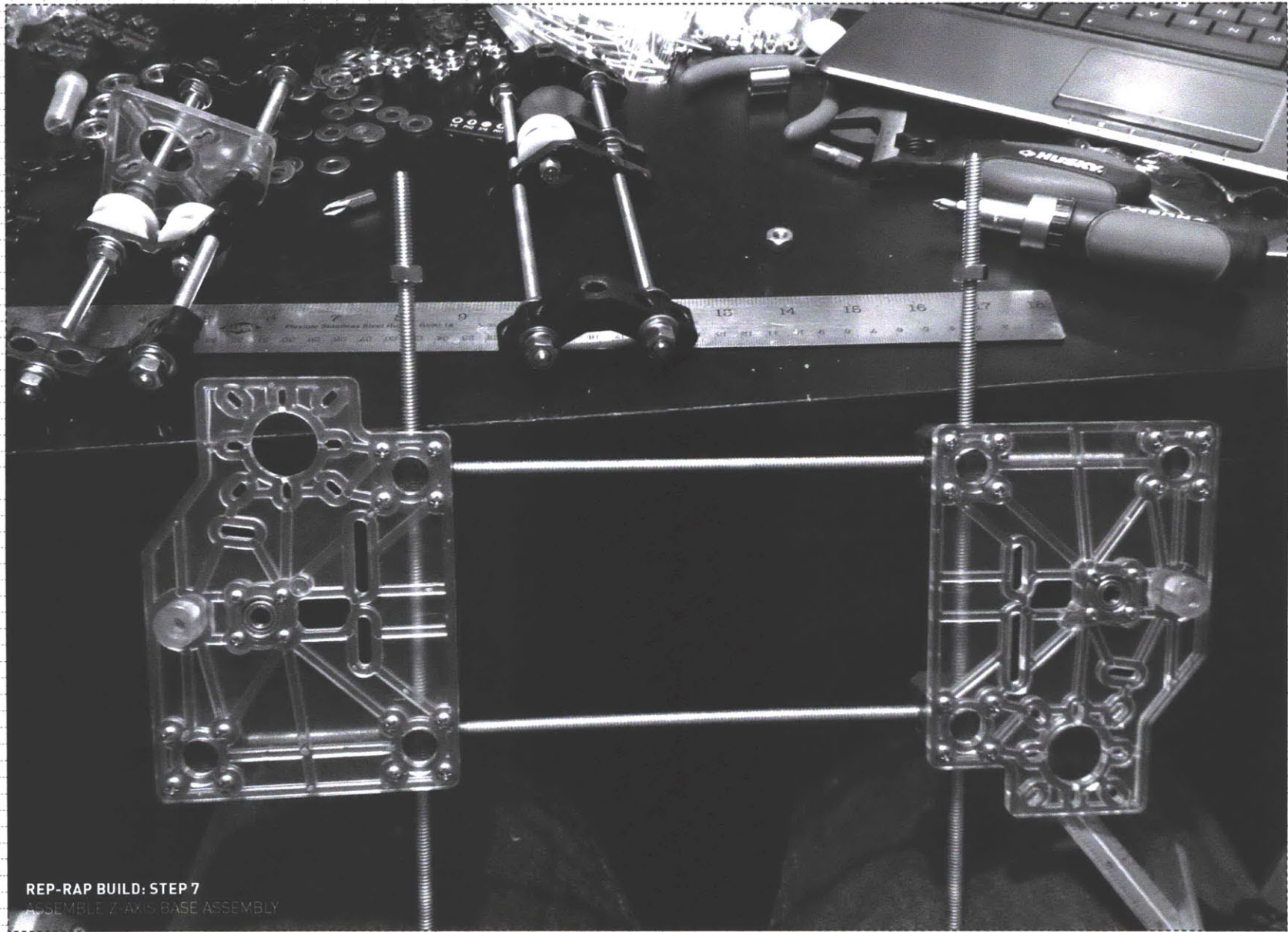
___Through the process of building this machine, I was introduced to programming in Arduino, Basic Electrical engineering principles, CNC machining code (G-Code), and a wide array of free open source software. All of this knowledge was gained through Internet message boards and Online tutorials. If you can read and have access to the Internet, you too can build a 3-D printer.

___In my estimation, 3-D printing will likely invade the domestic sphere, as these machines are small, quiet and actually quite useful. Imagine having the capacity to just print out a new lampshade or a few coasters for your coffee table, rather than running out to the local Walmart...

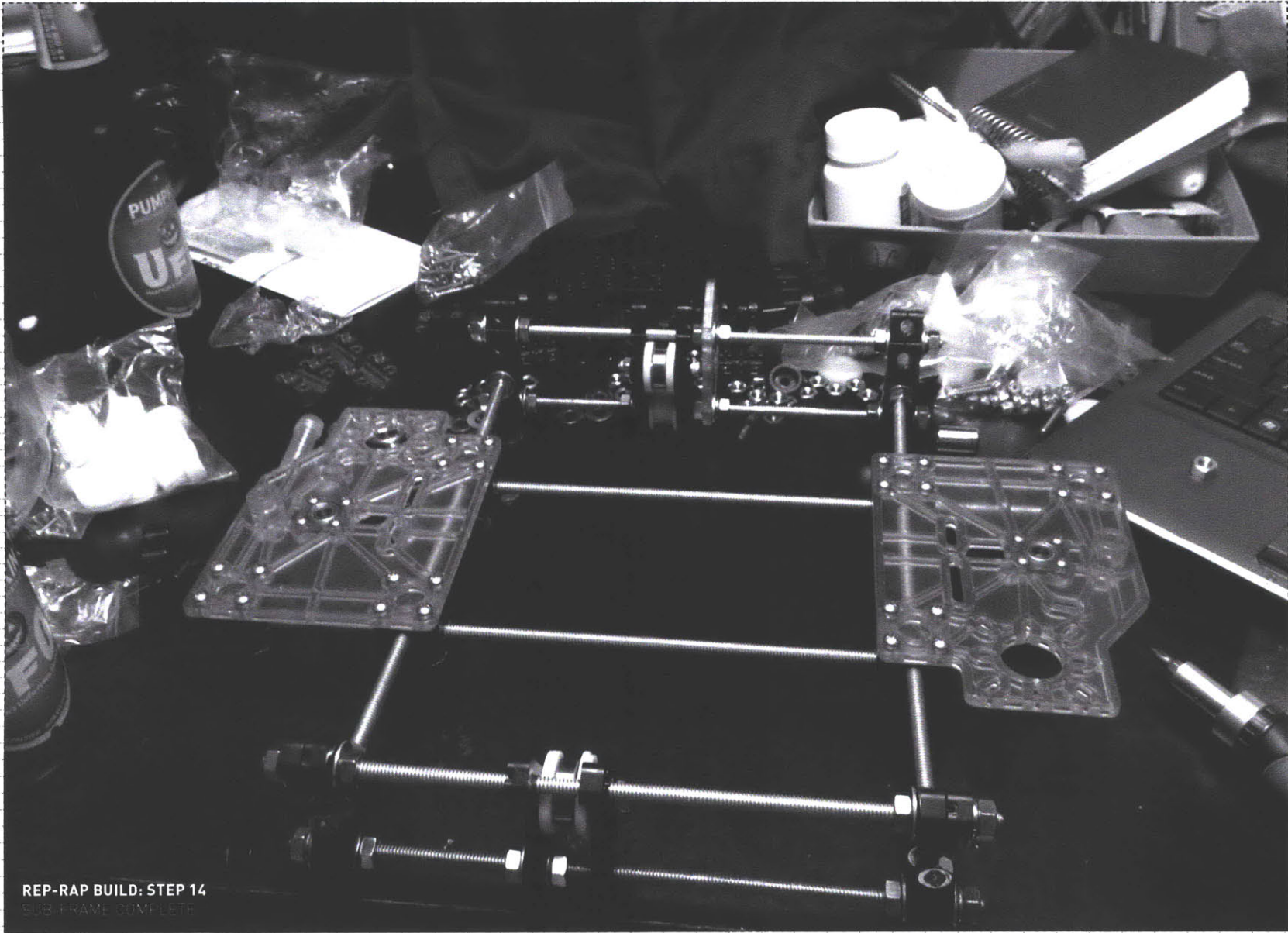




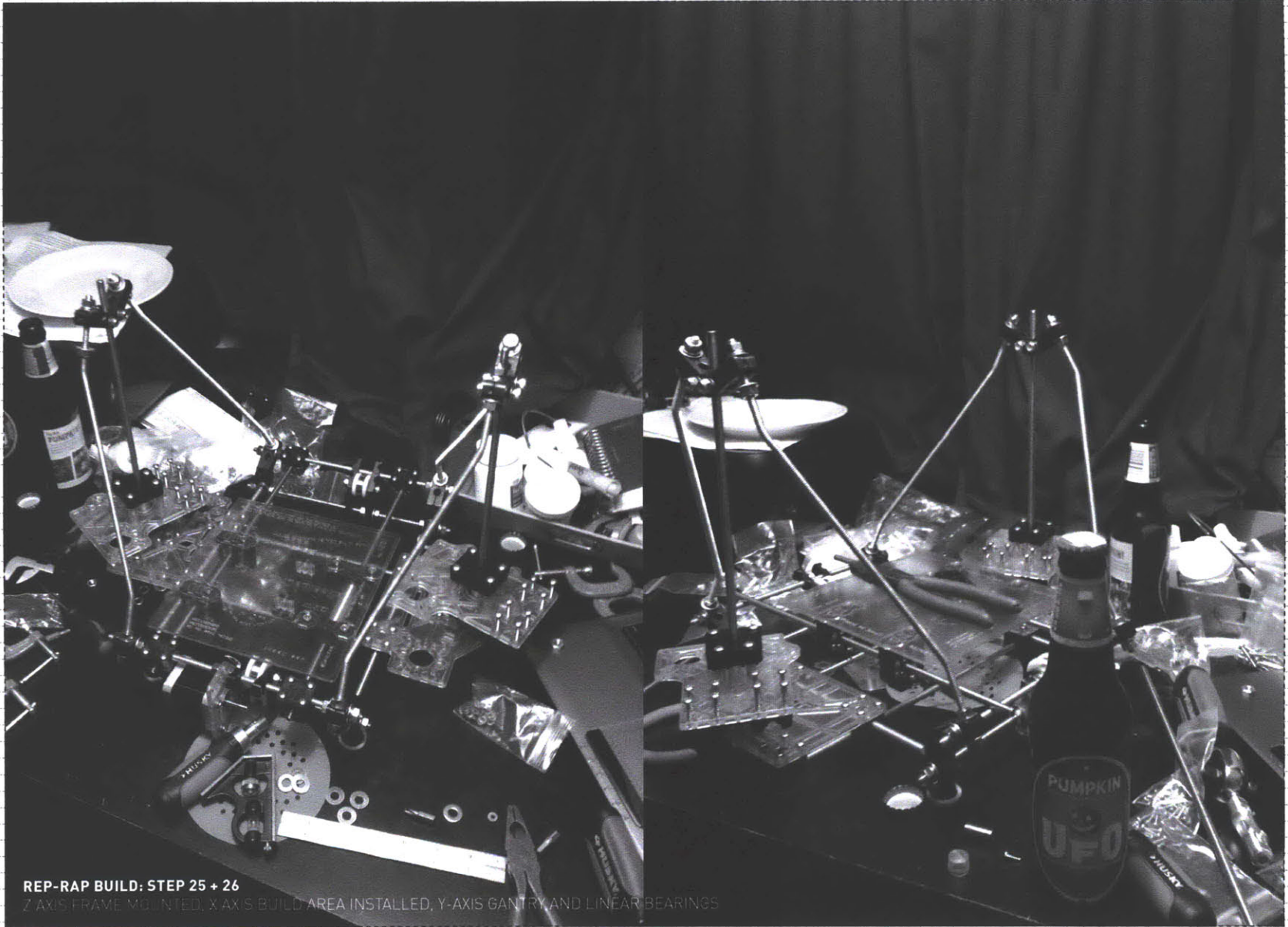
REP-RAP BUILD: STEP 1
SORT HARDWARE, BEGIN SUB-FRAME ASSEMBLY



REP-RAP BUILD: STEP 7
ASSEMBLE Z-AXIS BASE ASSEMBLY

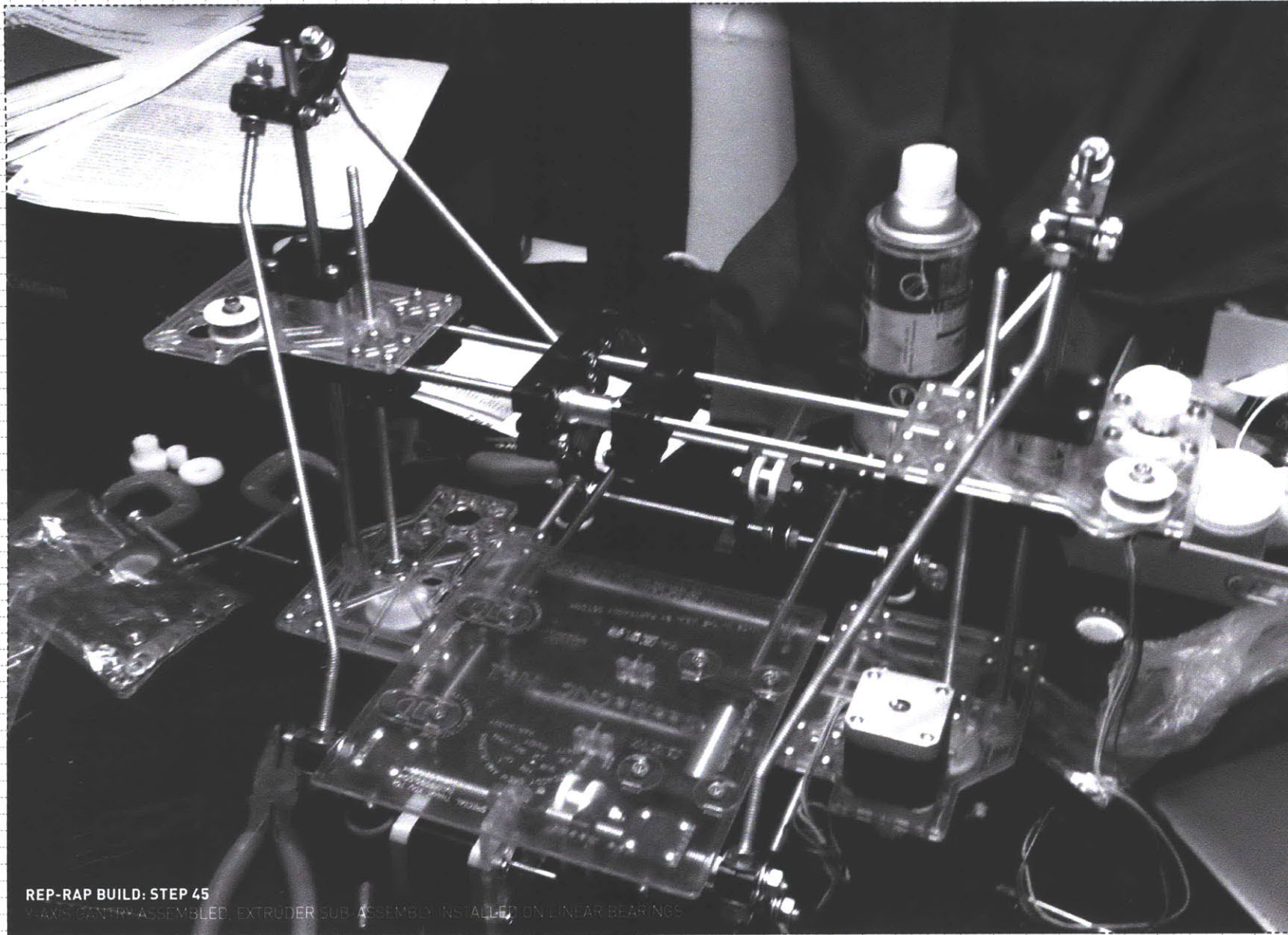


REP-RAP BUILD: STEP 14
SUB-FRAME COMPLETE



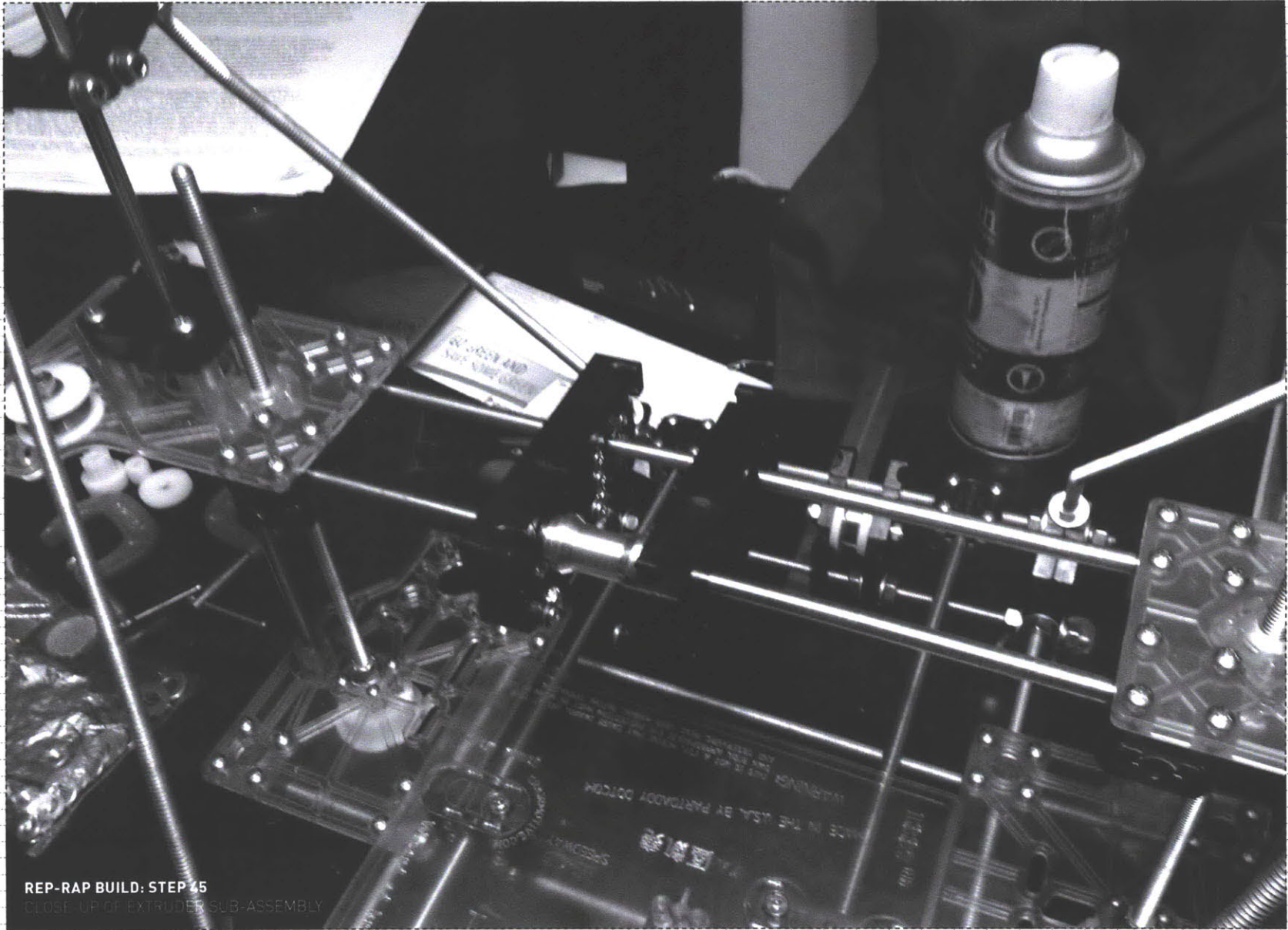
REP-RAP BUILD: STEP 25 + 26

Z AXIS FRAME MOUNTED, X AXIS BUILD AREA INSTALLED, Y-AXIS GANTRY AND LINEAR BEARINGS

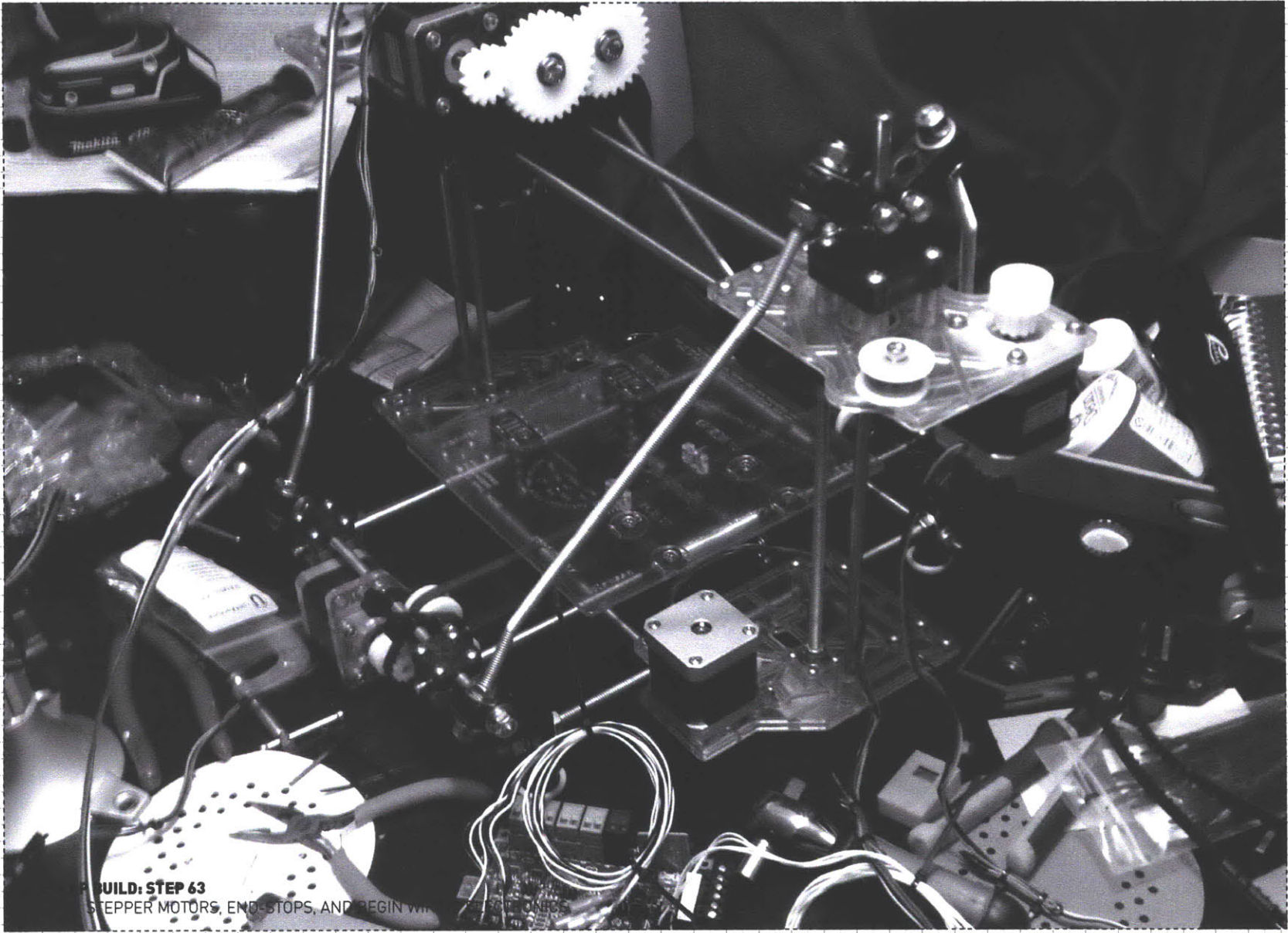


REP-RAP BUILD: STEP 45

Y-AXIS GANTRY ASSEMBLED, EXTRUDER SUB-ASSEMBLY INSTALLED ON LINEAR BEARINGS



REP-RAP BUILD: STEP 45
CLOSE UP OF EXTRUDER SUB-ASSEMBLY



BUILD: STEP 63
STEPPER MOTORS, END-STOPS, AND BEGIN WIRING THE ROBOT



REP-RAP BUILD: STEP 99
PRINT A .5" x .5" x .5" CALIBRATION CUBE

REP-RAP BUILD: STEP 101

3-D PRINT AN ASPIRIN BOTTLE

\$500.00



CHAPTER 4: NEW AMERICAN DREAMS

REVERIETOWN, A NEW VISION FOR I-94 INDUSTRIAL.

___ In an effort to re-employ thousands of laborers, the city planning commission has designated the I-94 neighborhood as an Industrial Renaissance zone. This means that all residential property in the zone must be vacated and leveled, leaving flat develop-able land, which will be marketed to heavy manufacturing companies.

___ Since 1994, The city of Detroit has been attempting to relocate residents of the proposed I-94 industrial zone into "livable" neighborhoods. In return for their homes and property, residents are offered "fair market value". But as more homes and small businesses are vacated, "fair market value" continually declines. Currently only half of the neighborhood has been relocated, the rest waits in limbo.

___ The 800 Detroiters who still live in the I-94 neighborhood, are now faced with a trichotomous future:

- 1. Sell their homes to the City for a few thousand dollars, vacate, and face demolition.**
- 2. Sit back, wait for their property to be condemned and eventually be forcefully relocated.**
- 3. Commit, in the words of Paulo Virno, "Engaged Withdrawal".**

I use the term "Engaged Withdrawal" here to define mass defection from the City of Detroit, in order to create a new form of community. Engaged Withdrawal" is a full-fledged model of action, capable of confronting the challenges of unemployment, vacancy and relocation through collective models of ownership and communal manufacturing production.

___ Through "Engaged Withdrawal", there is a possibility for a new American Dream to flourish at I-94 Industrial. Residents must look to a new model of ownership or rather "public investment" one which puts them in control of manufacturing production, by democratizing the factory.

___ Up to 17 materials used in 3-d printing processes can be found in Detroit's municipal waste stream. Through a process of grinding and mechanical separation, these elements can be refined into usable raw material. This material will fuel a new industrial revolution.

___ Given the promise of affordable technology and virtually free raw materials, the residents of I-94 will require three distinct architectural interventions. One. The De-Factory, Two, the Silo Pavilion, three, a collection of Printer's Cottages.

___ Detroit possesses an untapped resource. It currently lacks a municipal recycling program. The De-Factory will refine municipal waste into usable granulated materials for distribution to local Silo Pavilions for storage and wealth retention purposes.

___ The Silo Pavilion is an open, public space intended to serve as monument to collective value. By stockpiling raw materials, the collateral, or economic stability of a neighborhood is defined by this structure. The Silo pavilion stores granulated materials within its columns, while simultaneously providing covered space for community events.

___ The Printers Cottage typology refills vacant lots in the neighborhood, while simultaneously re-valuing the homes around it. At first glance, this cousin of the modern kit home blends in to its surroundings. A second reading reveals the absence of certain domestic motifs such as shutters, shingles, and ship-lap siding. Inside its walls one might find a wealth of production space, calibrated for additive manufacturing.

___ These three typologies are envisioned as a new manufacturing system, or urbanism, in which residents of a neighborhood collectively possess the Means of Production, and it is used to generate a new type of economic and cultural stability. The project is envisioned as a new version of the American Dream, one in which hard work and persistence will actually result in a sustained livelihood for residents.

___ This new manufacturing urbanism is not intended to be a profitable venture, but rather one which has the capacity to re-write the future of the urban fallout which has plagued Detroit for the last half of the twentieth century. In many ways it is a proposition for a return to an agrarian model of community, one in which neighbors rely on one another and their specific trades as means to sustain livelihoods. One can only imagine the new forms of daily interaction in a community which is simultaneously a place of domesticity and production. In order for a community of this nature to succeed it must divorce itself from the traditional models of Capitalism which have left Detroit in ruin.

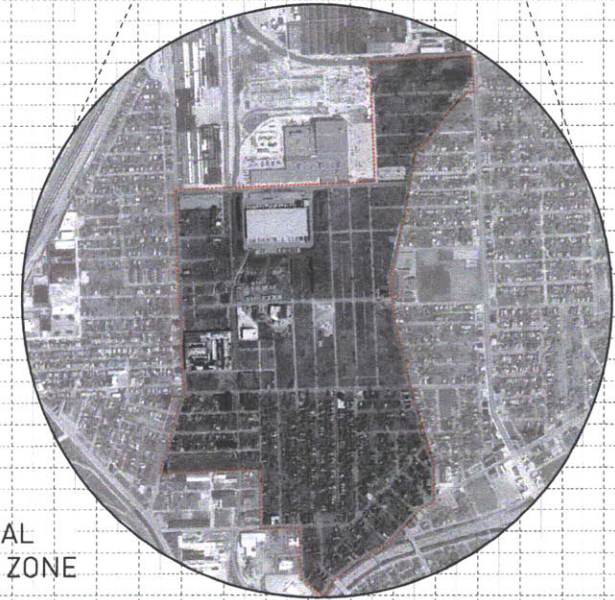
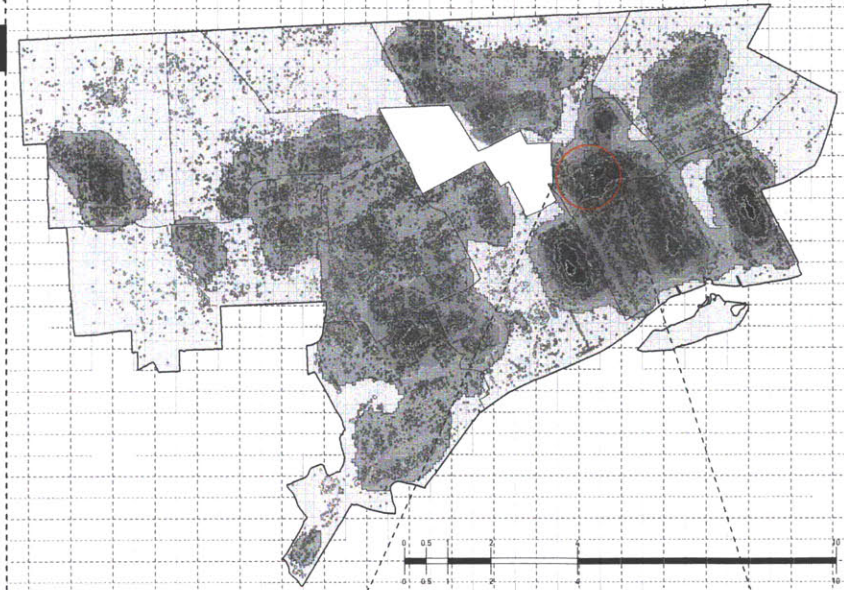
THE NEIGHBORHOOD

THE I-94 INDUSTRIAL RENAISSANCE ZONE

The I-94 industrial renaissance zone is located in northeast Detroit, along the Edsel Ford Freeway. It is considered to be part of the Kettering Neighborhood, one of the most economically and socially depressed neighborhoods in the city. As noted in the map at left, the I-94 industrial zone is located at a node point in the vacancy hot spot mapping.

In July 1999, the City of Detroit established the I-94 industrial park project, an industrial redevelopment project located in the area bounded by Mt. Elliot, Huber, Grinnell, St. Cyril and Miller streets. The plan called for the acquisition of privately owned property to be combined with the city's ownership within the 189-acre site to provide land for a modern industrial park. The project is managed by the Detroit Economic Growth Corporation and the City of Detroit. Currently the project site is occupied by two anchor tenants -- TDS US and Excel, and both are major suppliers to Daimler-Chrysler. Currently there are no other interested parties, and the land has remained entirely vacant since the initiation of the project. The neighborhoods on the bounding edge of the industrial park are over 50 percent vacant, a number which will continue to rise, unless a new plan for the neighborhood is developed. The areas surrounding the I-94 site are considered a State of Michigan renaissance zone, meaning they are tax free lands for further commercial and industrial development. (Information courtesy of the City of Detroit)

The aerial photograph at right shows the existing condition of the site. While heavily blighted and largely vacant, there are a few clusters of existing homes, housing roughly 800 inhabitants. The houses which still remain are well kept but maintain absurdly low real estate values, some are valued at just \$5000.00 (Zillow). This low real estate assessment is causing the condition of existing homes to diminish, as repairs and renovations out value the homes. Residents seeking improvements are often deterred because improving these properties will have no effect on the actual value of the home. The only way to combat this problem is to develop strategies to refill vacant lots



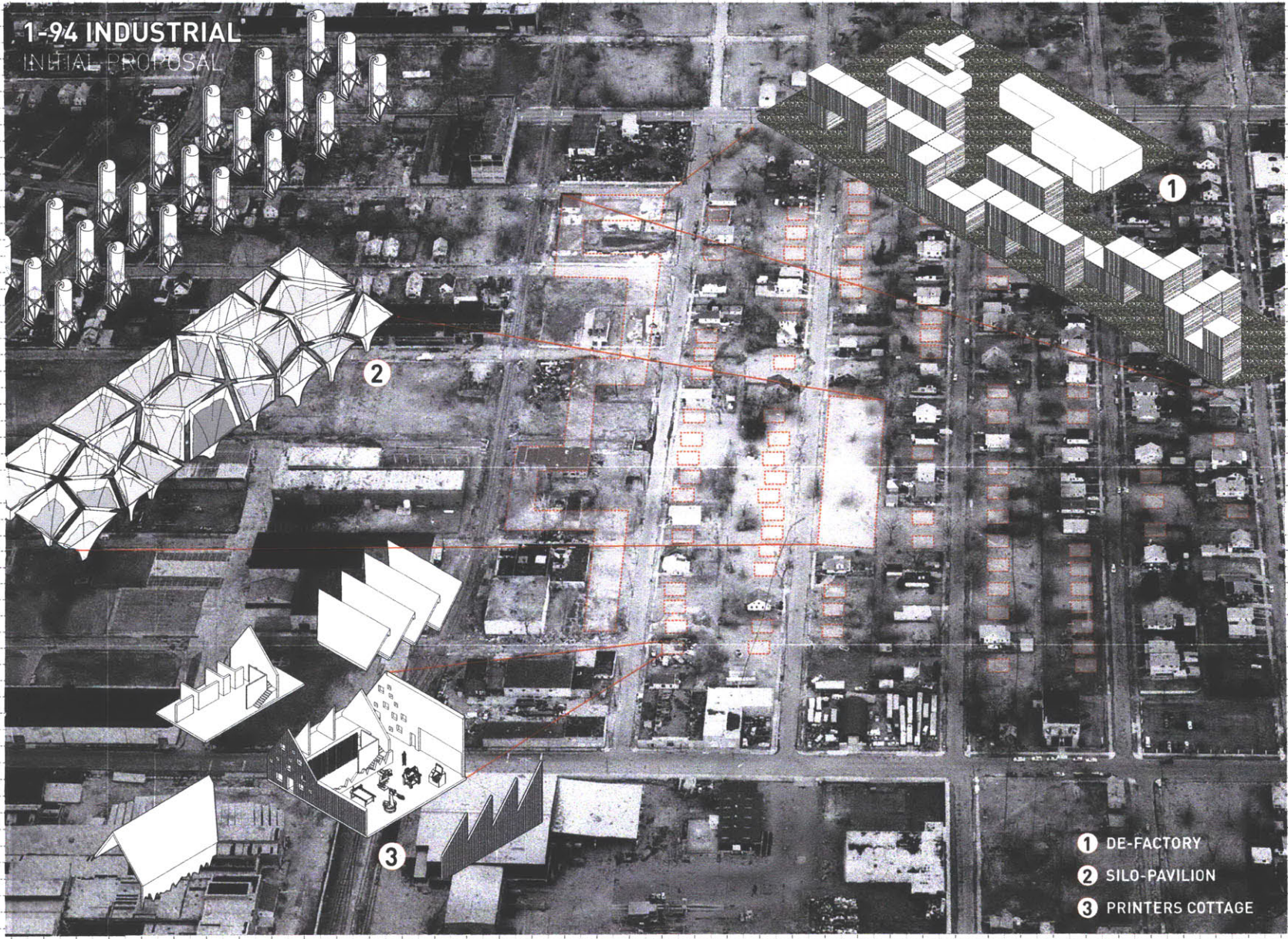
I-94 INDUSTRIAL RENAISSANCE ZONE



1-94 INDUSTRIAL
A VIEW FROM ABOVE
EXISTING CONDITION



1-94 INDUSTRIAL
A VIEW FROM ABOVE
EXISTING CONDITION



1-94 INDUSTRIAL
INITIAL PROPOSAL

- 1** DE-FACTORY
- 2** SILO-PAVILION
- 3** PRINTERS COTTAGE

THE NEIGHBORHOOD AXO

AN OVERVIEW OF A DOMESTIC-INDUSTRIAL URBANISM

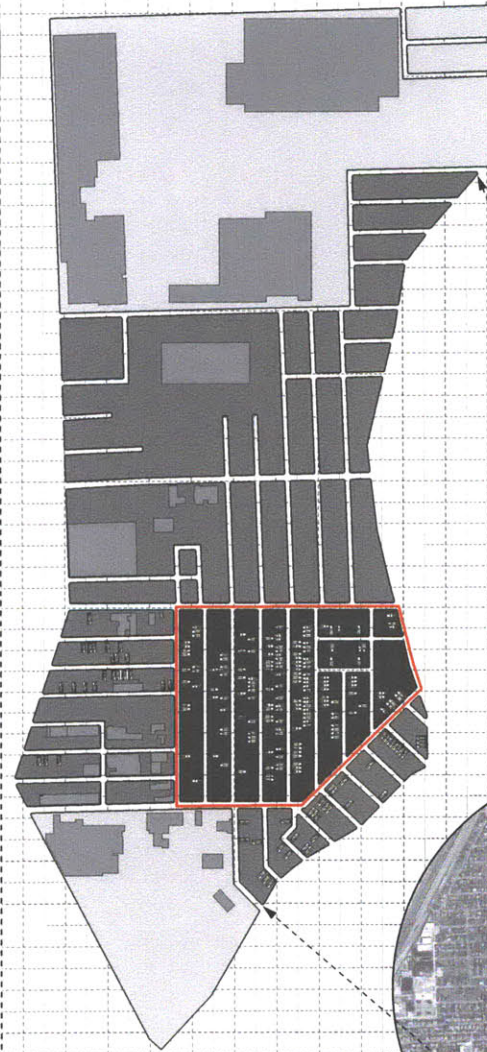
___The Axonometric Drawing at right shows a proposal for a series of new constructions in a defined zone within the I-94 renaissance zone. This newly minted neighborhood has been renamed Reverietown, in reference to Levittown, a planned community produced between 1947 and 1951 by Levit & Sons Inc. Levittown served as a model suburban community in the early 1950's, and has become the most noteworthy image of an outdated version of the American Dream. Reverietown seeks to become a model for a 21st century manufacturing Hamlet, a new type of community which simultaneously serves as a center of domesticity and manufacturing production.

___This drawing represents the large scale urban moves which dictate the arrangement of the site. The existing houses are drawn in white, while new constructions are represented in light gray. All of the existing houses remain, and the new typologies which have been developed on the site respect the existing condition. The site edges have been re-forested, in order to create hard edges which define the boundaries of the Neighborhood.

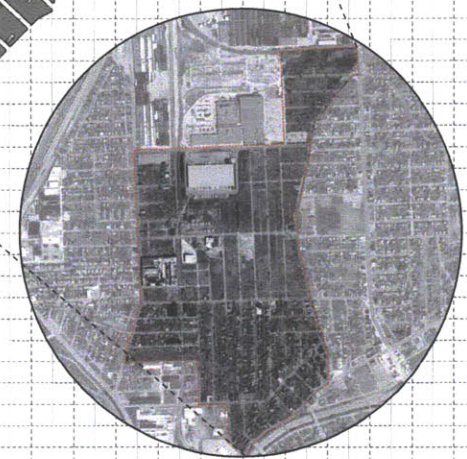
___Along the eastern edge of the site, the De-Factory is sited along St. Cyril street. St. Cyril street is the main North-South connection between Reverietown and adjacent neighborhoods. This site is currently an overgrown field.

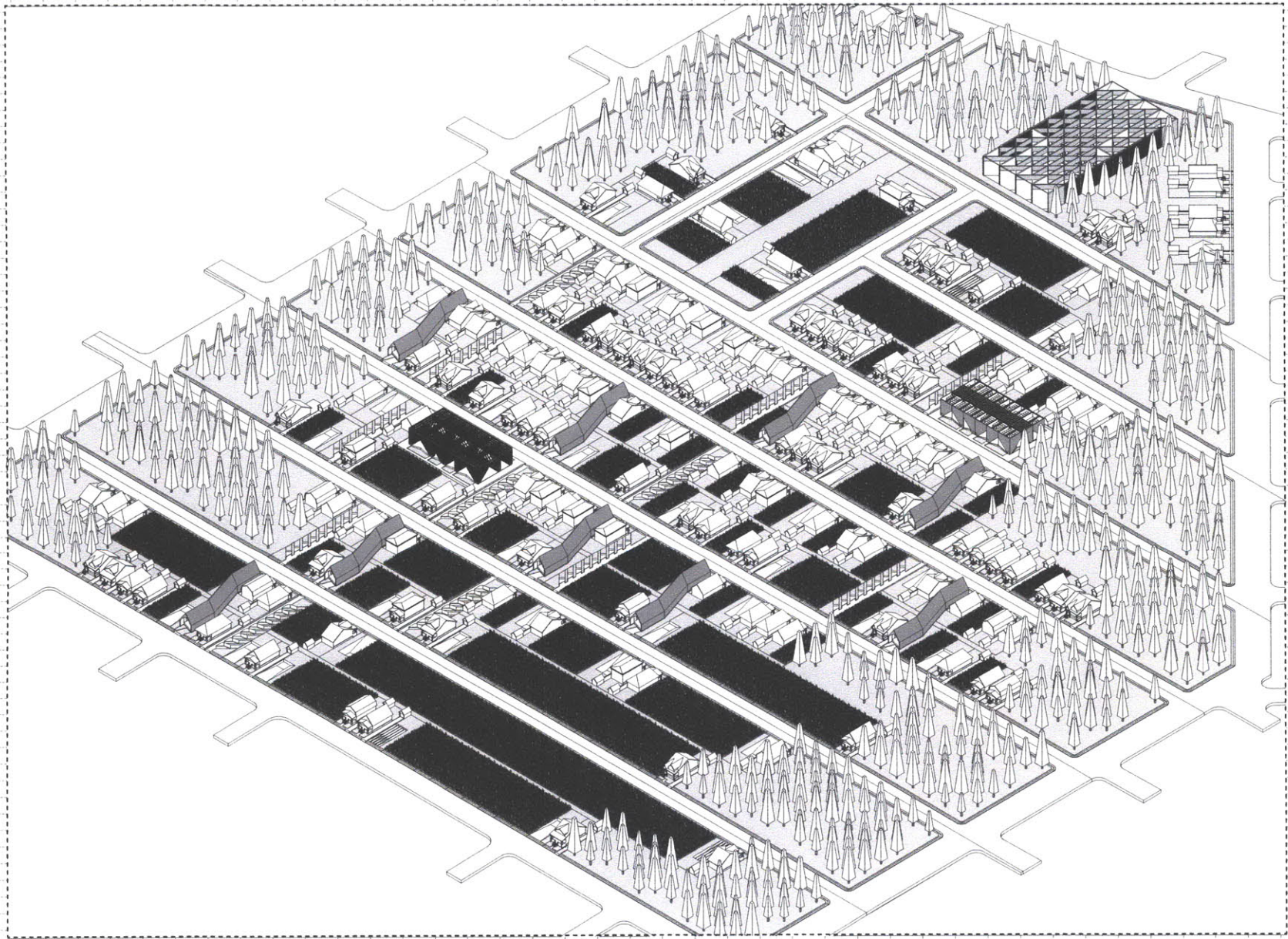
___Two Streets to the East, a Silo Pavilion is sited on a swath of vacant land, set amongst some of the existing Bungalows on Frontenac and Carrie Street.

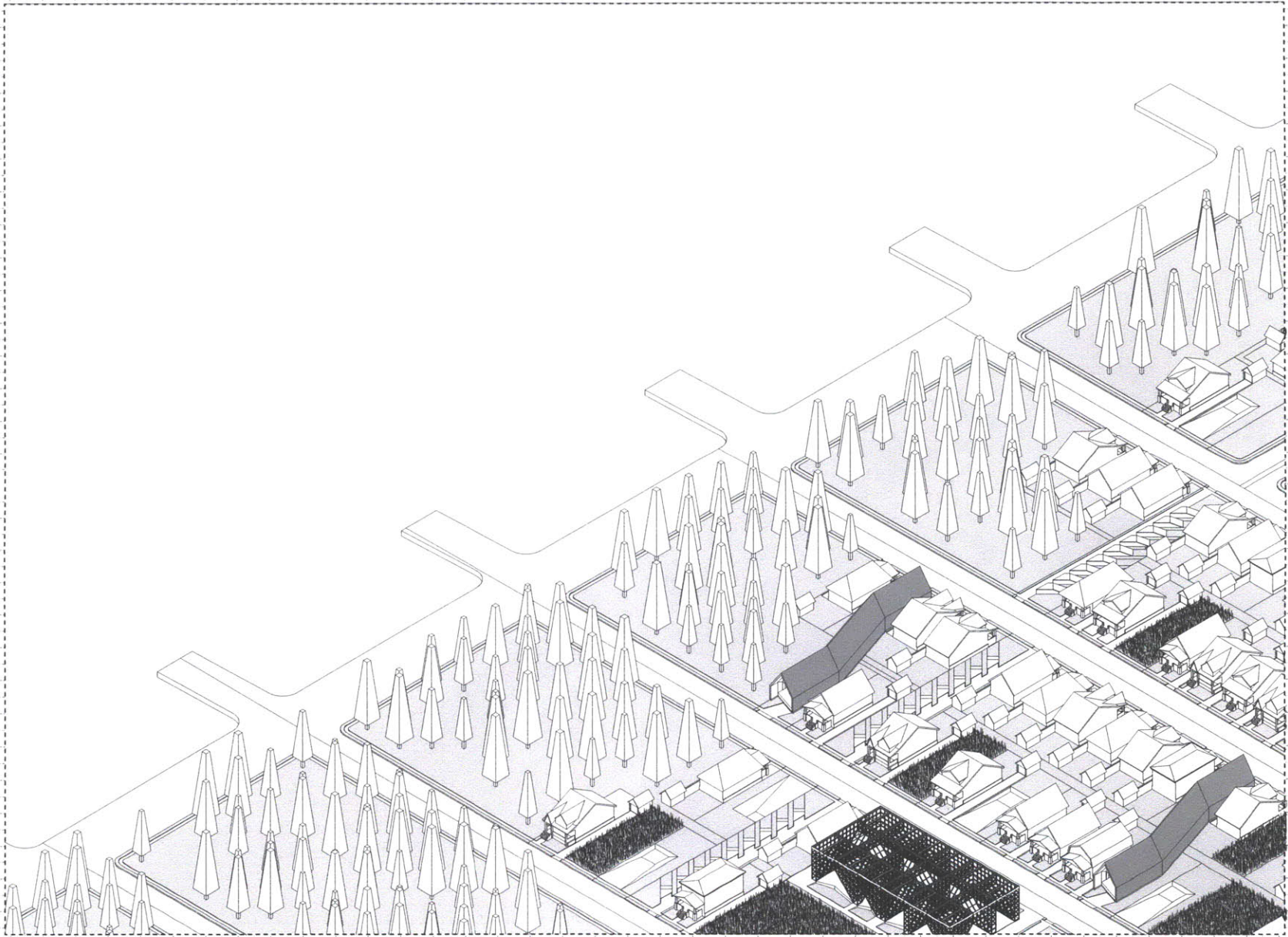
___Throughout the neighborhood a series of Printer's Cottages are proposed, always stitching between existing households. Printer's cottages are thought to be jointly owned by neighbors inhabiting the adjacent households. (Continued on Pg. 134)

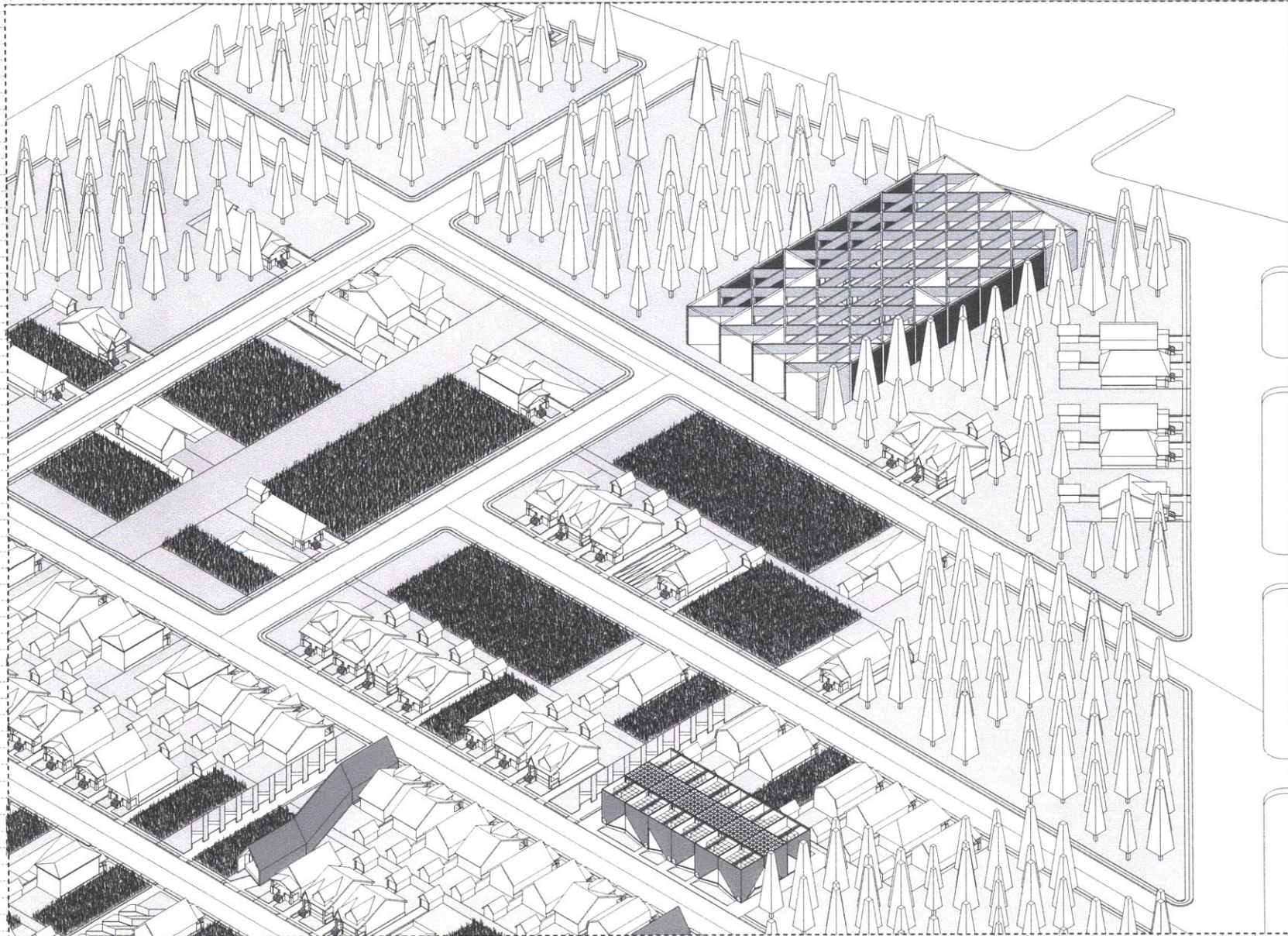


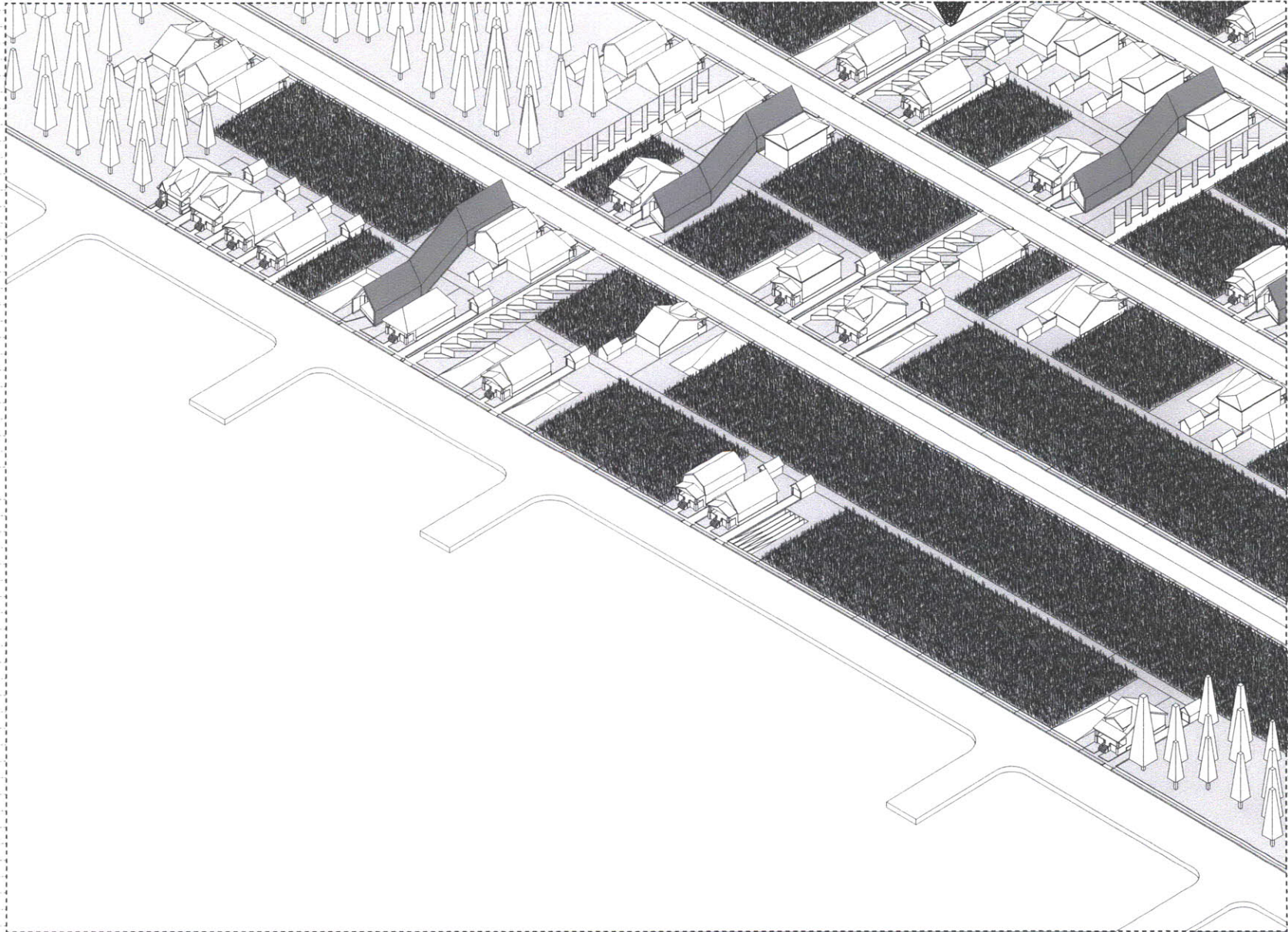
I-94 INDUSTRIAL
RENAISSANCE ZONE

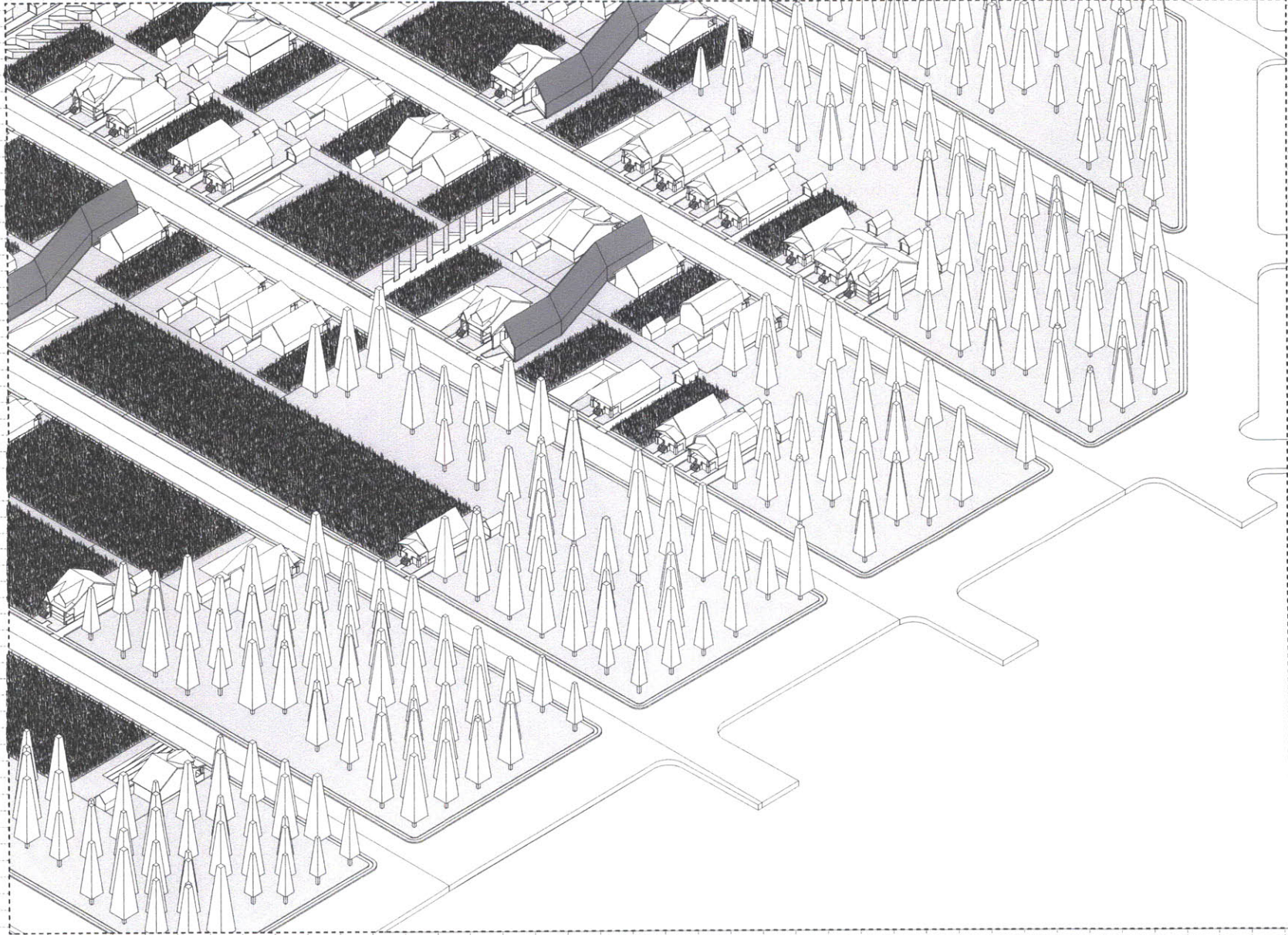












THE NEIGHBORHOOD AXO

AN OVERVIEW OF A DOMESTIC-INDUSTRIAL URBANISM

(Continued from above)

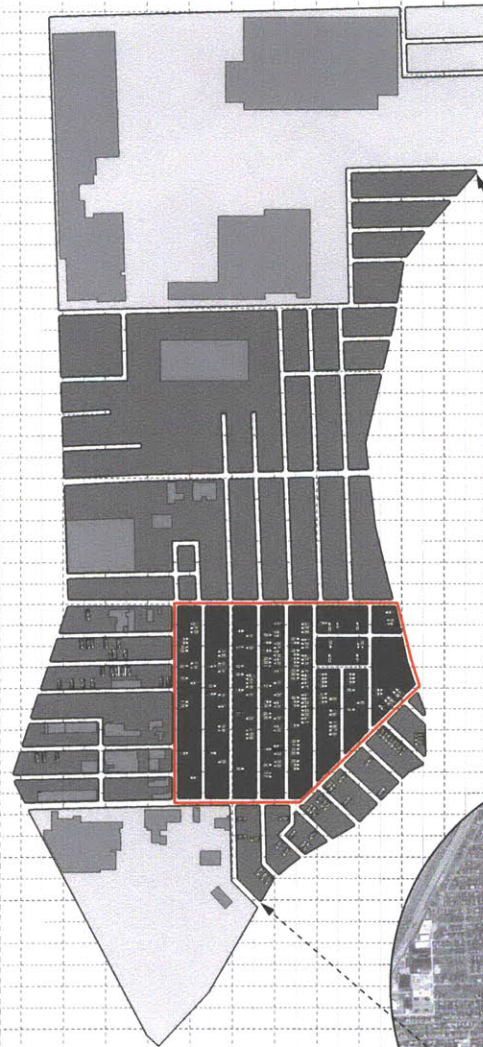
___ Vacant sites within the neighborhood have been replanted with native prairie grasses, and are intended to be used as temporary open storage sites for unprocessed municipal recyclable materials, such as scrap steel and bulk plastic. These sites remain parceled for future residential or light-industrial development. The low height of prairie type plantings allows for cross site visual connections.

___ A series of east-west connecting pathways cut through vacant sites, and serve as a means for residents to move bins of processed material to and from the De-Factory. These cross site pathways are thought to be a storage location for bins of recyclable materials which need to be returned to the De-Factory for processing.

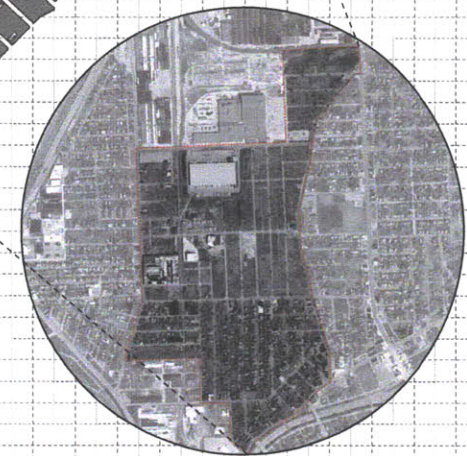
___ In order to allow for this type of neighborhood to be produced with a minimal budget, certain aspects of the site, such as the existing streets, are left in their existing state. While it would be conceptually interesting to challenge the existing street layout, any alterations could make the project financially unrealistic.

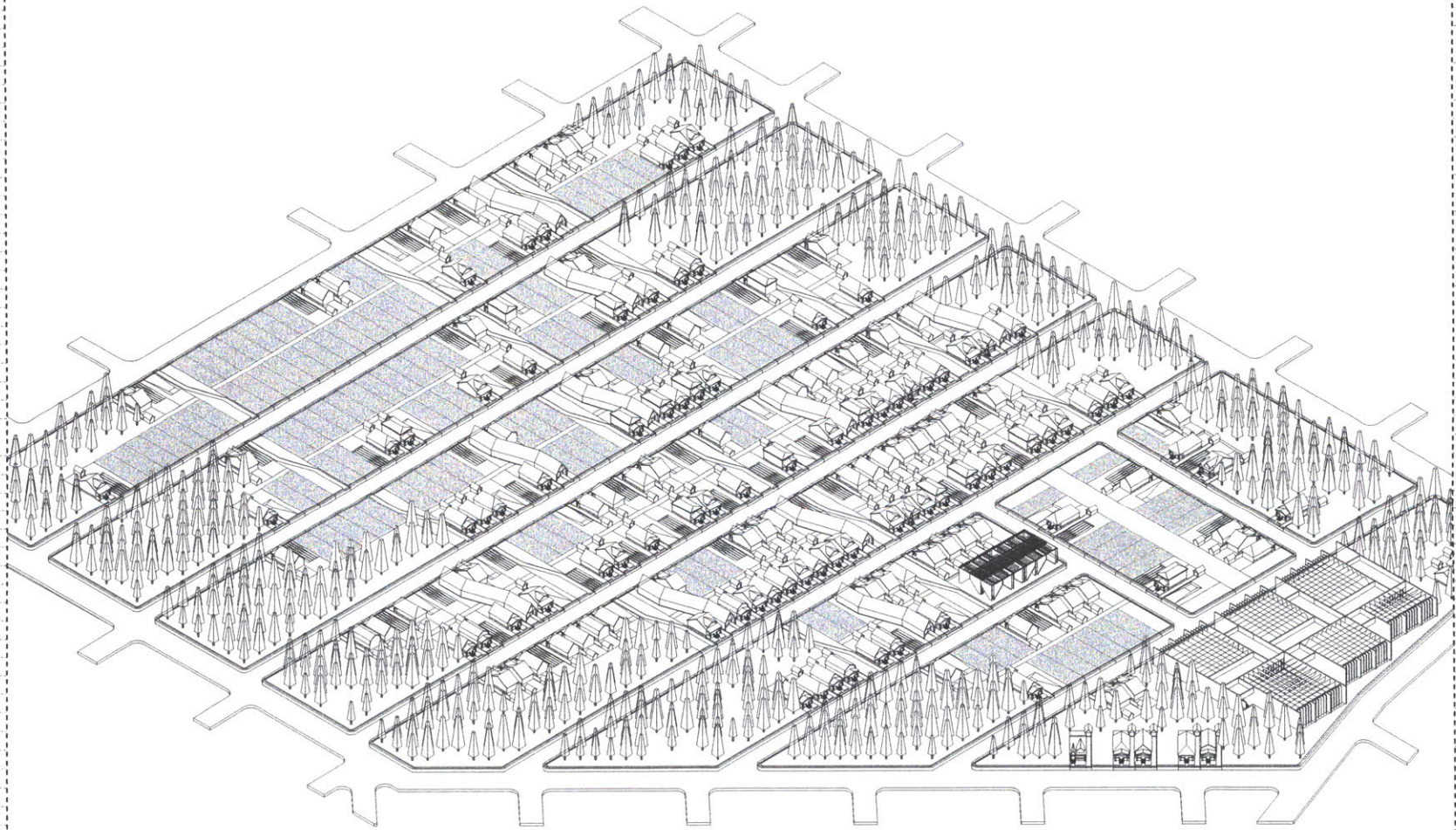
___ The new constructions on the site would be generated in a specific order, beginning with the De-Factory, followed by the first Silo Pavilion. Printer's Cottages would be produced at will, but would rely on the economic success of the first two typologies.

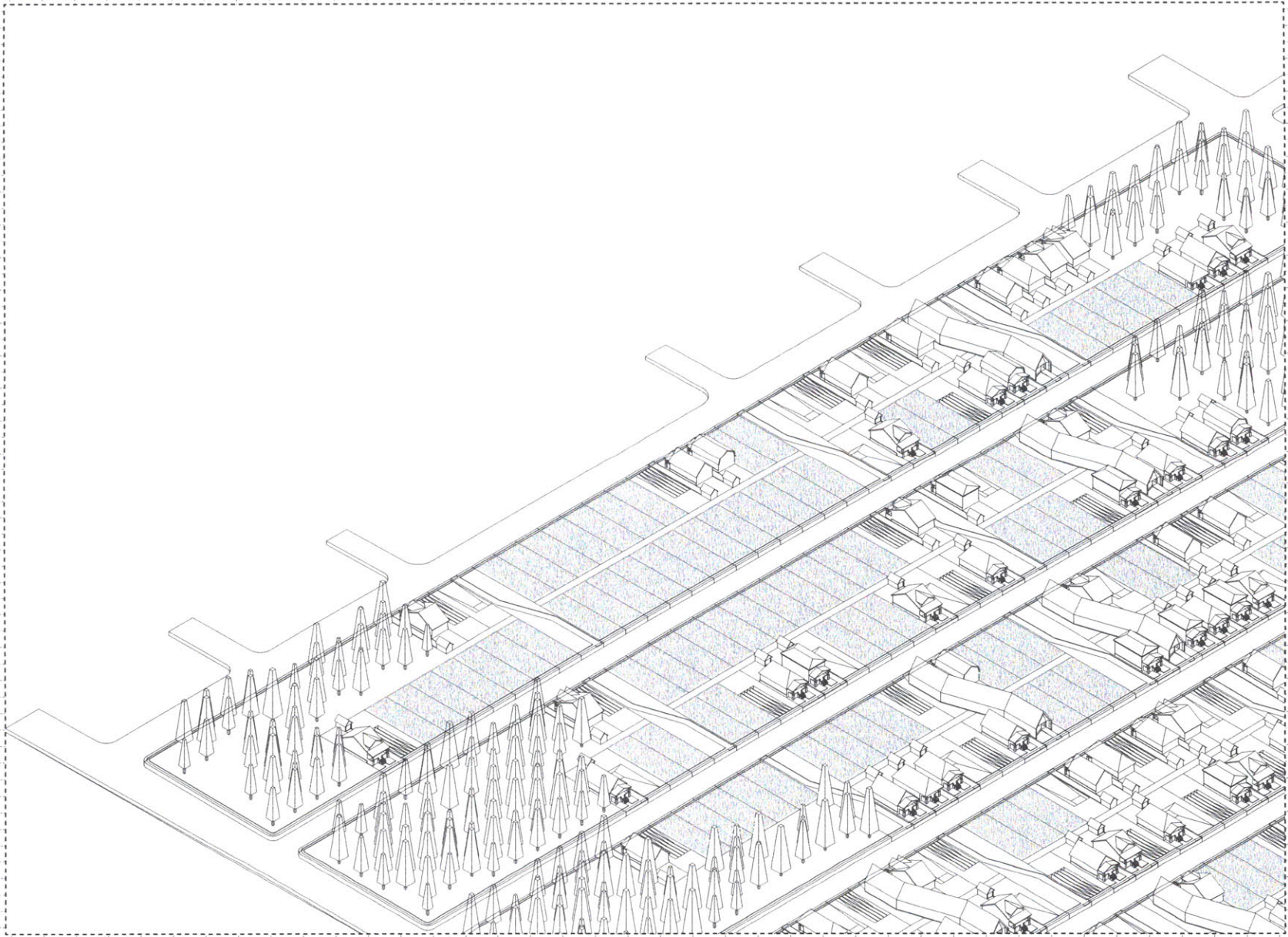
___ The drawings following this page detail the version of the neighborhood as presented at the Penultimate Review. This version was largely the same as the final iteration, although certain buildings were re-sited and scaled in order to strengthen the overall concept of the neighborhood.

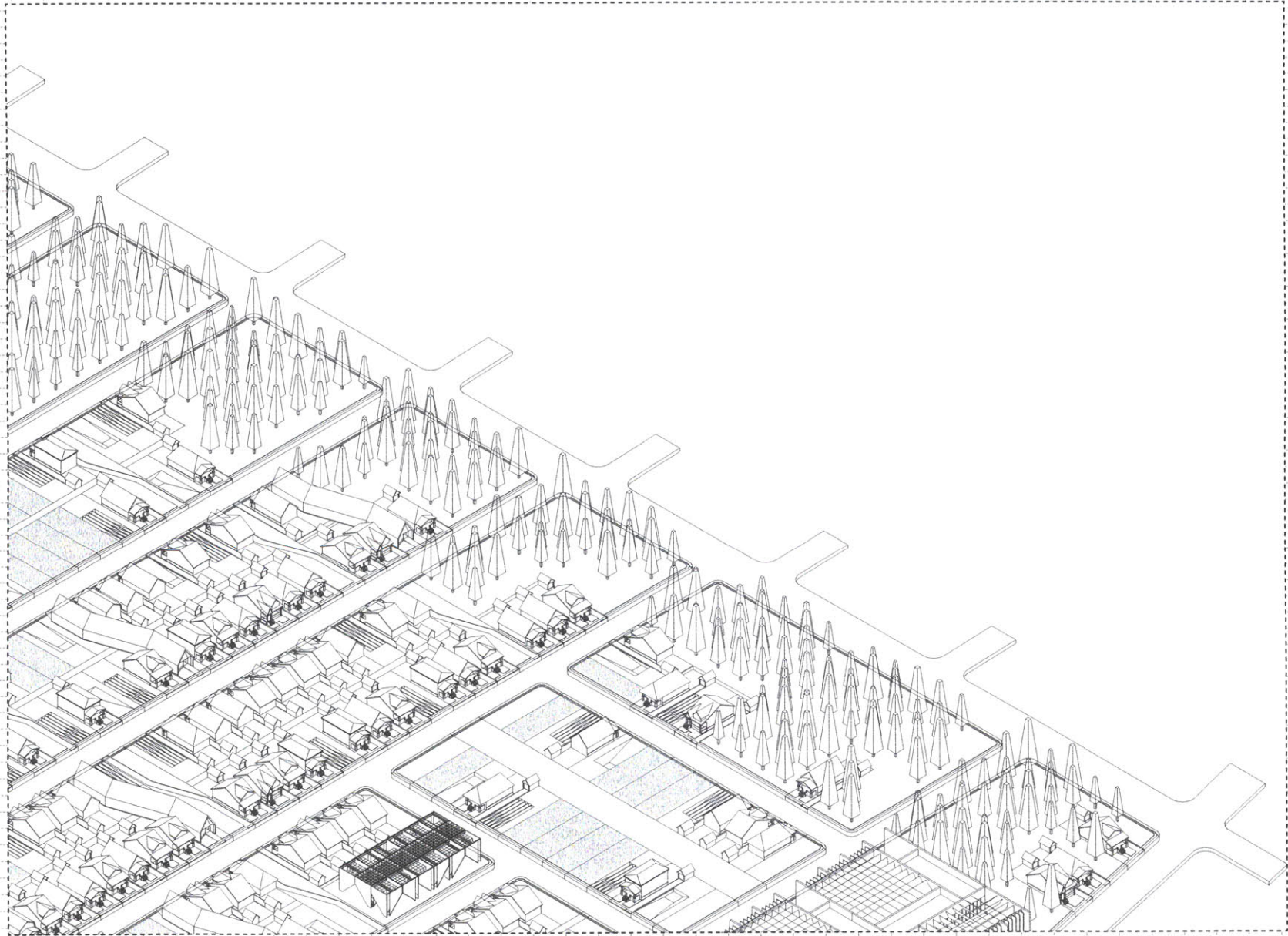


1-94 INDUSTRIAL
RENAISSANCE ZONE

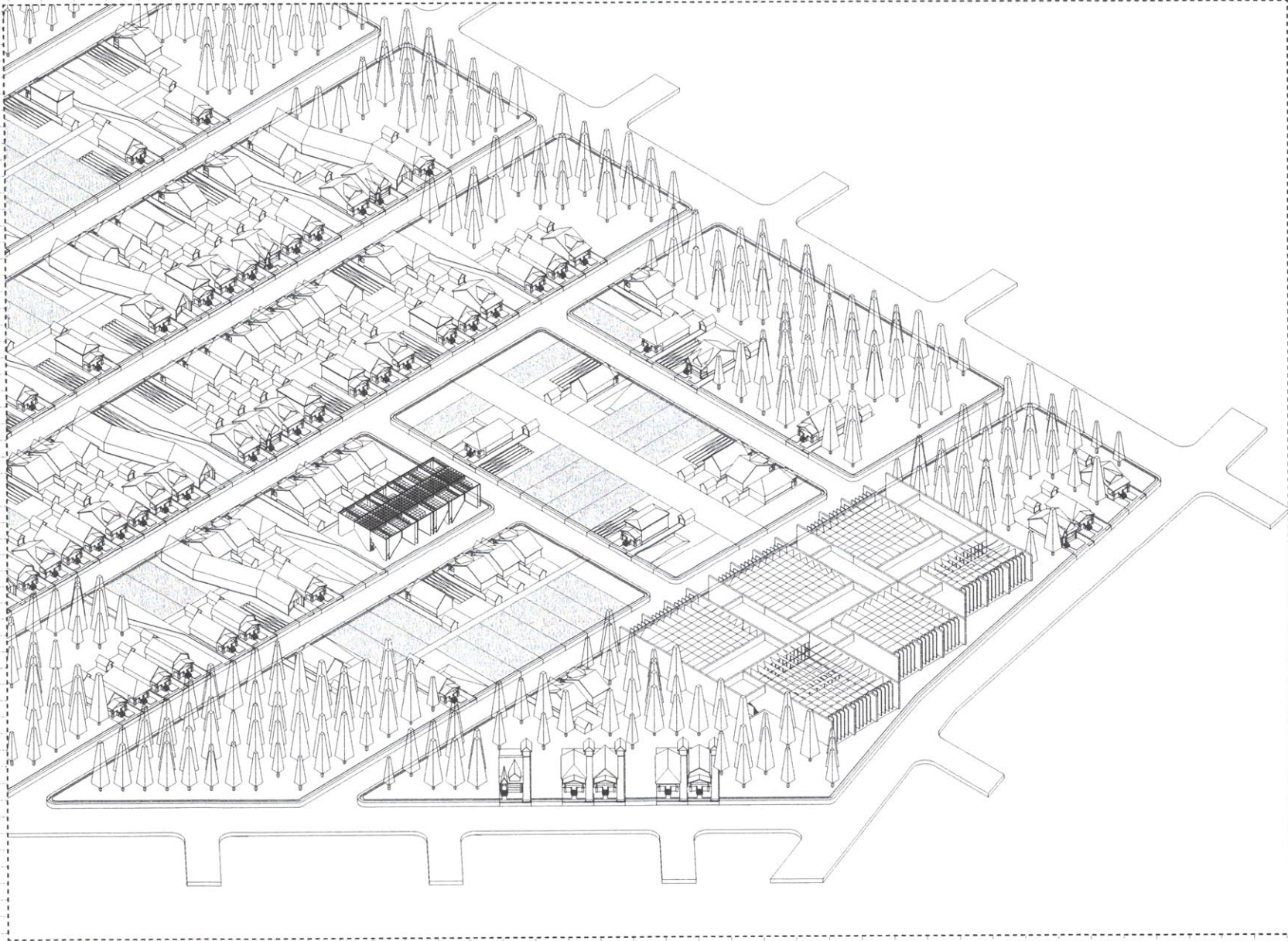












UNIVERSAL PRINT BASIN

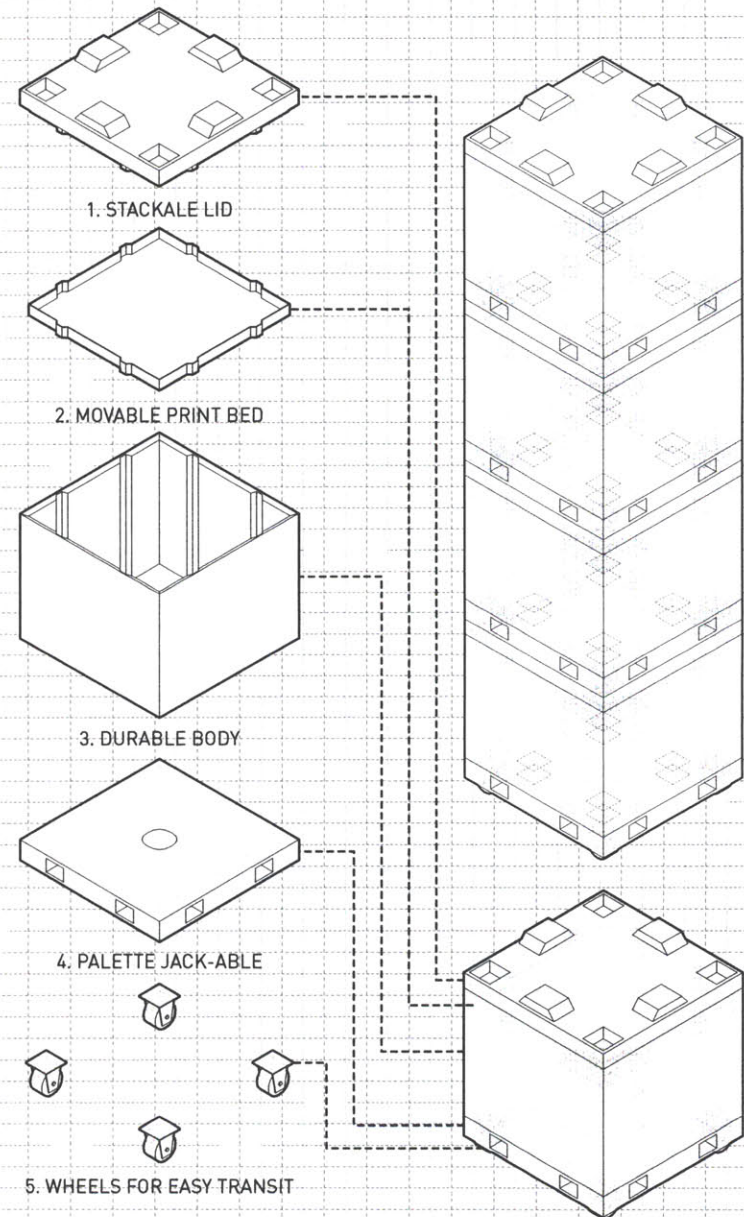
A DO-ALL PRINT BASIN

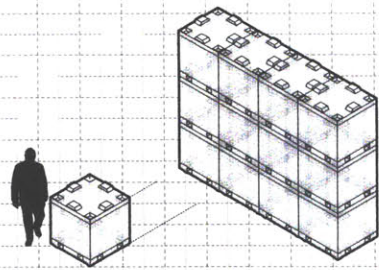
___ Material Handling between the three neighborhood typologies became a functional challenge of the project. In order to move unprocessed municipal waste and processed 3-D printable materials from building to building a new type of 3-D print basin was considered. Typically Direct Metal Laser Sintering machines, as well as, other 3-D printing processes use a bed of granulated material as a printing surface. This print surface is often contained in a removable Basin which can be loaded and unloaded from a 3-D printer.

___ The Universal Print Basin is a hybrid container combines certain functional aspects of a recycling bin, a typical 3-D printer Basin, a cardboard box and a shipping pallet. The result is an object which becomes instrumental to the function of the Reverietown Neighborhood. This mobility device is intended as a means to manually move processed and unprocessed material across the site.

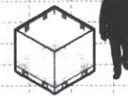
___ The dimensions of the Print Basin (4'x4'x4') become a consistent dimension across the three typologies, giving each typology a certain functional constraint.

___ The Basin can be used to collect municipal recyclables, and is then returned to the De-factory where is used as a mobility device to move material through each of the stages in the production of granulated printing material. Conceptually it replaces the need for the conveyors within the De-Factory, because the Basin is set off the ground by a set of wheels. Processed material is loaded into the bin, compacted and sealed by a weatherproof lid, and is then moved to the Silo Pavilion for Storage. Bins of material are dispensed from the Silo Pavilion, and moved to Printer's cottages throughout the neighborhood, where they are loaded into 3-D Printers. Once printing is complete, parts are excavated, and the remaining material is stored in the bin for the next print job. Once the bin is emptied, it is then used by neighbors as a mobile trash can. The cycle can be repeated continuously without the need for disposable containers. The Universal Print Basin allows for the manufacturing process to be in a sense "cradle to cradle" as it participates in all aspects of production.

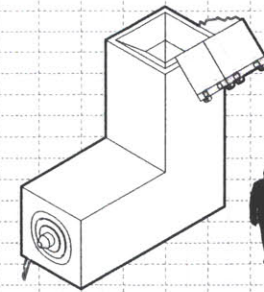




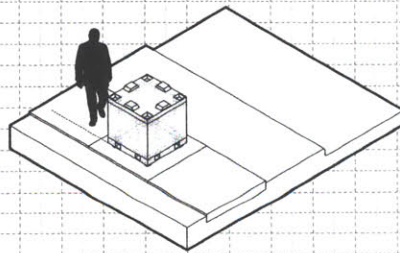
6. EASILY STACKS FOR NEAT STORAGE



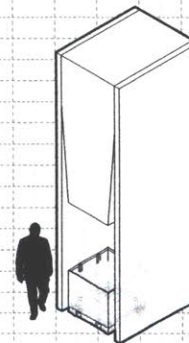
5. ATOMIZE MATERIAL AND COLLECT



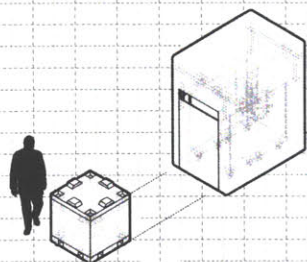
4. LOAD JET-MELTER



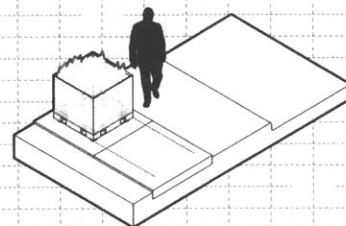
7. WALK IT HOME



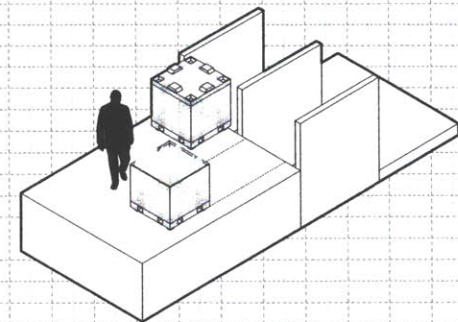
3. GRIND AND COLLECT



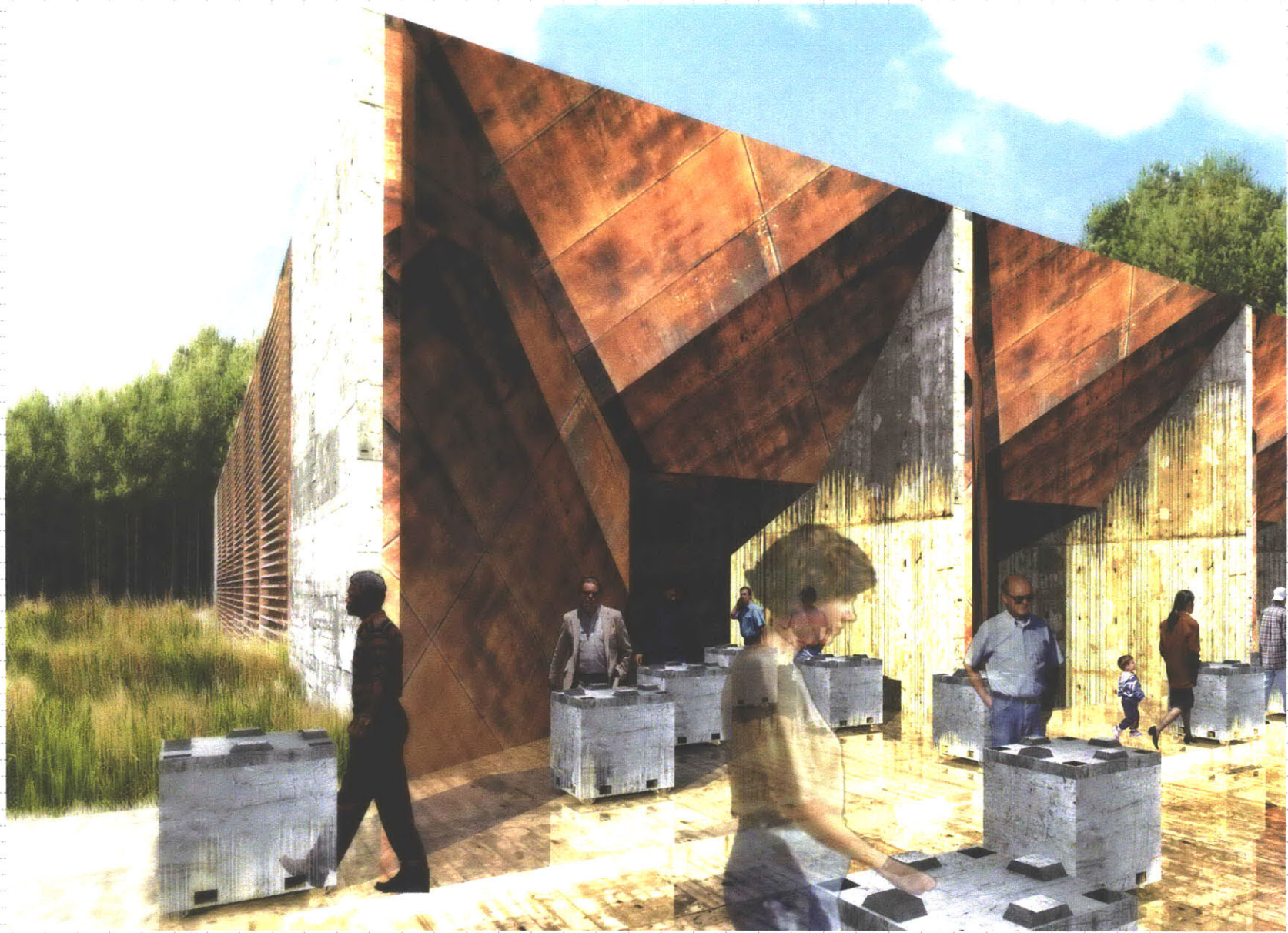
8. LOAD 3-D PRINTER

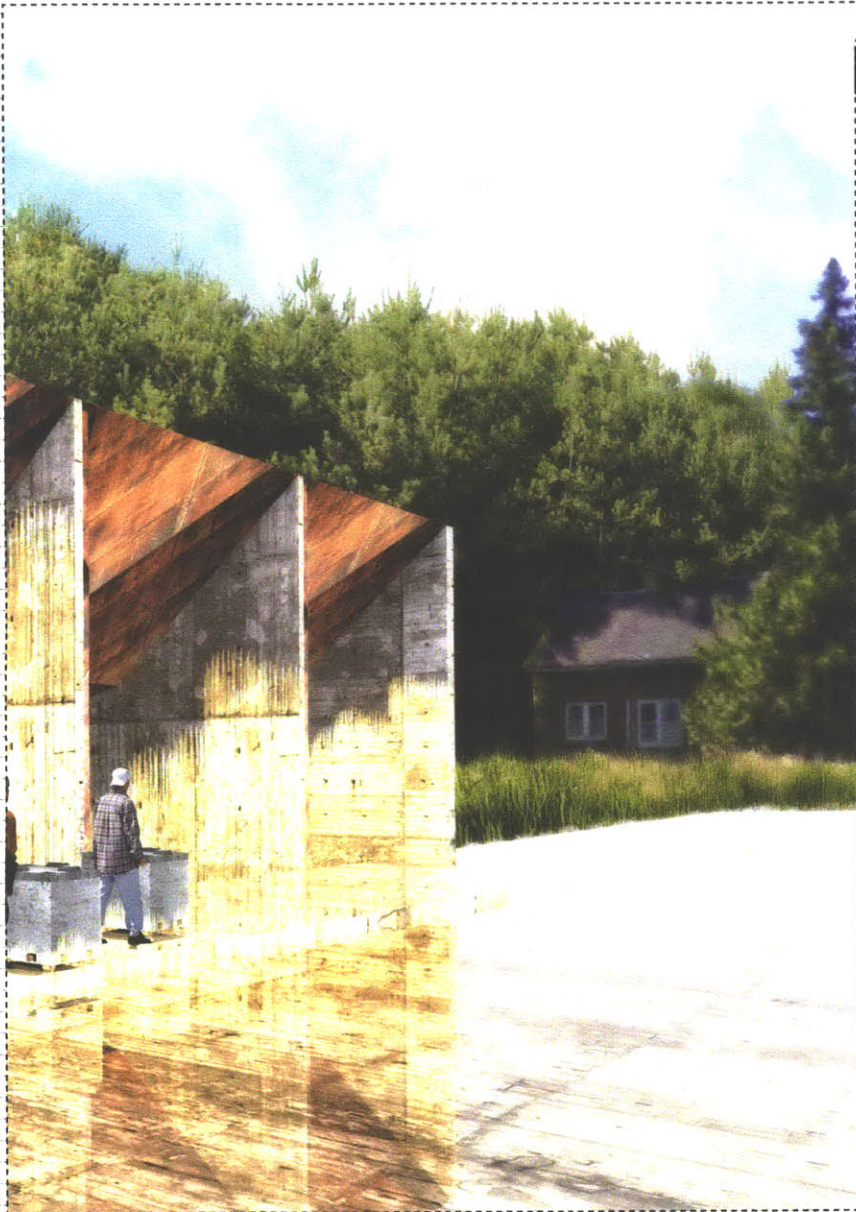


1. COLLECT TRASH GROUPED BY MATERIAL



2. RETURN BIN TO RECYCLE-FINERY





DE-FACTORY

A REFINERY FOR THE PRODUCTION OF RAW MATERIAL

___The Primary role of the De-Factory is to refine municipal recyclables such as plastic bottles, scrap metals, and glass into use-able 3-D printable Material.

___Up to 17 materials used in 3-d printing processes can be found in Detroit's municipal waste stream. Through a process of grinding and mechanical separation, these elements can be refined into usable raw material. This material will fuel a new industrial revolution.

___Detroit possesses an untapped resource. It currently lacks a municipal recycling program. The De-Factory will refine municipal waste into usable granulated materials for distribution to local Silo Pavilions for storage and wealth retention purposes.

___The De-Factory typology is separated into three distinct processing areas. The upper level is reserved for the collection, separation and sorting of recyclables, based on material type. Materials are then ground into a small aggregate, and moved into the second factory space, which is reserved for mechanical refining equipment. Plastics extruded into new filaments for Fused Filament Fabrication 3-D printers. Metals are atomized into fine powders using a process called Gas Atomization, for use direct metal laser sintering machines. Glass and other ceramics are loaded into ball mills, which use heavy steel balls to grind the ceramic materials into fine powders for use in laser sintering and fused deposition modeling machines.

___The De-Factory is constructed with a rough aggregate concrete which is comprised of building waste from other abandoned buildings. The facades are made of recycled sheets of scrap steel, welded to produce light controlling apertures.

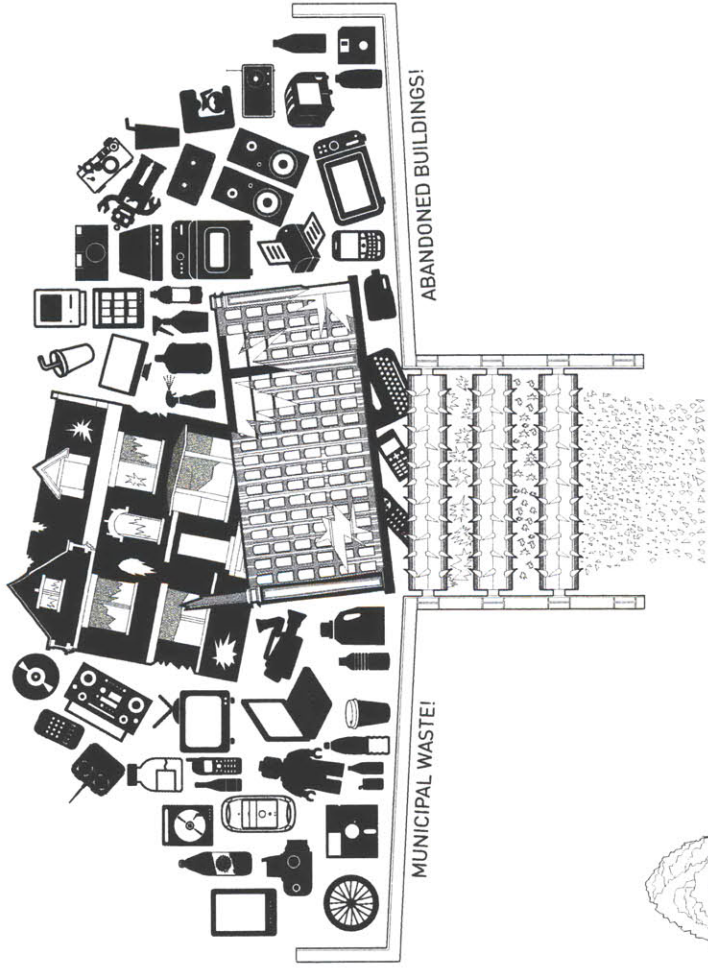
___Throughout the design of this building there was a back and forth dialogue about the scale of the construction. It was determined that the project could be built out in phases depending on the overall scale of the construction.



DE-FACTORY INTERIOR PERSPECTIVE
SHOWING ENTRY AND PRINT BASIN DROP OFF

PERIODICAL TABLE

3-D PRINTABLE ELEMENTS DERIVED FROM WASTE

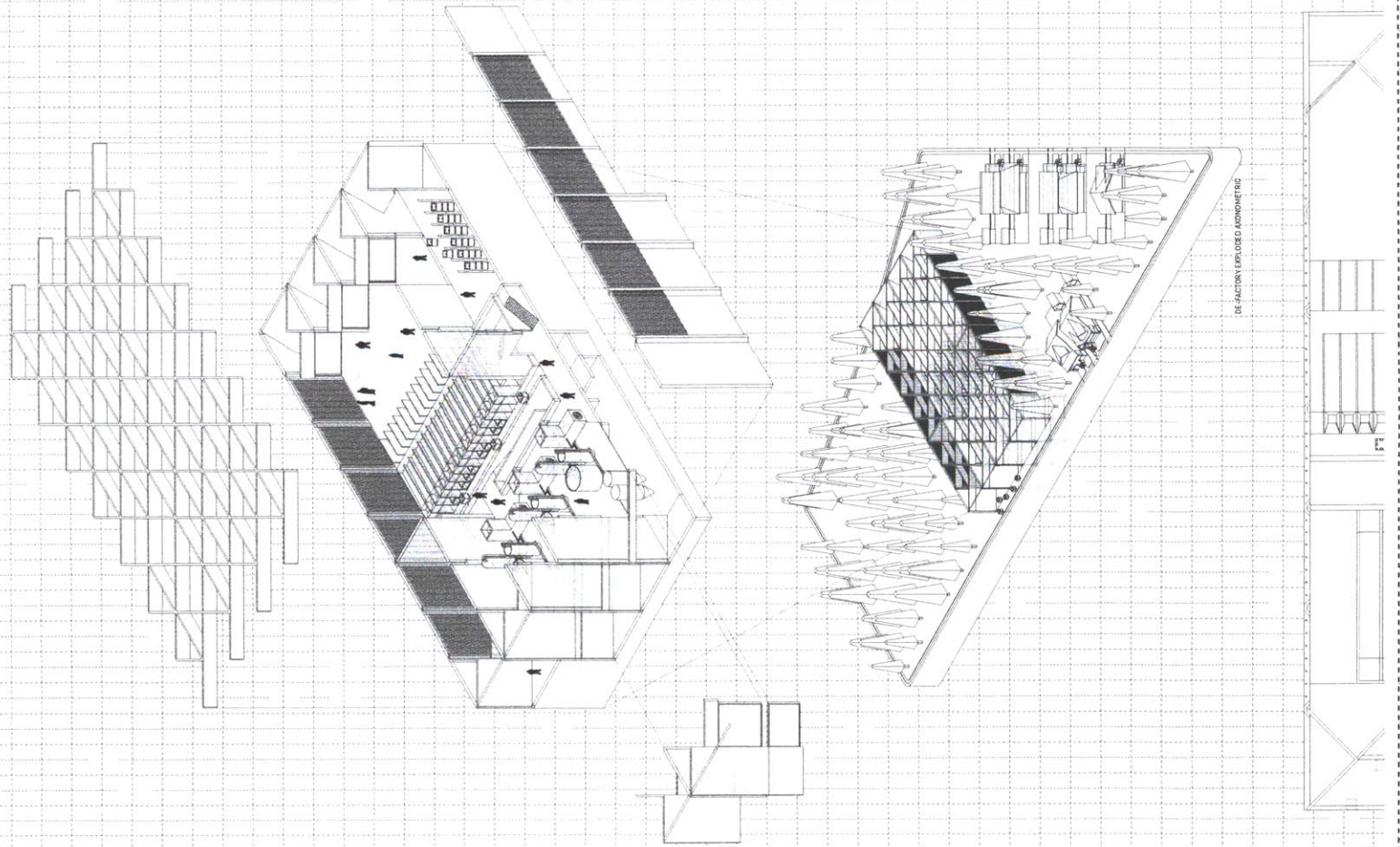


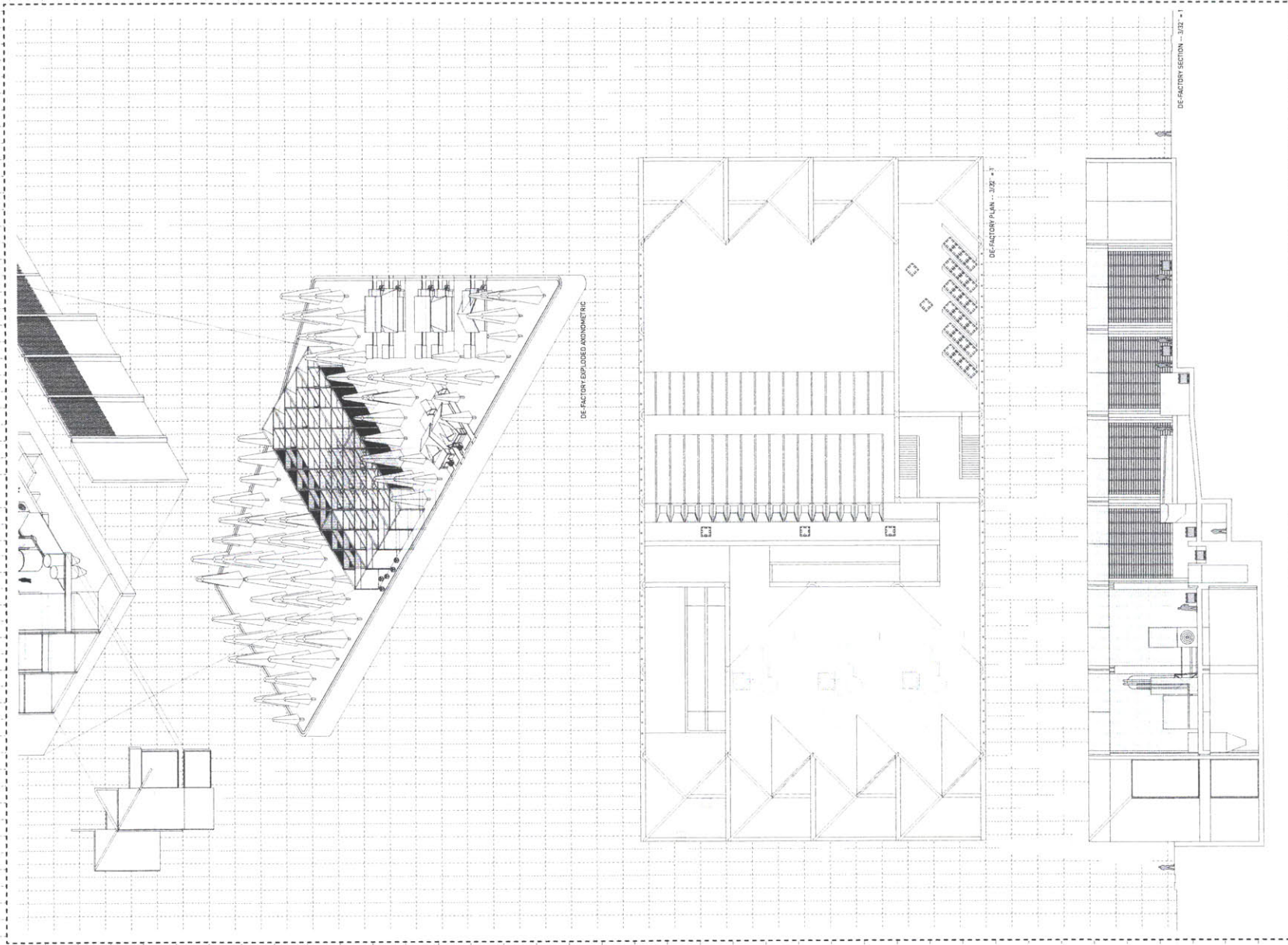
1	HDPe POLYETHYLENE HIGH DENSITY FDM	2	PeT POLYETHYLENE TEREPHTHALATE FDM	3	LDPe POLYETHYLENE LOW DENSITY FDM	4	Ps POLYSTYRENE SLA	5	Pp POLYPROPYLENE SLA	6	Pvc POLYVINYL CHLORIDE SLA	7	ABS ACRYLONITRILE BUTADIENE STYRENE FDM	8	Pa POLYLACTIDE SLA
9	Pc POLYCARBONATE FDM	10	PLA POLYLACTIDE FDM	11	Al ALUMINUM DMLS	12	Al SiI ALUMINUM DMLS	13	Ti SiI TITANIUM DMLS	14	CoCr COBALT CHROMIUM DMLS	15	Bz BISMUTH DMLS	16	St SiI STEEL DMLS
												17	Ti TITANIUM DMLS		

PERIODIC TABLE OF 3-D PRINTABLE MATERIAL

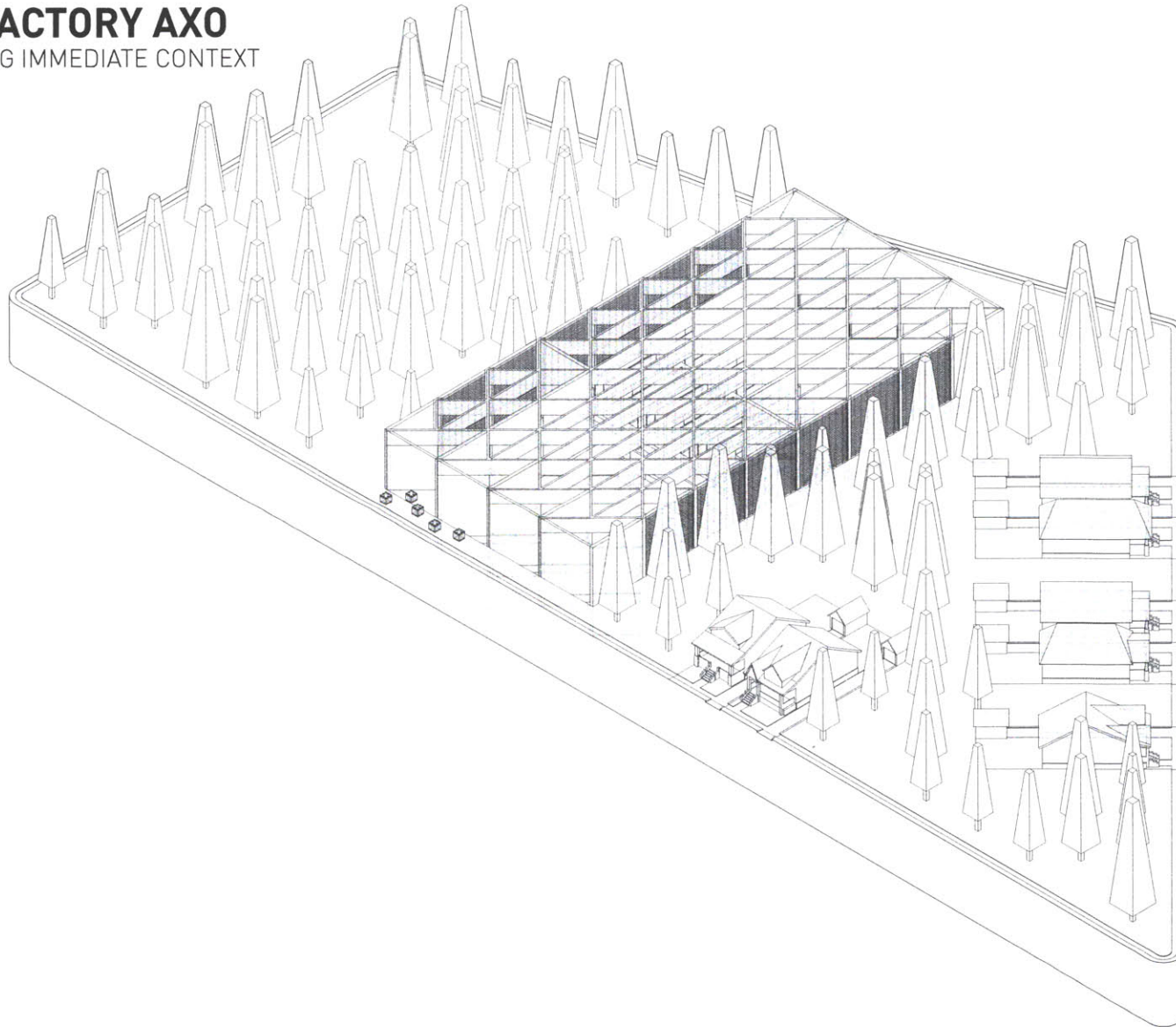
ROTATE SPREAD

TPOLOGY C: THE DE-FACTORY
MARCH THESIS, ALEXANDER W. MARSHALL

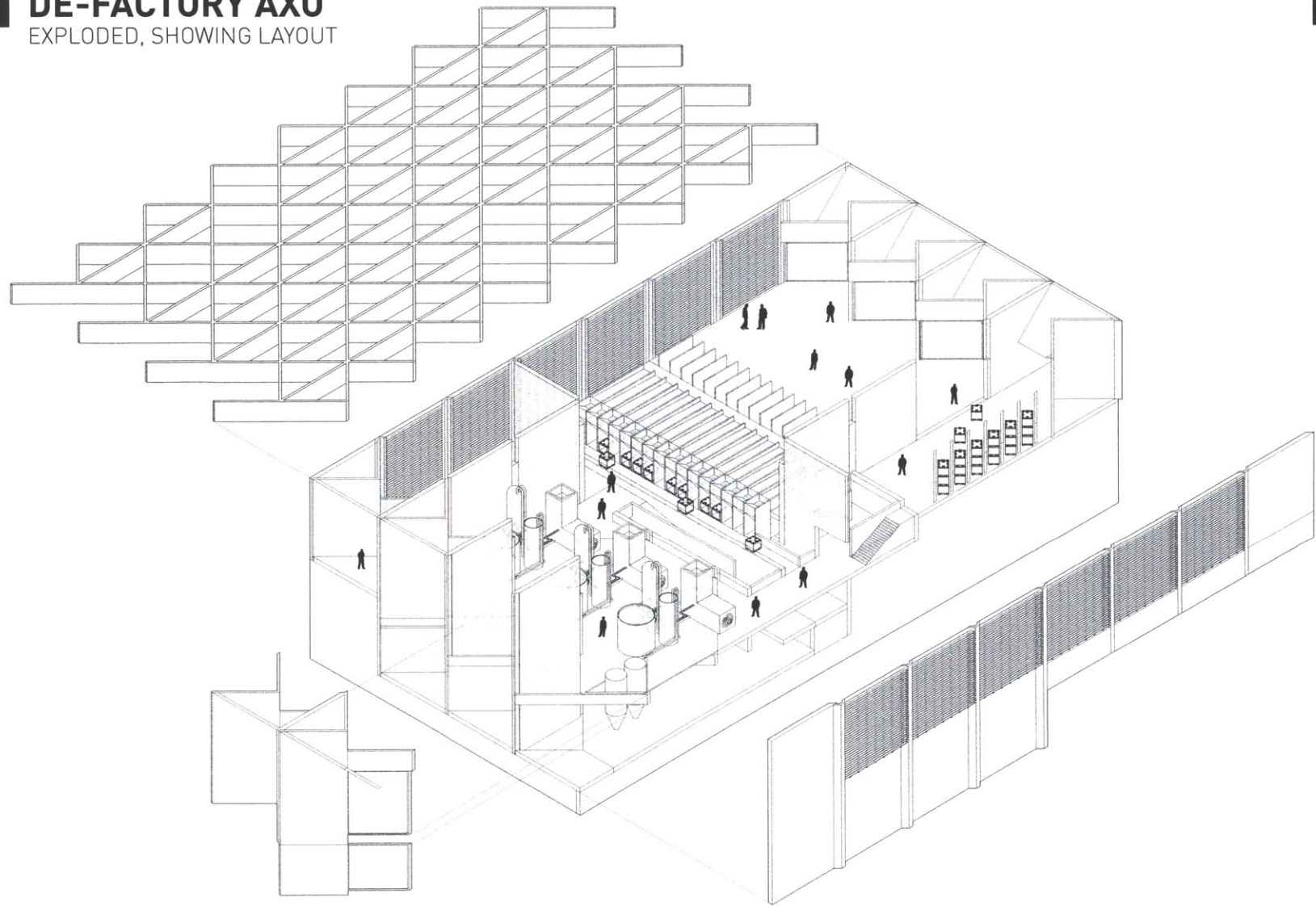




DE-FACTORY AXO
SHOWING IMMEDIATE CONTEXT

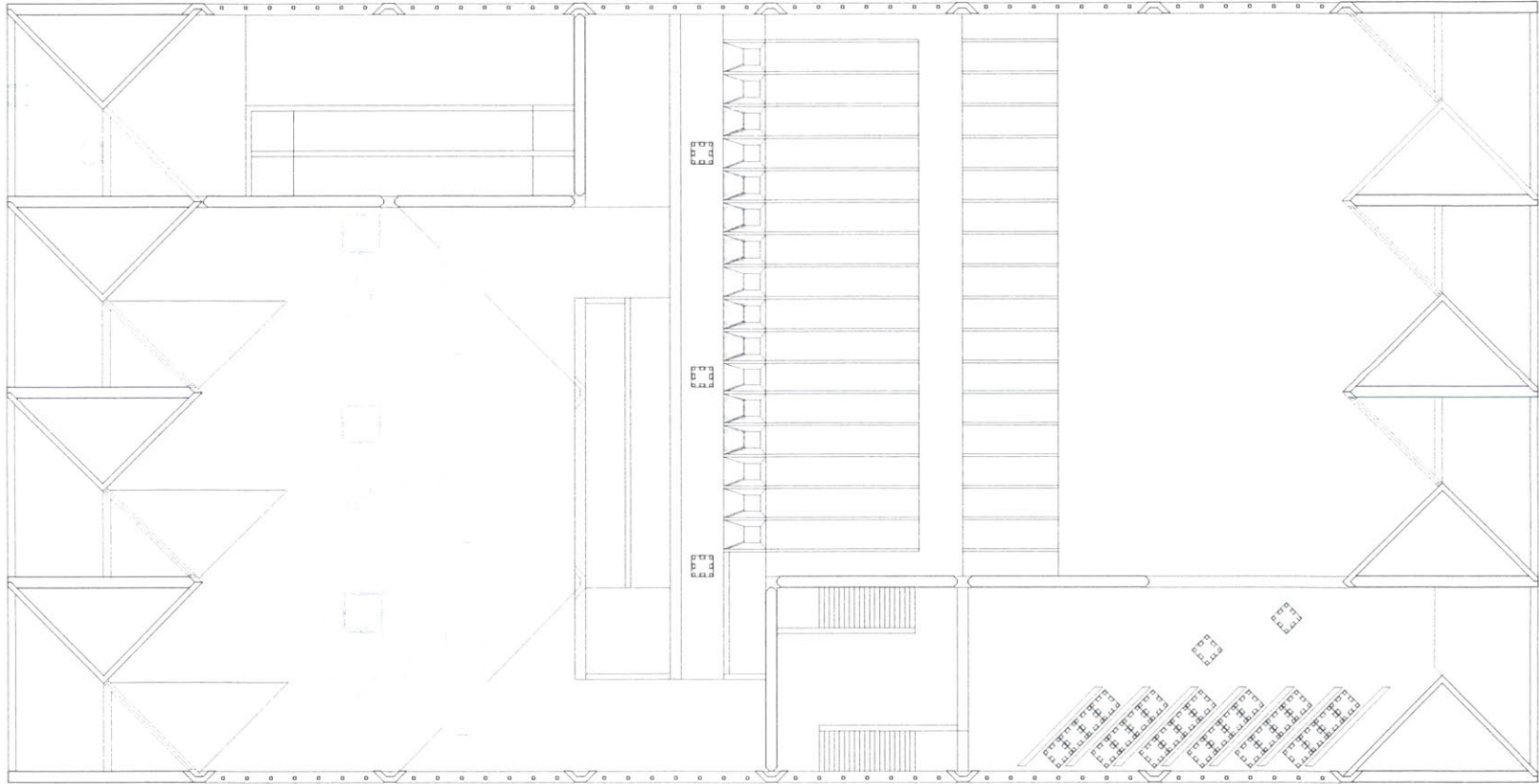


DE-FACTORY AXO
EXPLODED, SHOWING LAYOUT



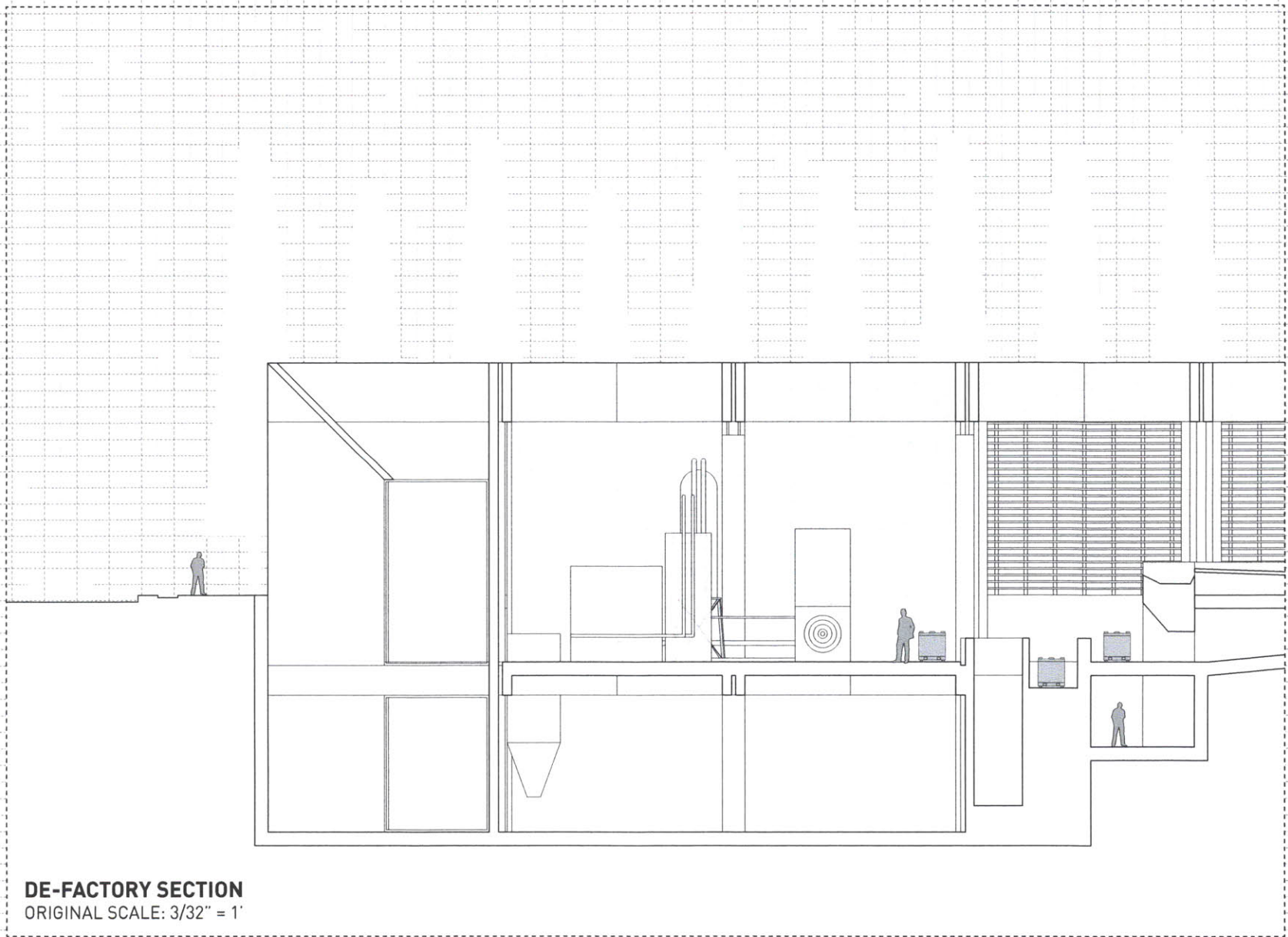
DE-FACTORY PLAN

ORIGINAL SCALE: 3/32" = 1'

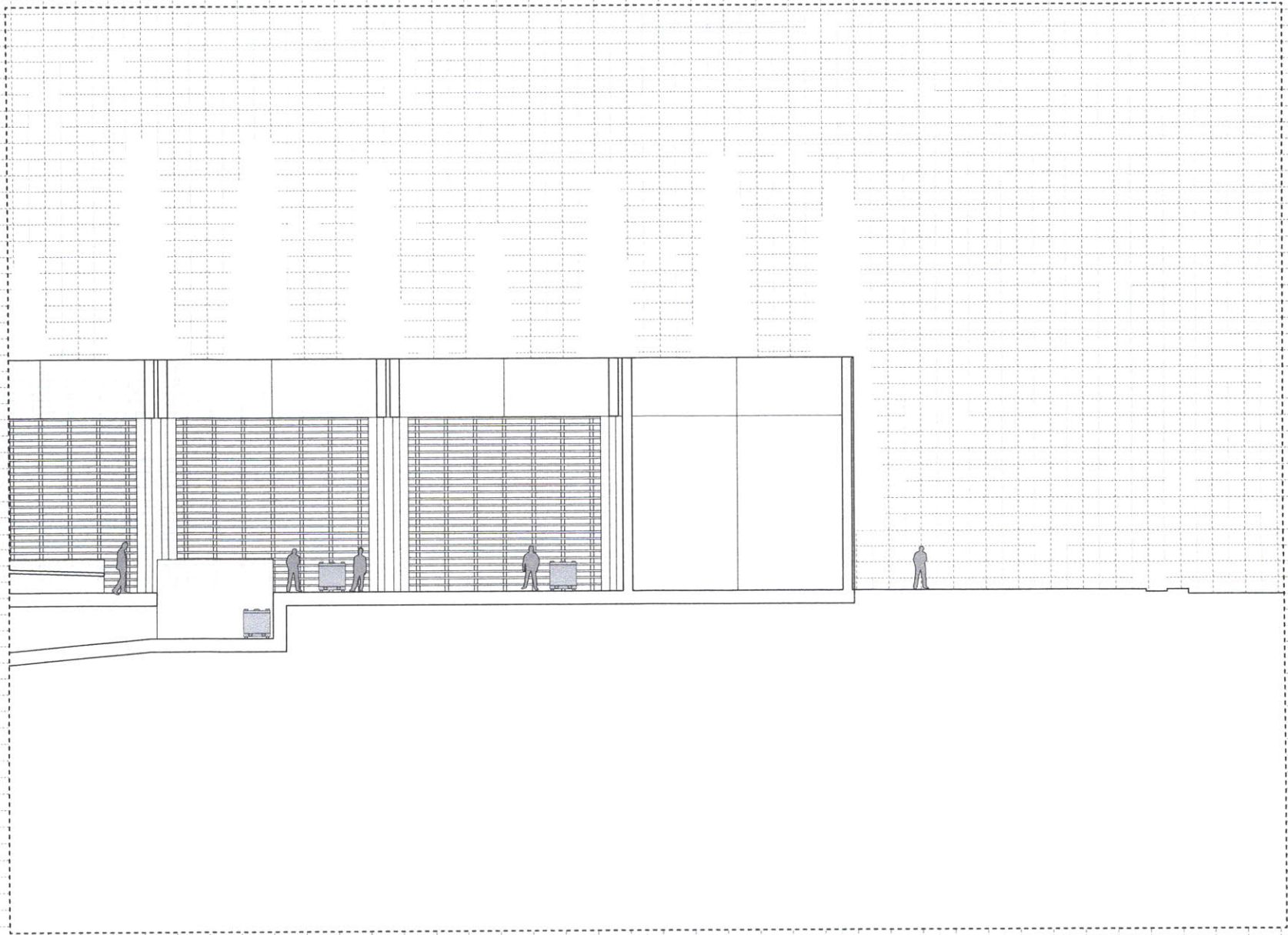




DE-FACTORY INTERIOR PERSPECTIVE
SHOWING JET MELTER'S AND GAS ATOMIZATION UNITS



DE-FACTORY SECTION
ORIGINAL SCALE: 3/32" = 1'





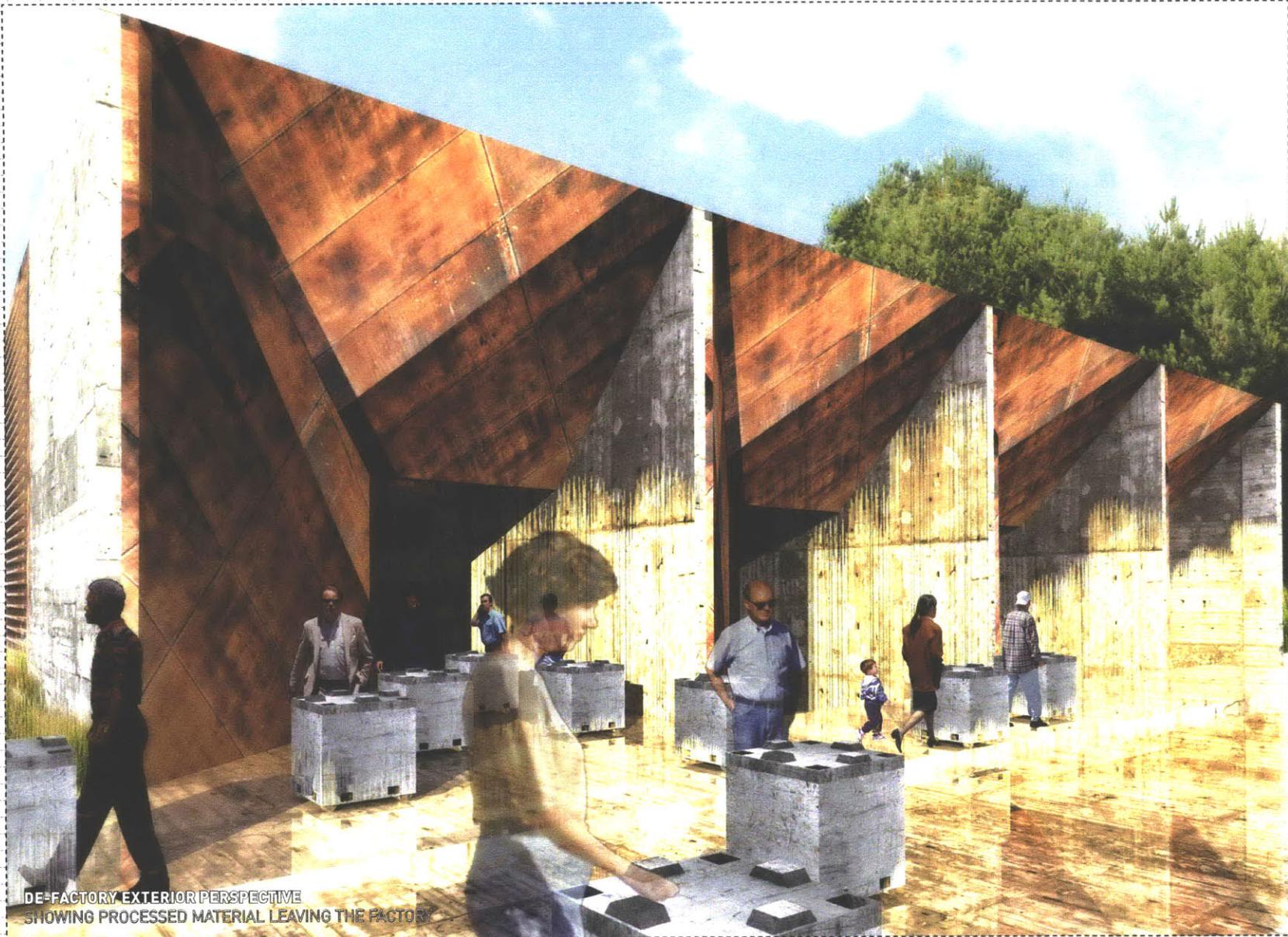
DE-FACTORY FINAL SECTION MODEL
SHOWING ROOF LIGHTING



DE-FACTORY FINAL SECTION MODEL
SHOWING LONGITUDINAL SECTION



DE-FACTORY INTERIOR PERSPECTIVE
SHOWING PLANT PROCESSING LEVEL



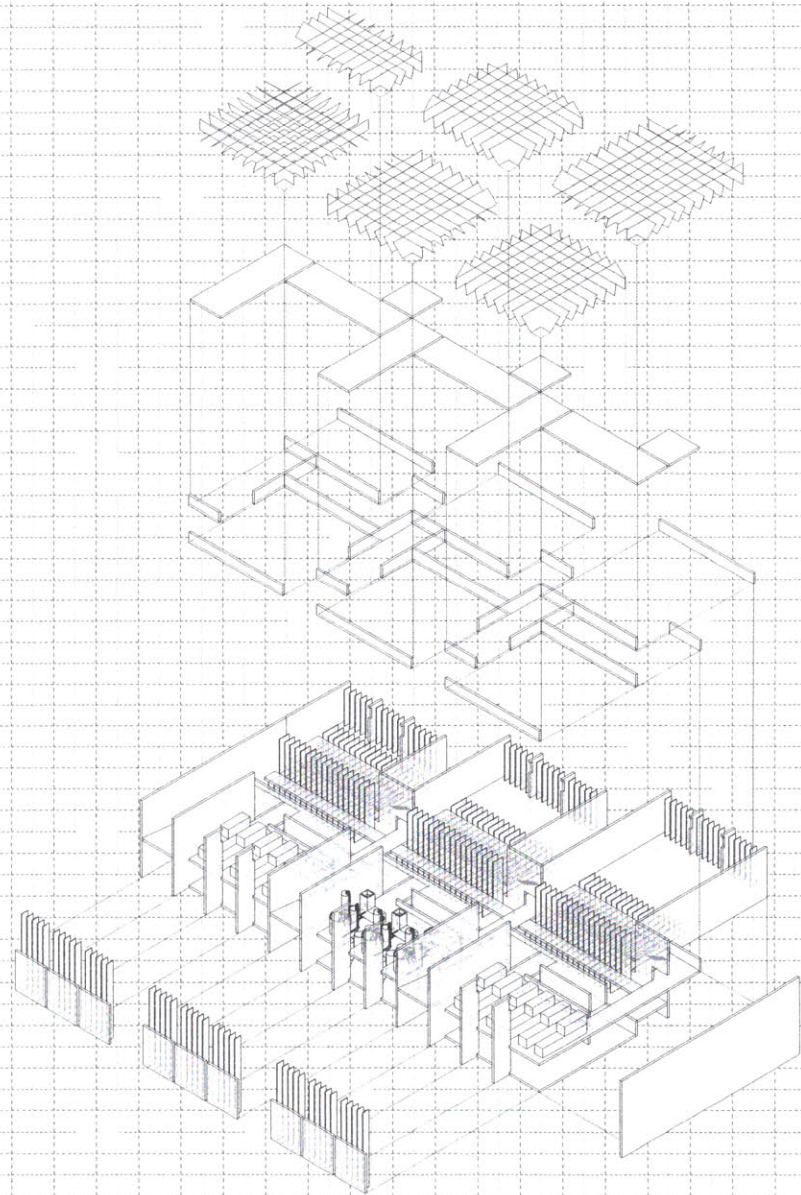
DE-FACTORY EXTERIOR PERSPECTIVE
SHOWING PROCESSED MATERIAL LEAVING THE FACTORY

DE-FACTORY PROCESS

THE GOOD, THE BAD AND THE UGLY

___The following pages are a collection of some of the design iterations which existed prior to the final proposal. Certain aspects of the design took precedent over others, most notably the emphasis on the design of the roof, which needed to accommodate long spans, to produce large open volumes of space. The roof would also be required to serve as the primary mode of bringing light to the interior of the building. This can be seen throughout previous versions of the project, as it became one of the most challenging aspects of the project to resolve.

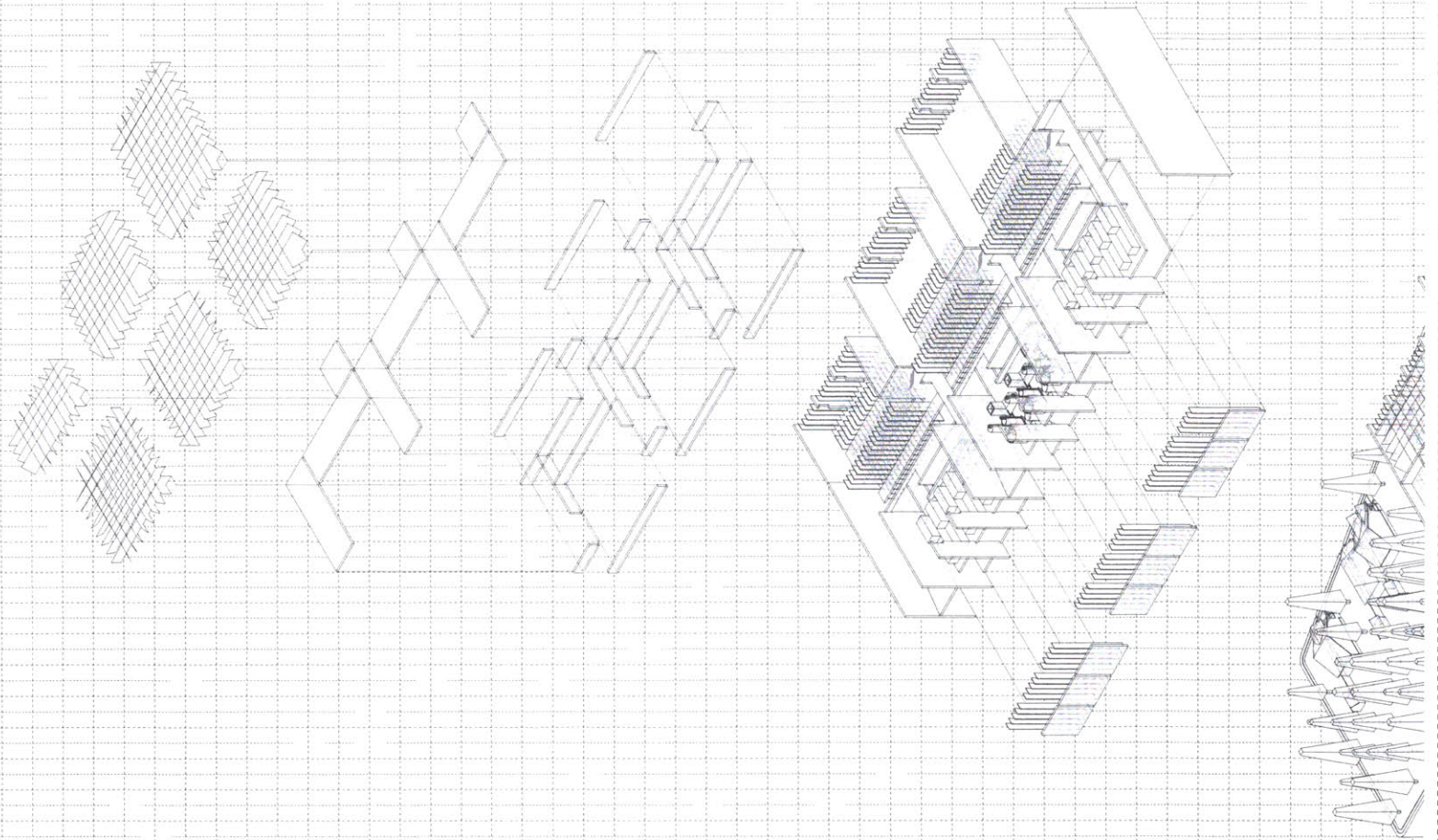
___Scale was also a major concern throughout the design process. Since manufacturing processes are often scalable, previous iterations anticipated the De-Factory project to be nearly three times the size of the final proposal. It was later decided that in order for the building to register with the scale of the neighborhood, that reductions would need to be made.

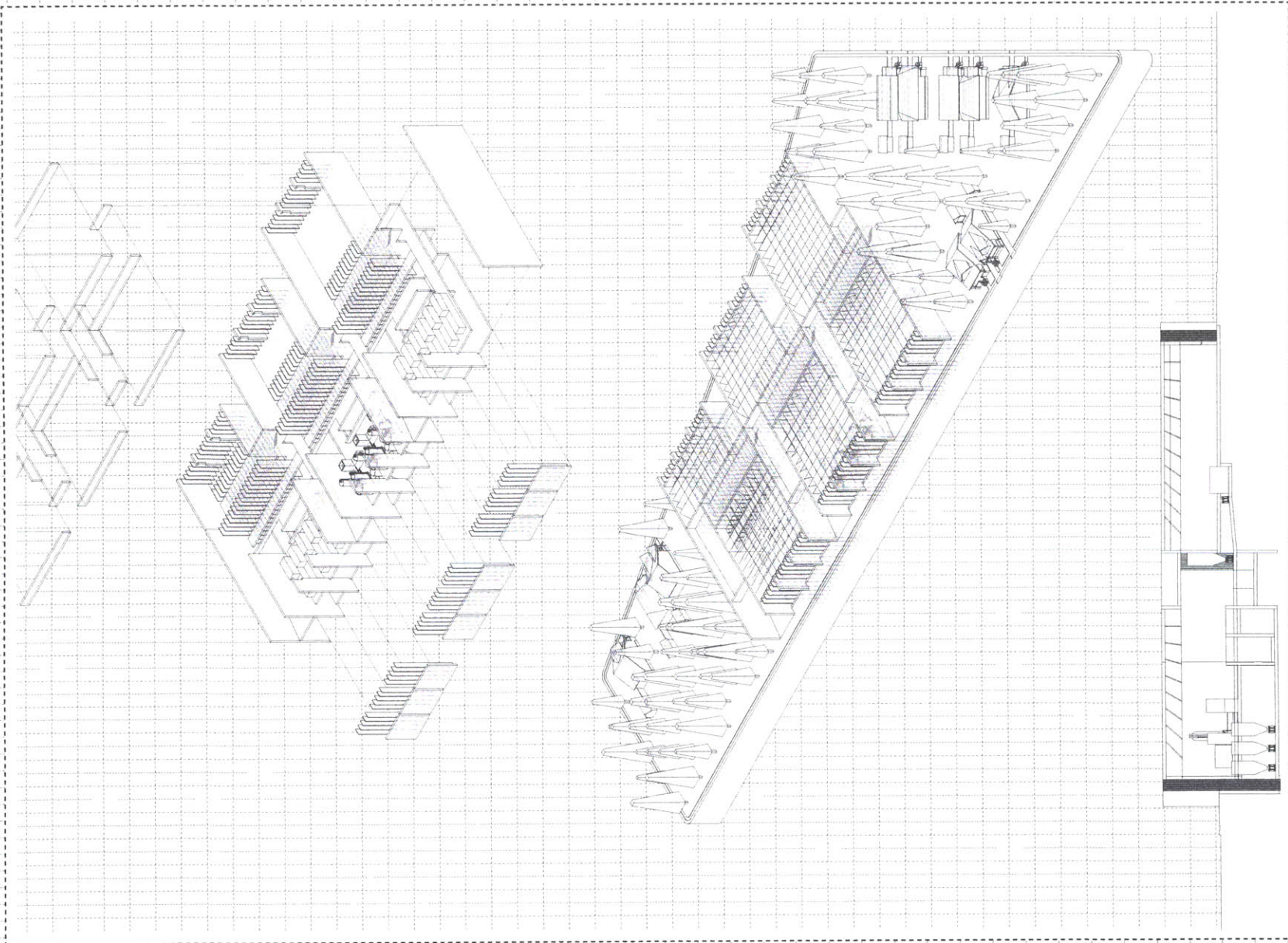




DE-FACTORY PROCESS RENDERING
SHOWING AN ITERATION OF THE ROOF DESIGN

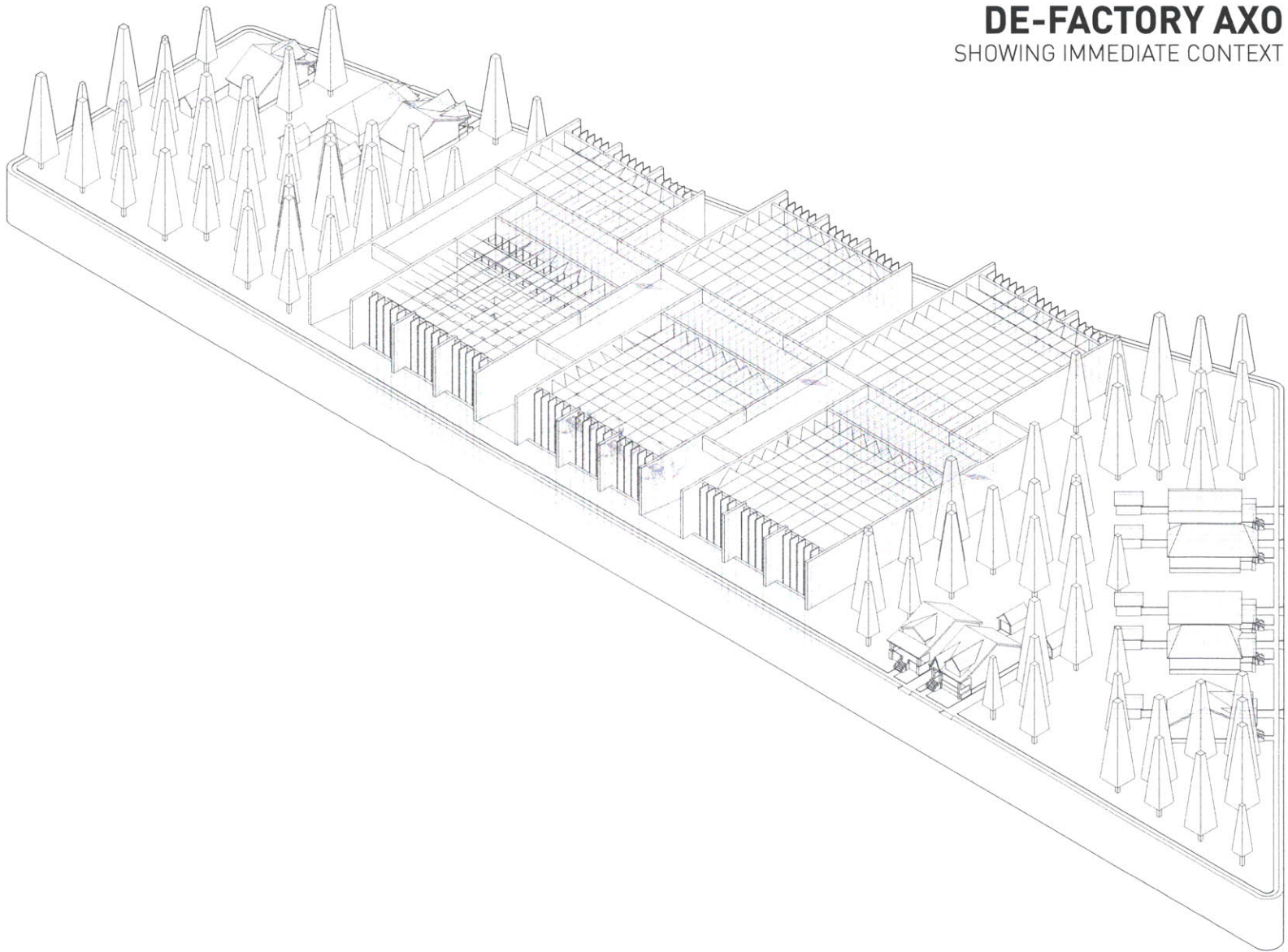
TPOLOGY C: THE DE-FACTORY
MARCH THESE, ALEXANDER W. MARSHALL





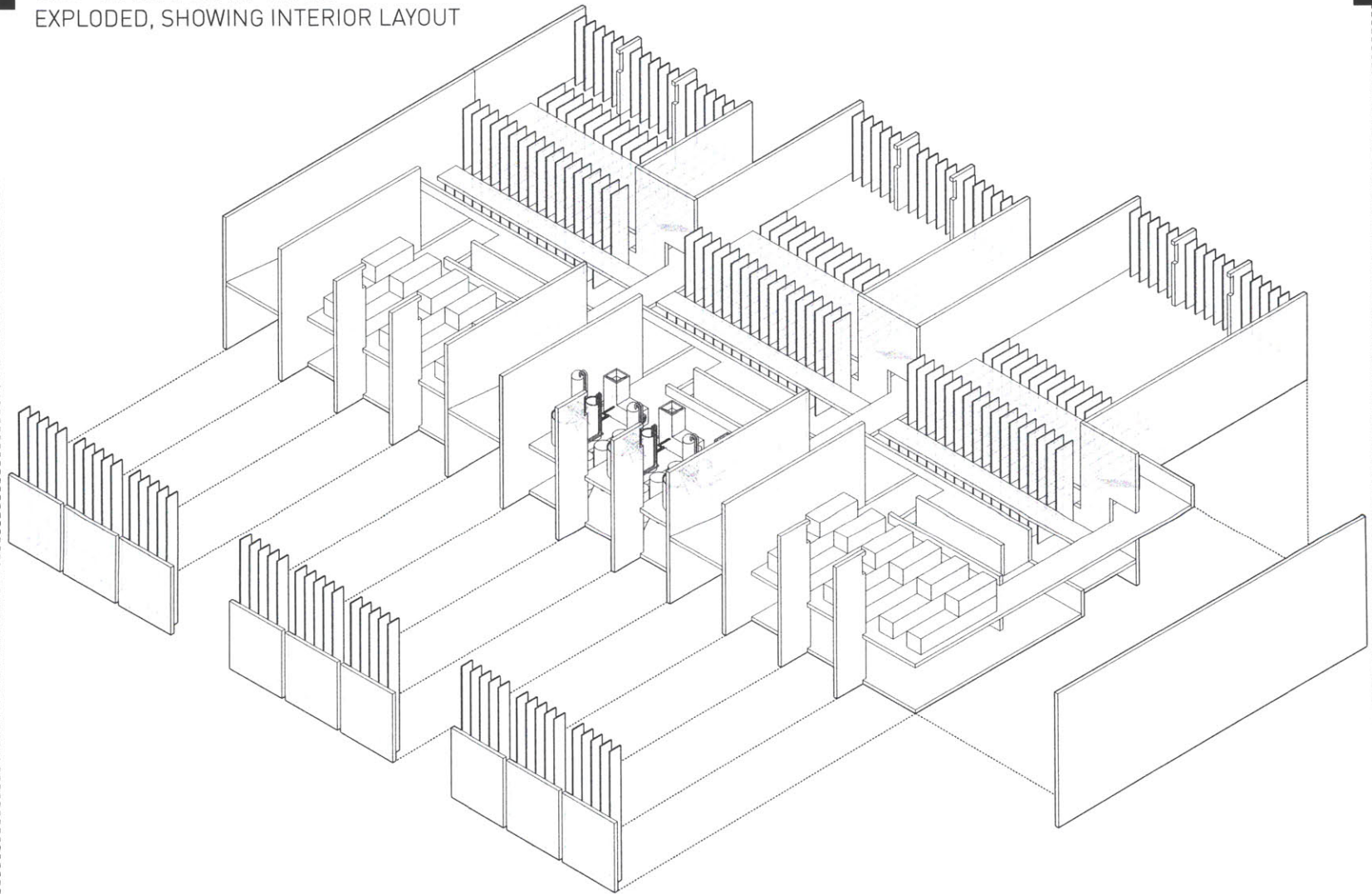
DE-FACTORY AXO

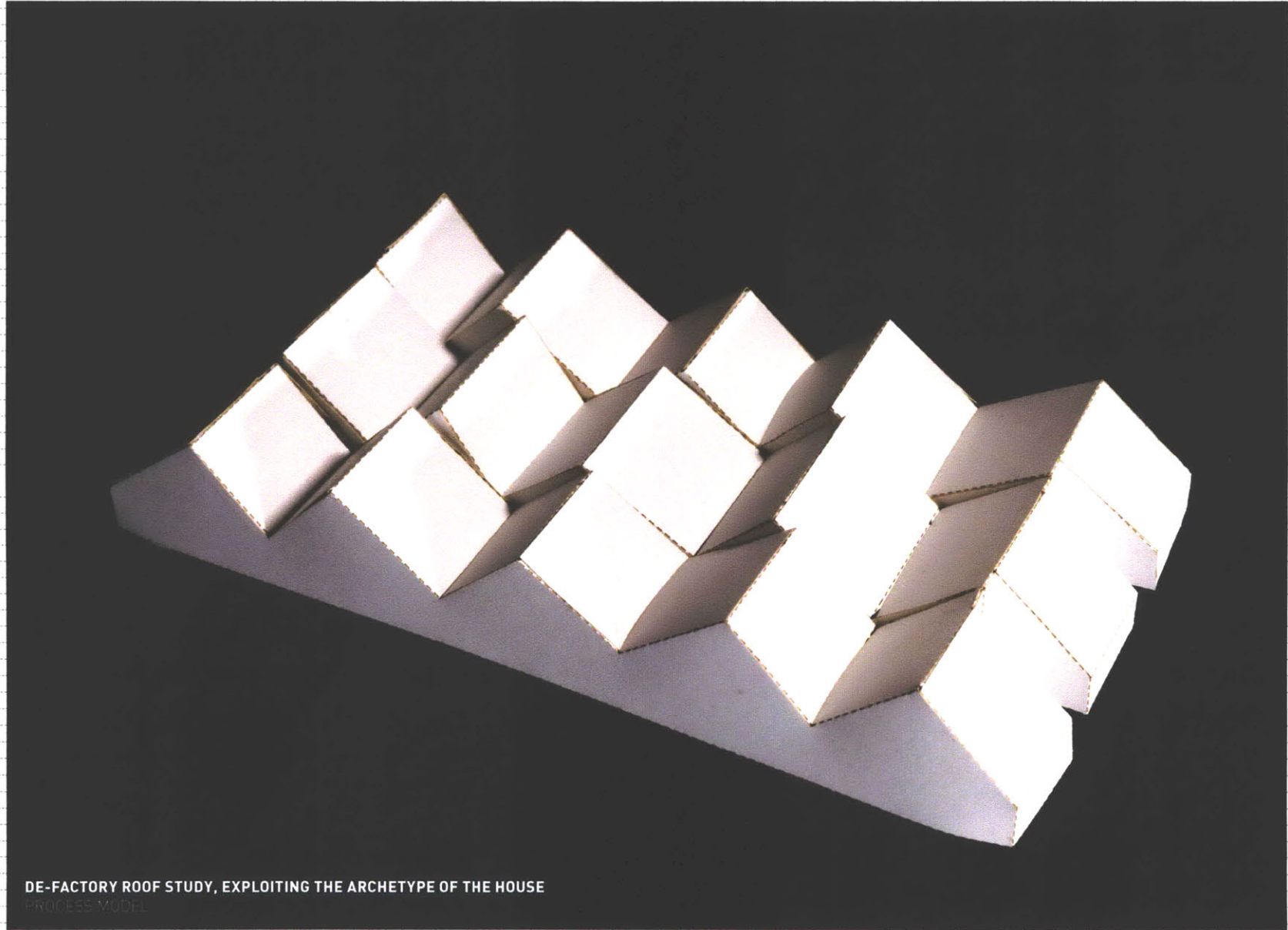
SHOWING IMMEDIATE CONTEXT



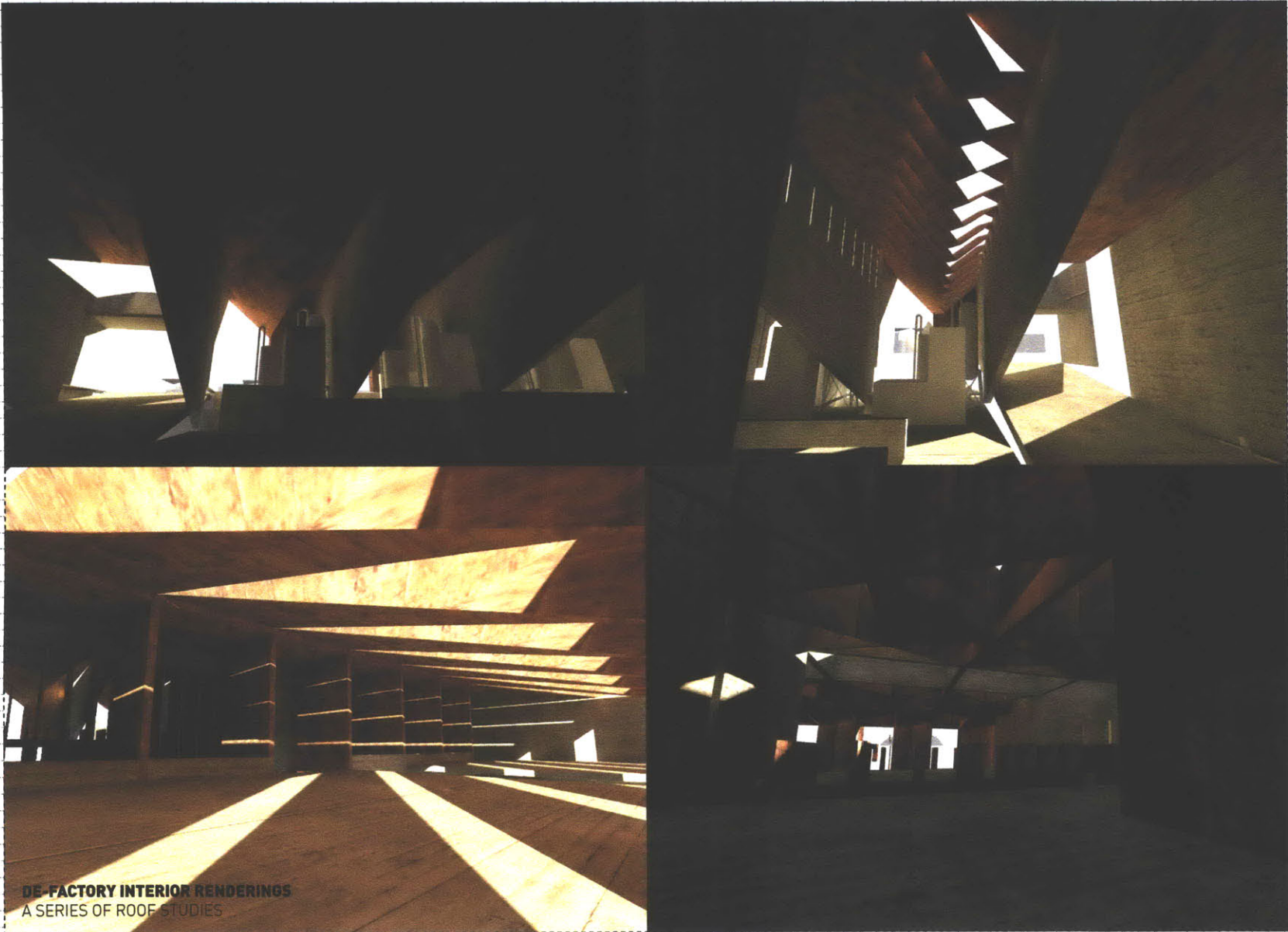
DE-FACTORY AXO

EXPLODED, SHOWING INTERIOR LAYOUT



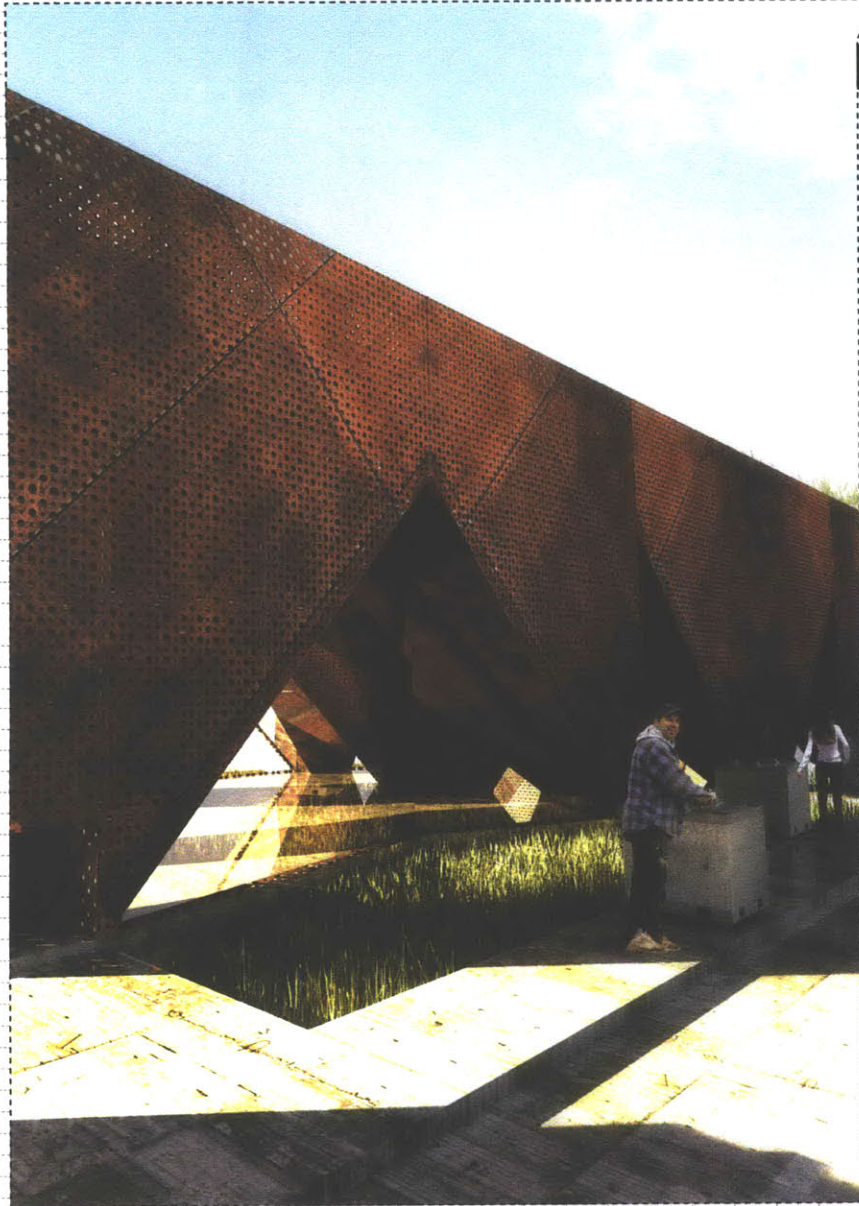


DE-FACTORY ROOF STUDY, EXPLOITING THE ARCHETYPE OF THE HOUSE
PROCESS MODEL



DE-FACTORY INTERIOR RENDERINGS
A SERIES OF ROOF STUDIES





SILO PAVILION

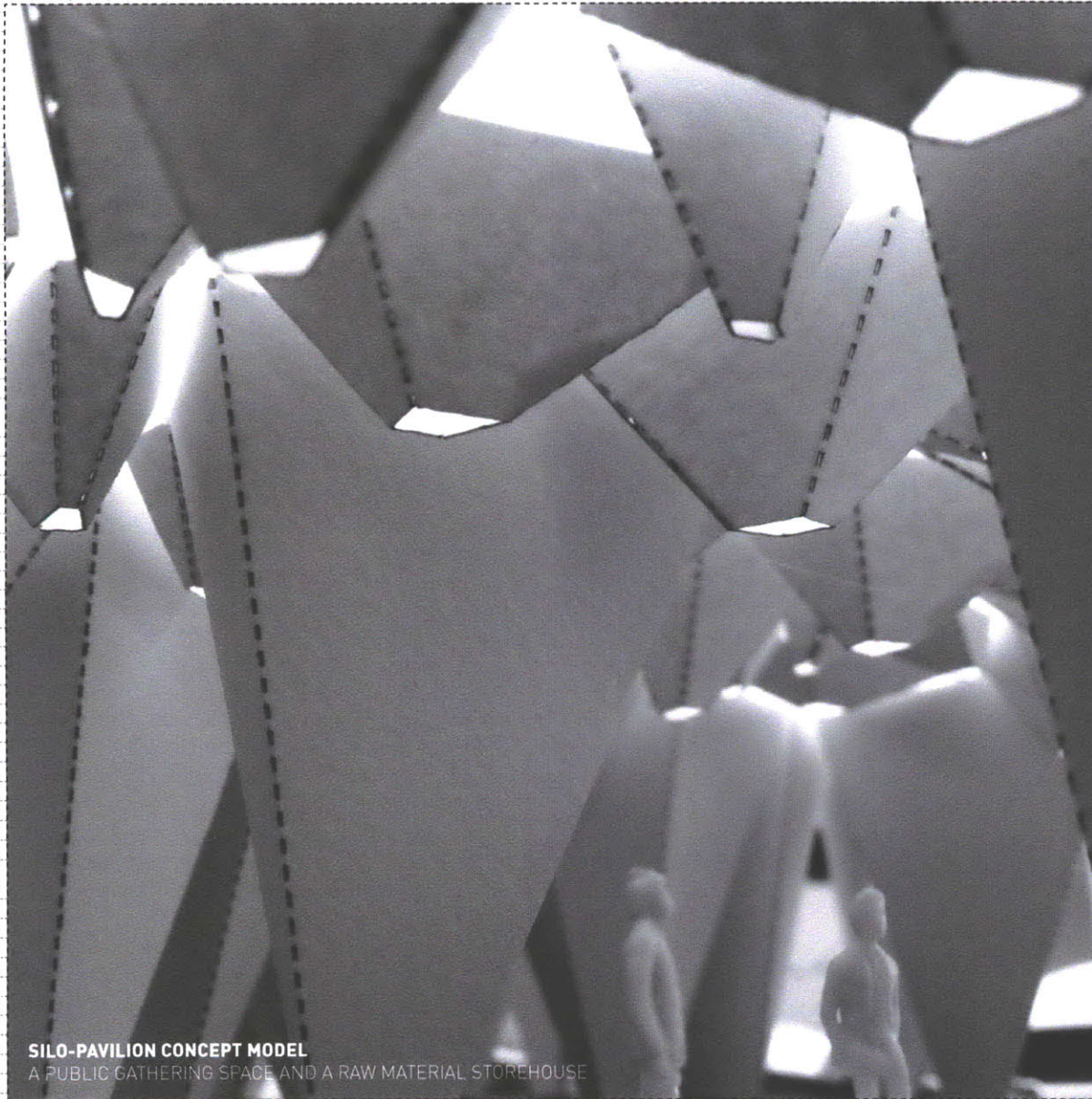
STORAGE ABOVE, PUBLIC OPEN SPACE BELOW.

___The Silo Pavilion is an open, public space intended to serve as monument to collective value. By stockpiling raw materials, the collateral, or economic stability of a neighborhood is defined by this structure. The Silo pavilion stores granulated materials within its columns, while simultaneously providing covered space for community events.

___This building is designed to be a community owned storage facility, managing the surplus raw materials produced in Reverietown. The inverted pyramid roofs form large inverted storage racks, onto which sealed print basins are stored. This structure is an inverted warehouse of sorts. Rather than storing materials on the ground and covering them with a conventional roof, this structure attempts to produce a type of storage space within the structure of the roof, to allow for an open covered public space below.

___The open space below the roof of the Silo Pavilion, could serve many potential community functions. As a space it is very well day-lit by the large triangular apertures which make up the facade of the pavilion. Service functions, such as bathrooms, storage and mechanical space take place within a series of Service cones which take up the center of the plan. The main floor is left flat and un-programmed in order to suit a wide array of community needs. Programmatic uses are as follows: A community maker space, a neighborhood gathering place, a reception hall, or a space for exhibition of the manufactured goods produced in Reverietown. It could also serve as the Neighborhood Exchange, a meeting place where local independent manufacturers deliberate on issues pertaining to community politics.

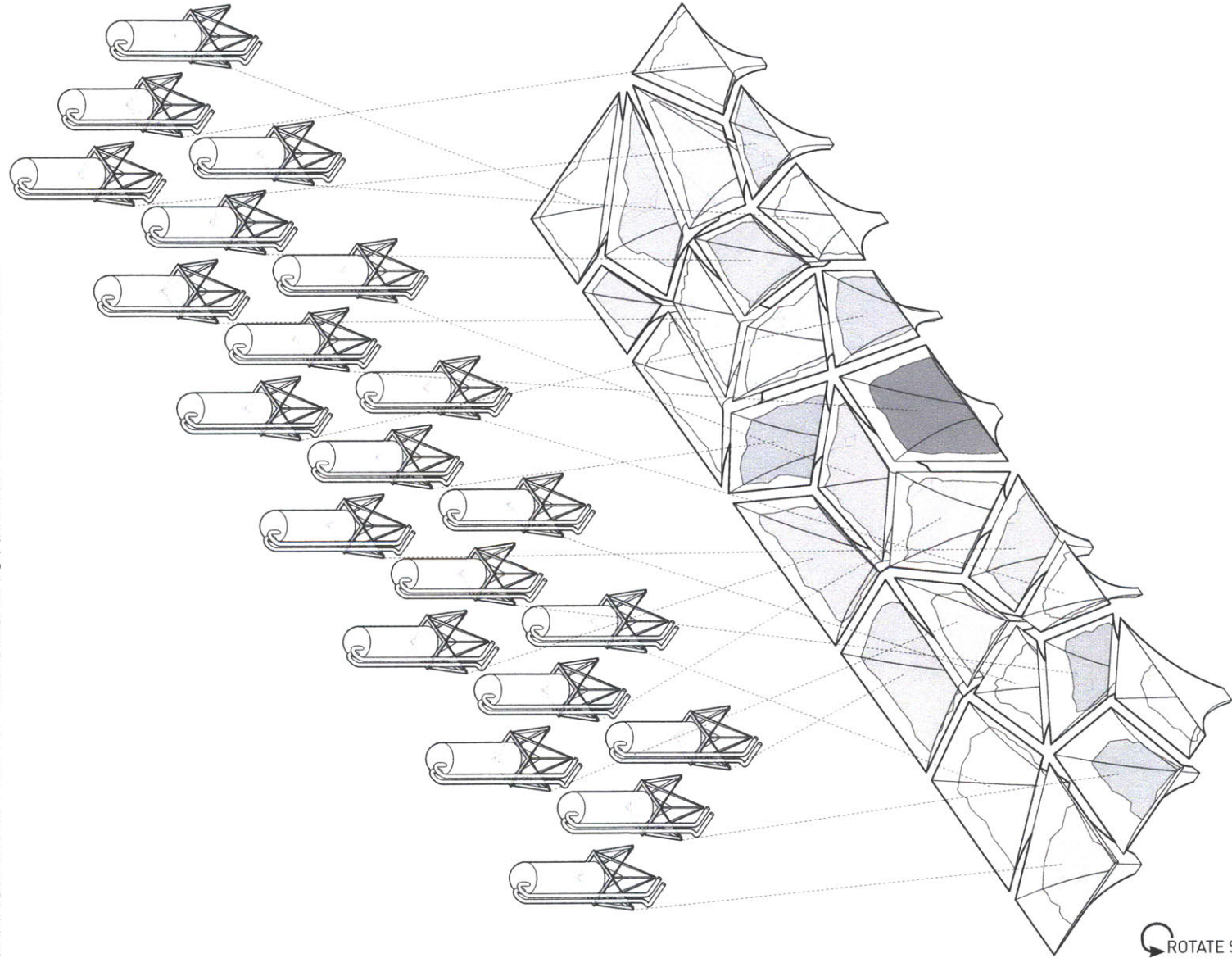
___This multi-purpose storage facility is constructed out of a simple steel framing system, on a mat slab which is cast on trench footings to minimize site excavation. The building is then clad in sheets of perforated corten steel panels, and simple glazing.



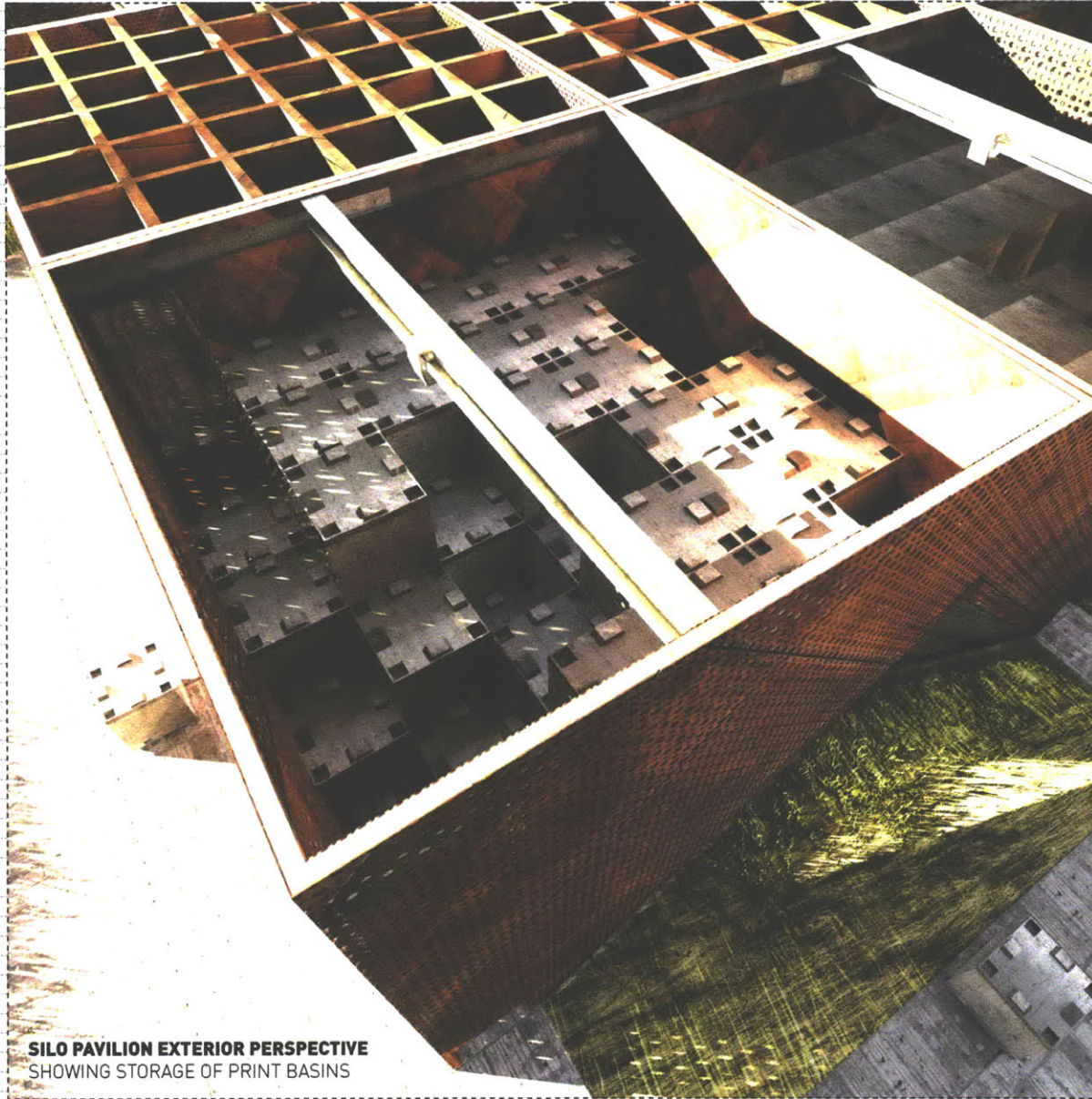
SILO-PAVILION CONCEPT MODEL
A PUBLIC GATHERING SPACE AND A RAW MATERIAL STOREHOUSE

SILO PAVILION CONCEPT

TRANSLATING THE TYPICAL SILO INTO AN ARCHITECTURAL FORM



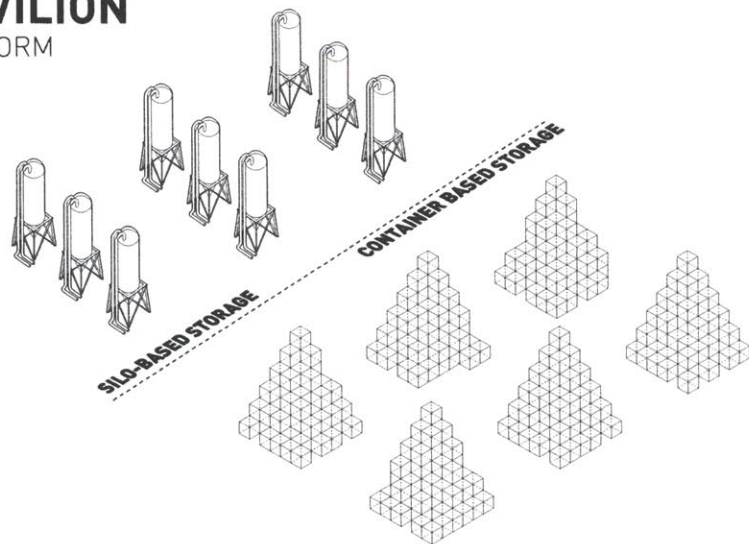
ROTATE SPREAD



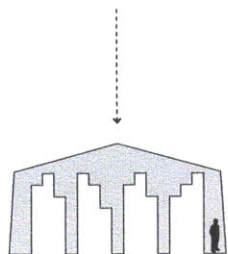
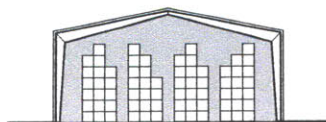
SILLO PAVILION EXTERIOR PERSPECTIVE
SHOWING STORAGE OF PRINT BASINS

SILO PAVILION

CONCEPT + FORM

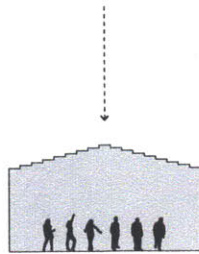
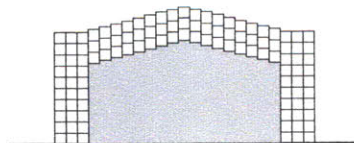


TYPICAL STORAGE TYPOLOGY

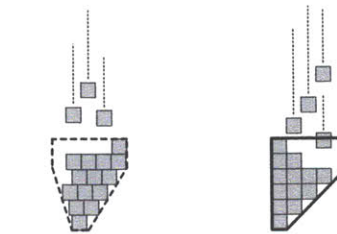
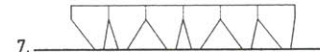
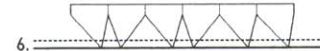
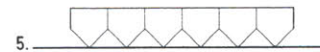
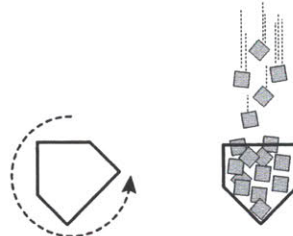


WASTED SPACE

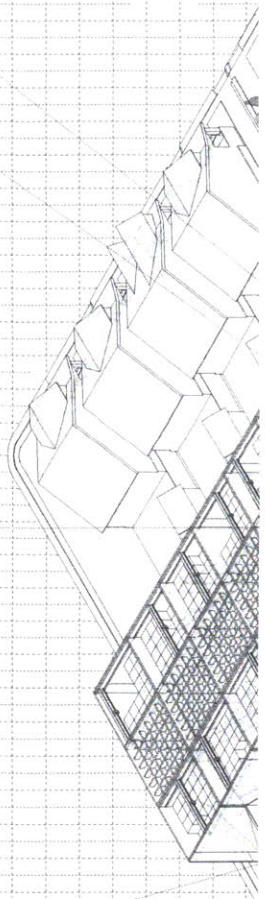
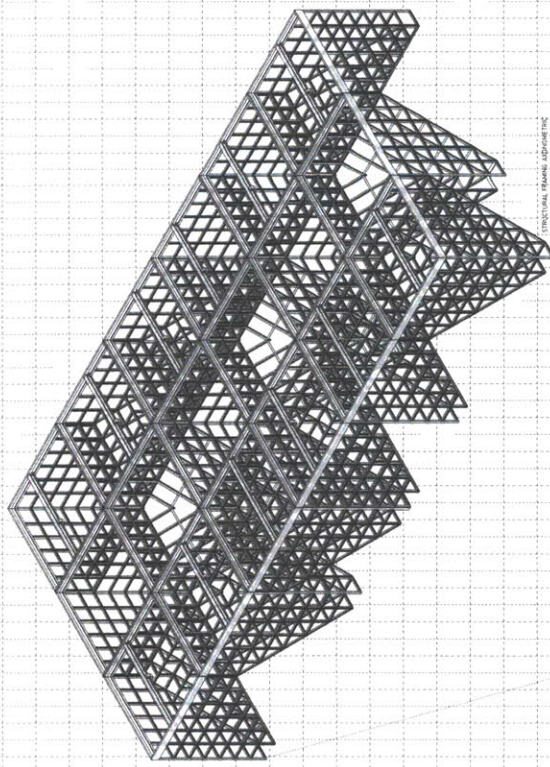
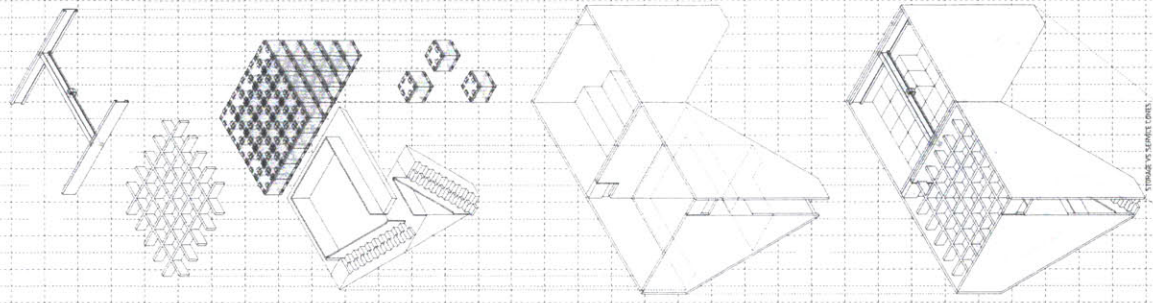
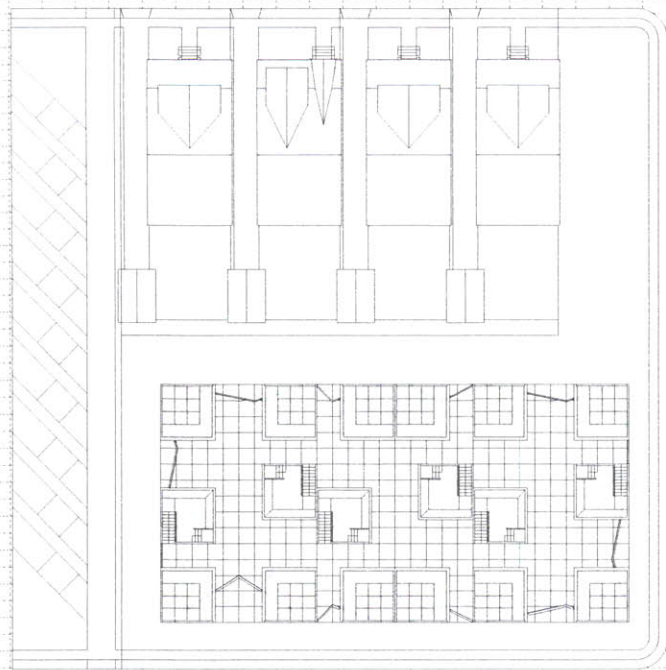
STORAGE AS ENCLOSURE



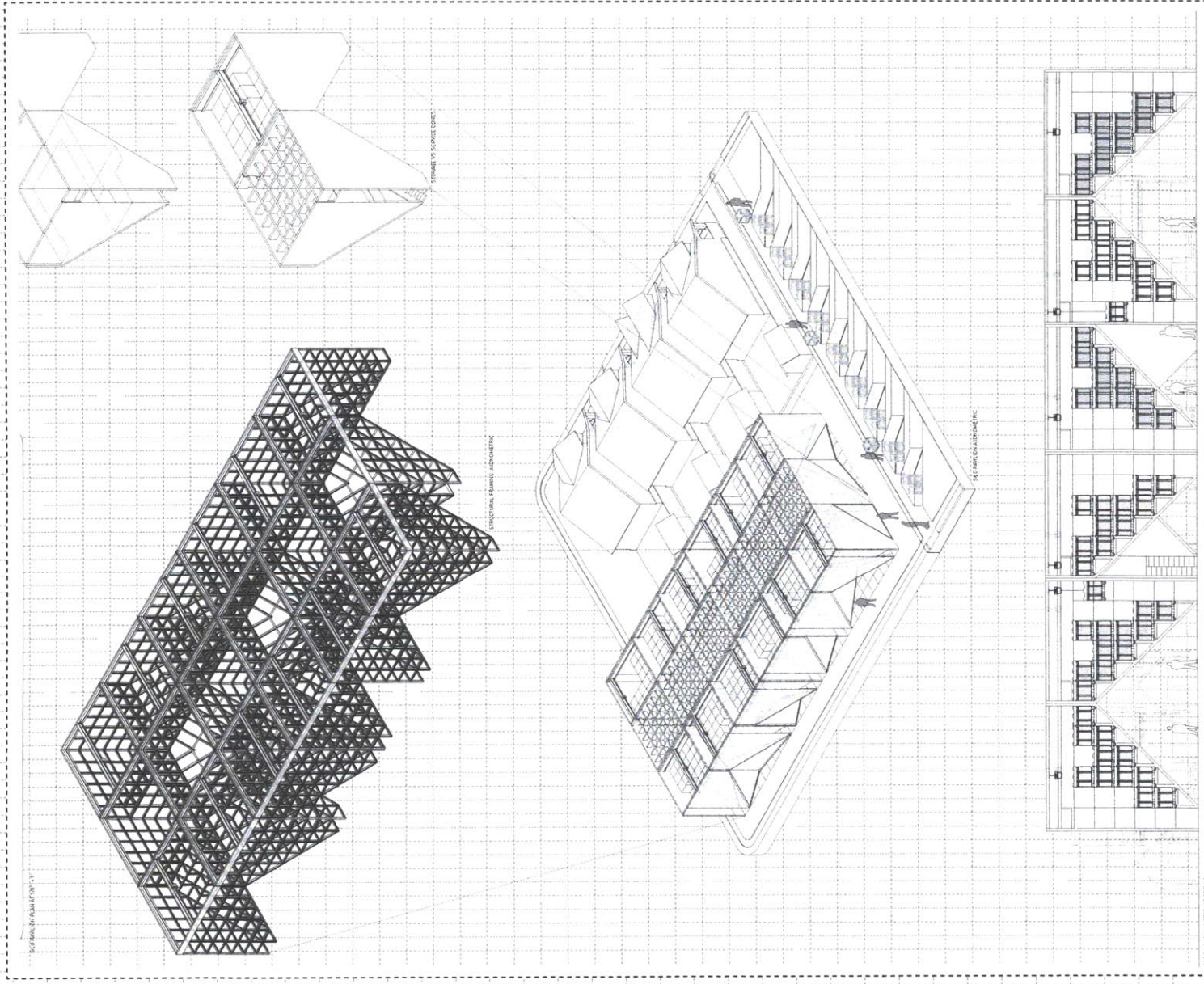
USEABLE SPACE



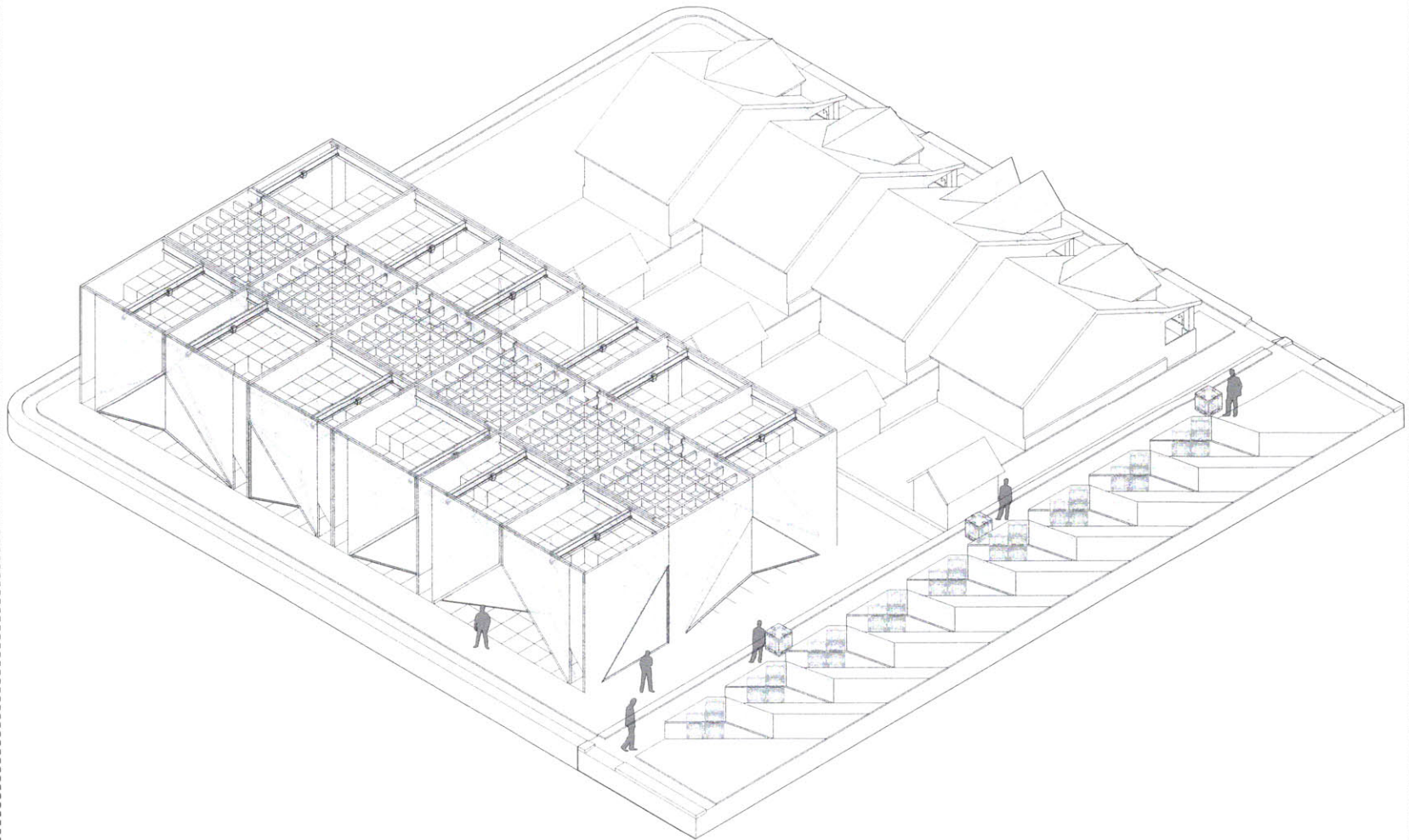
TYPOLGY B: THE SILO PAVILLION
MARCH THESIS: ALEXANDER W. MARSHALL



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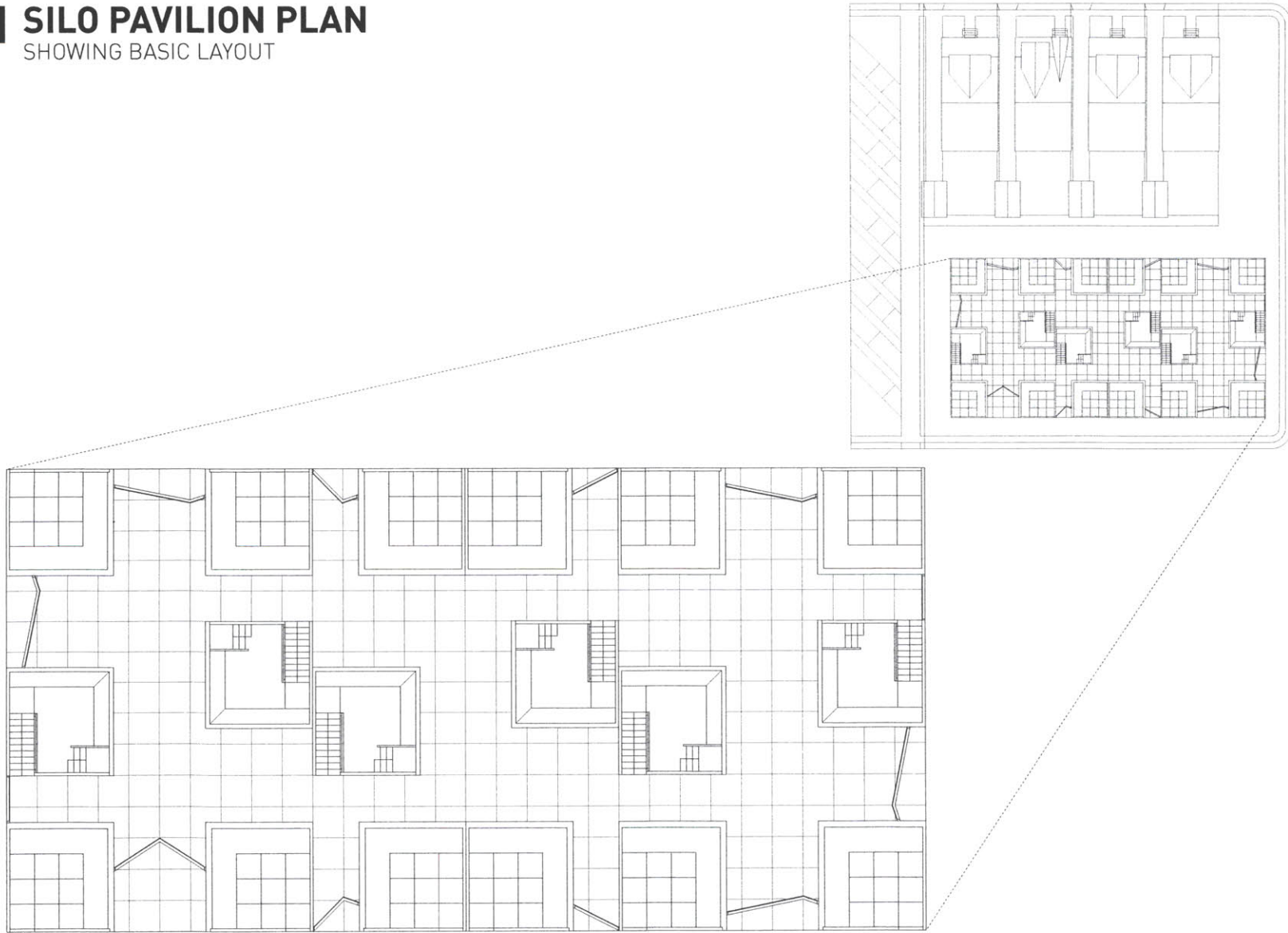


SILO PAVILION AXO
SHOWING IMMEDIATE CONTEXT



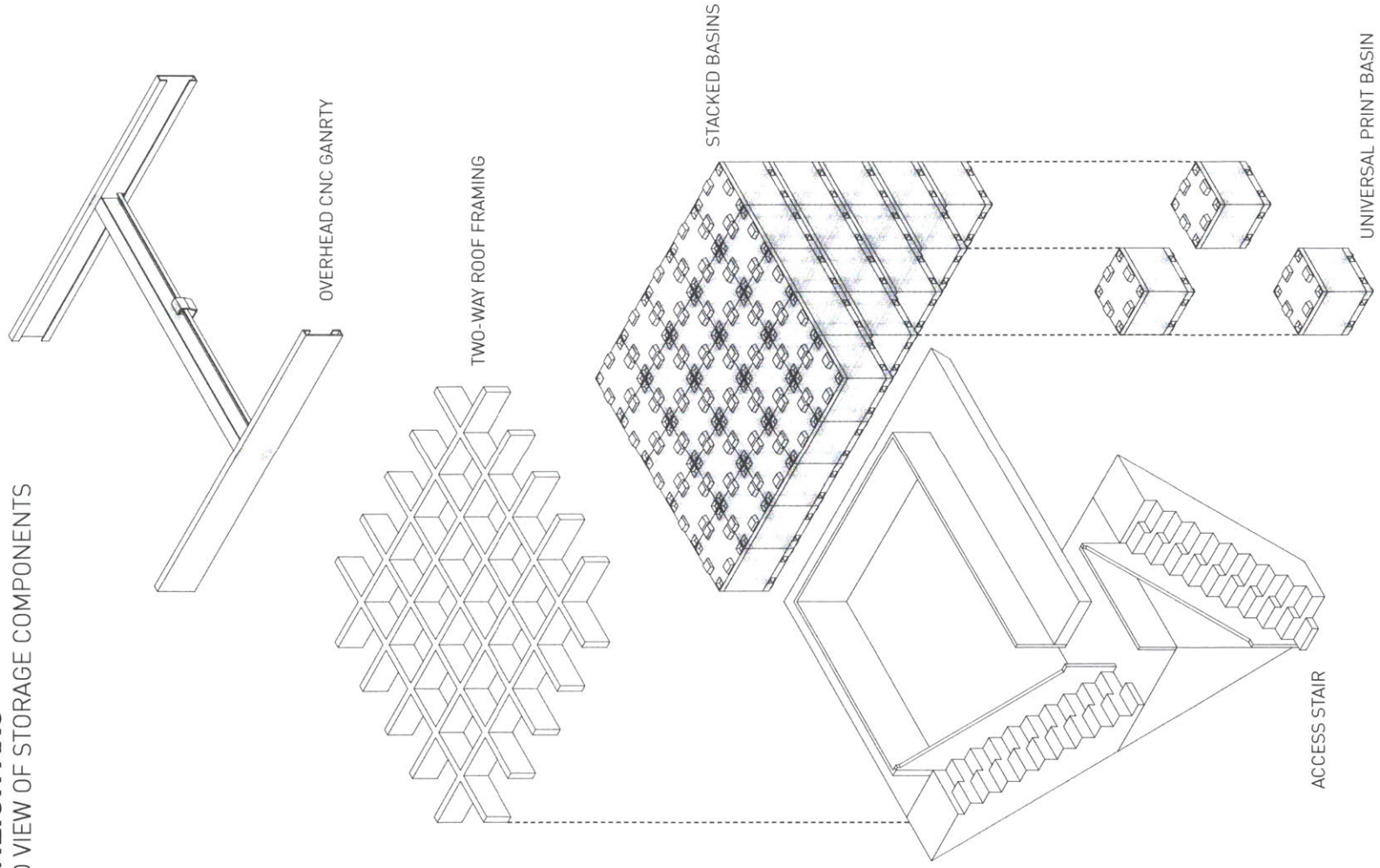
SILO PAVILION PLAN

SHOWING BASIC LAYOUT



SILO PAVILION AXO

EXPLODED VIEW OF STORAGE COMPONENTS



OVERHEAD CNC GANTRY

TWO-WAY ROOF FRAMING

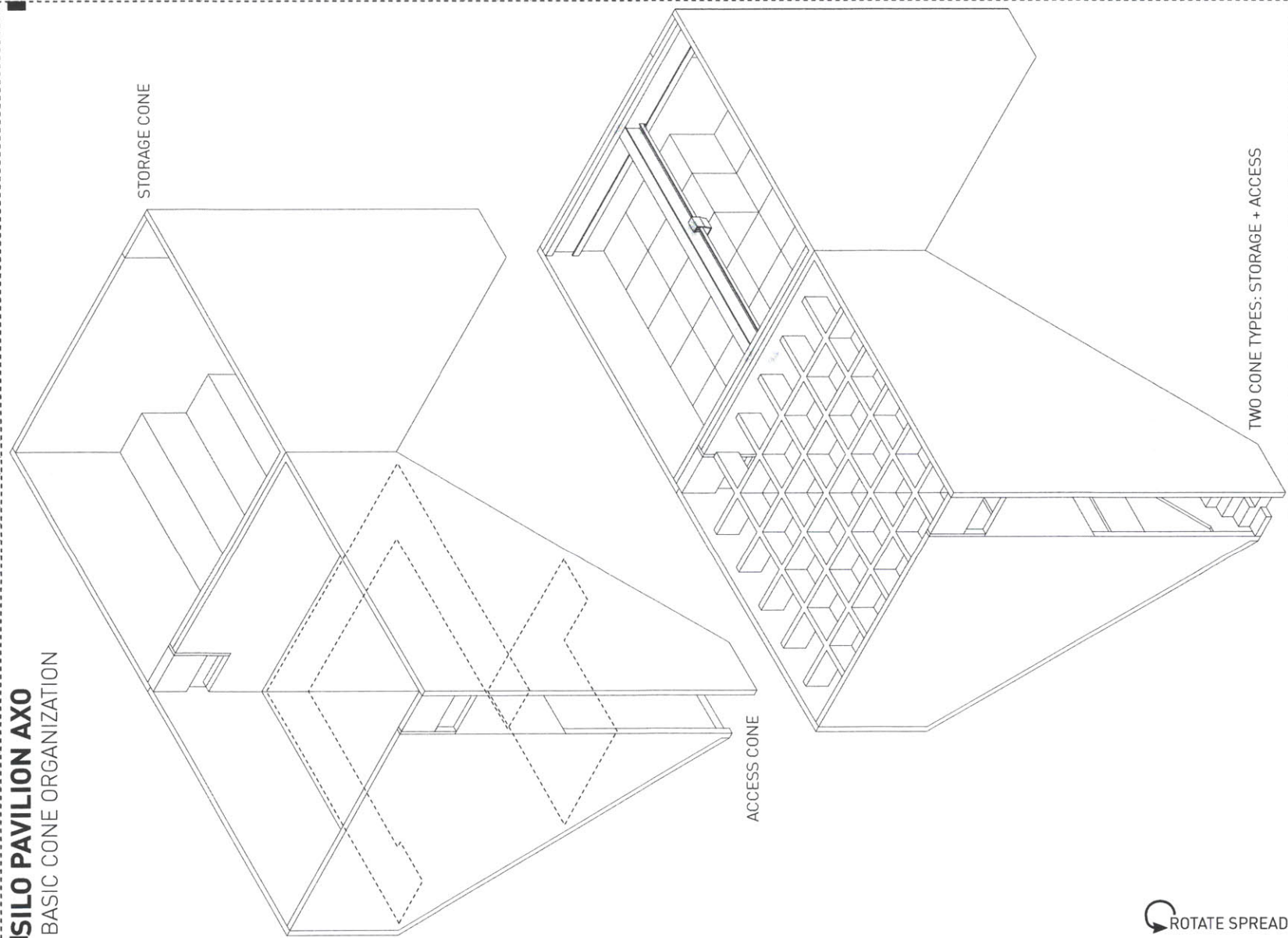
STACKED BASINS

UNIVERSAL PRINT BASIN

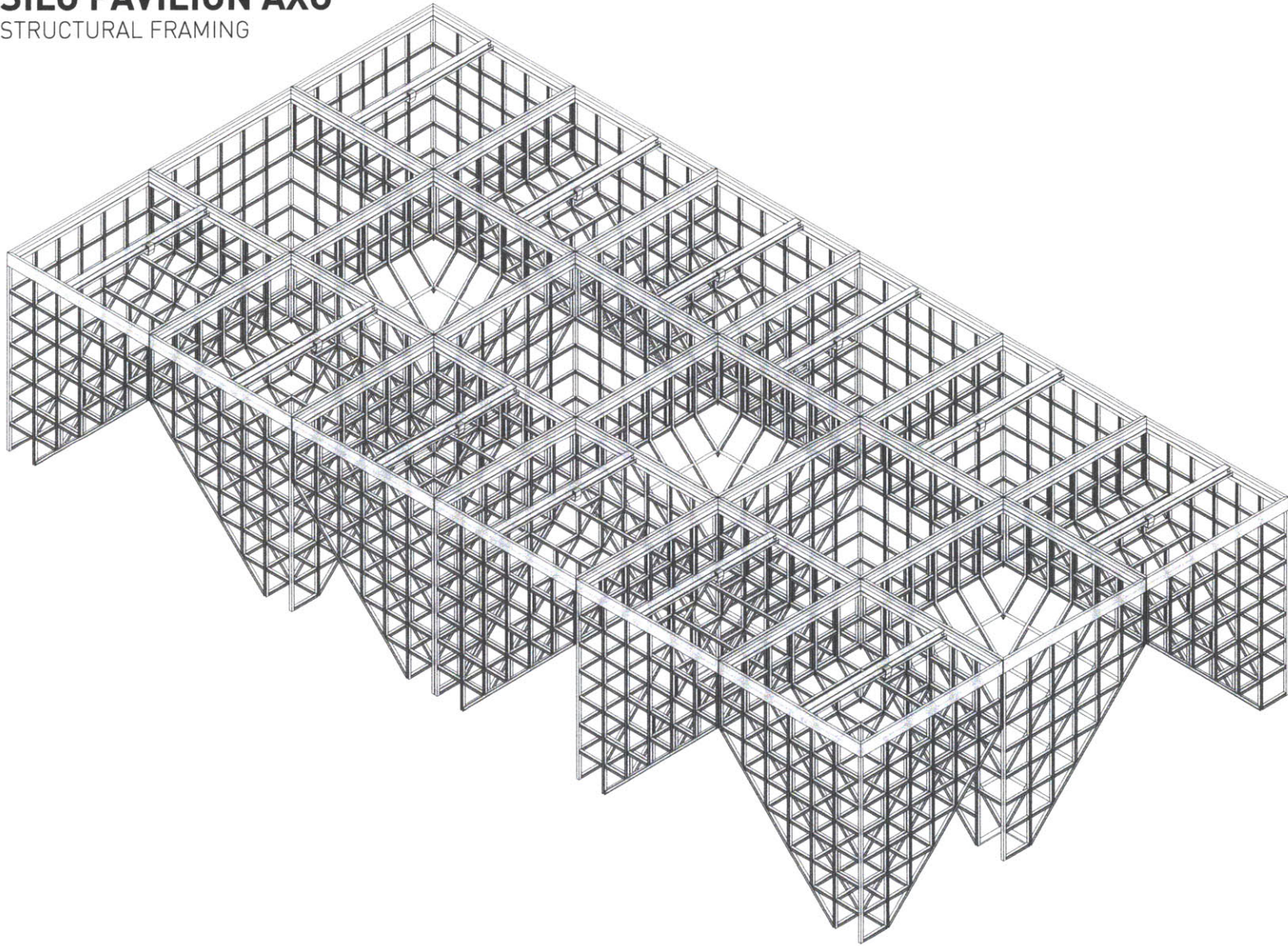
ACCESS STAIR

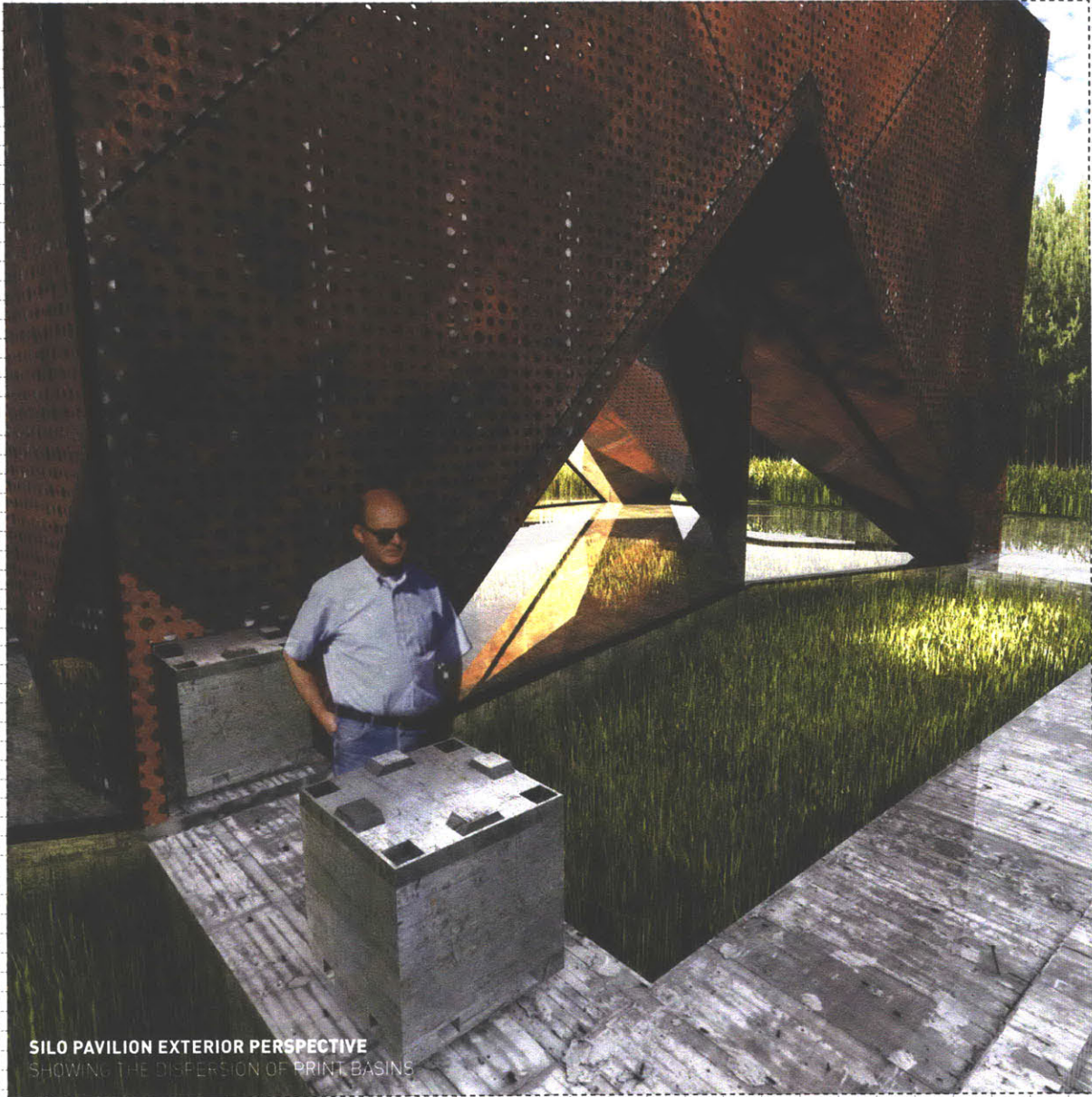
ROTATE SPREAD

SILLO PAVILION AXO
BASIC CONE ORGANIZATION



SILO PAVILION AXO
STRUCTURAL FRAMING



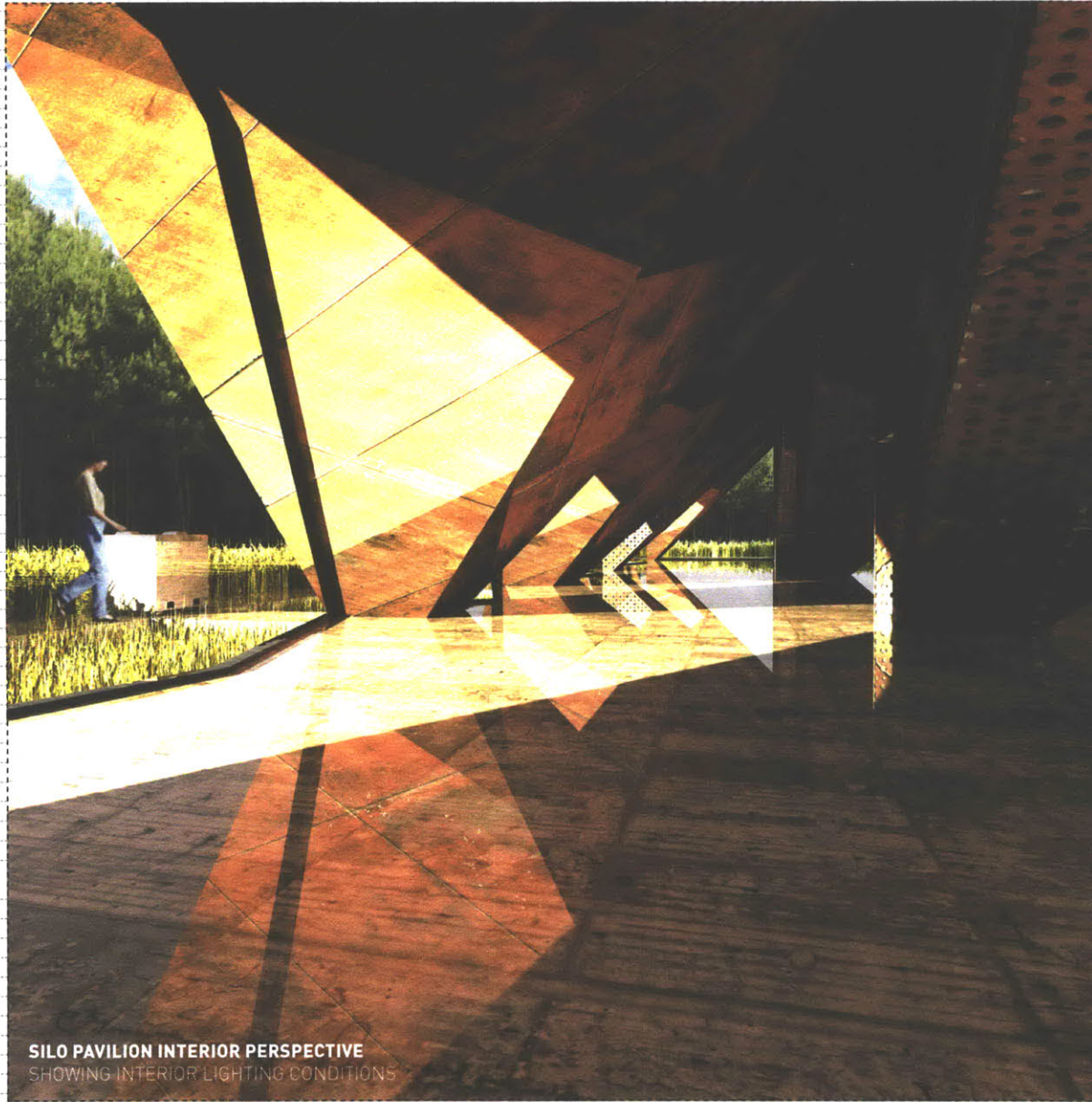


SILO PAVILION EXTERIOR PERSPECTIVE
SHOWING THE DISPERSION OF PRINT BASINS

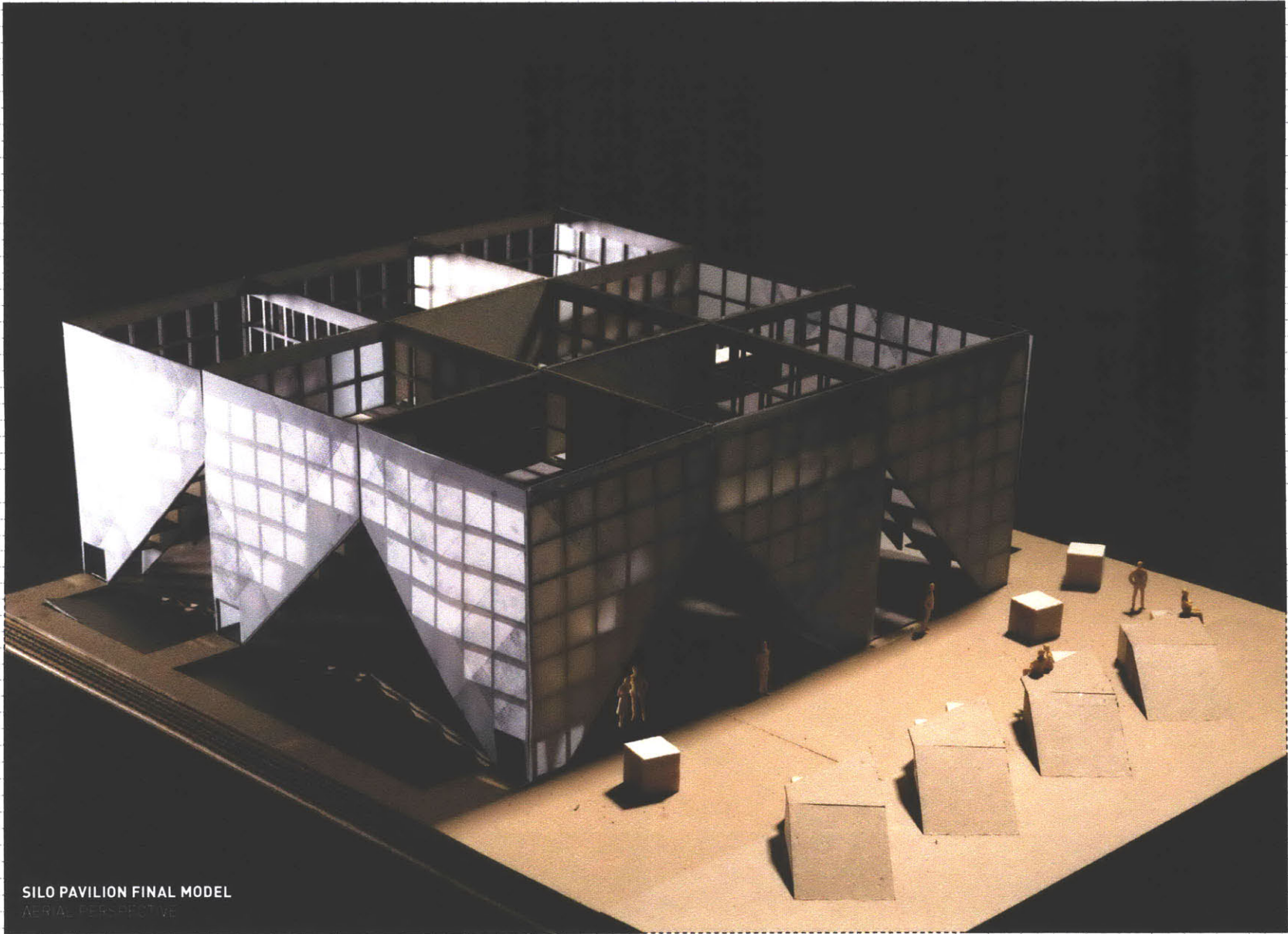


SILO PAVILION SECTION
ORIGINAL SCALE: 1/4" = 1'





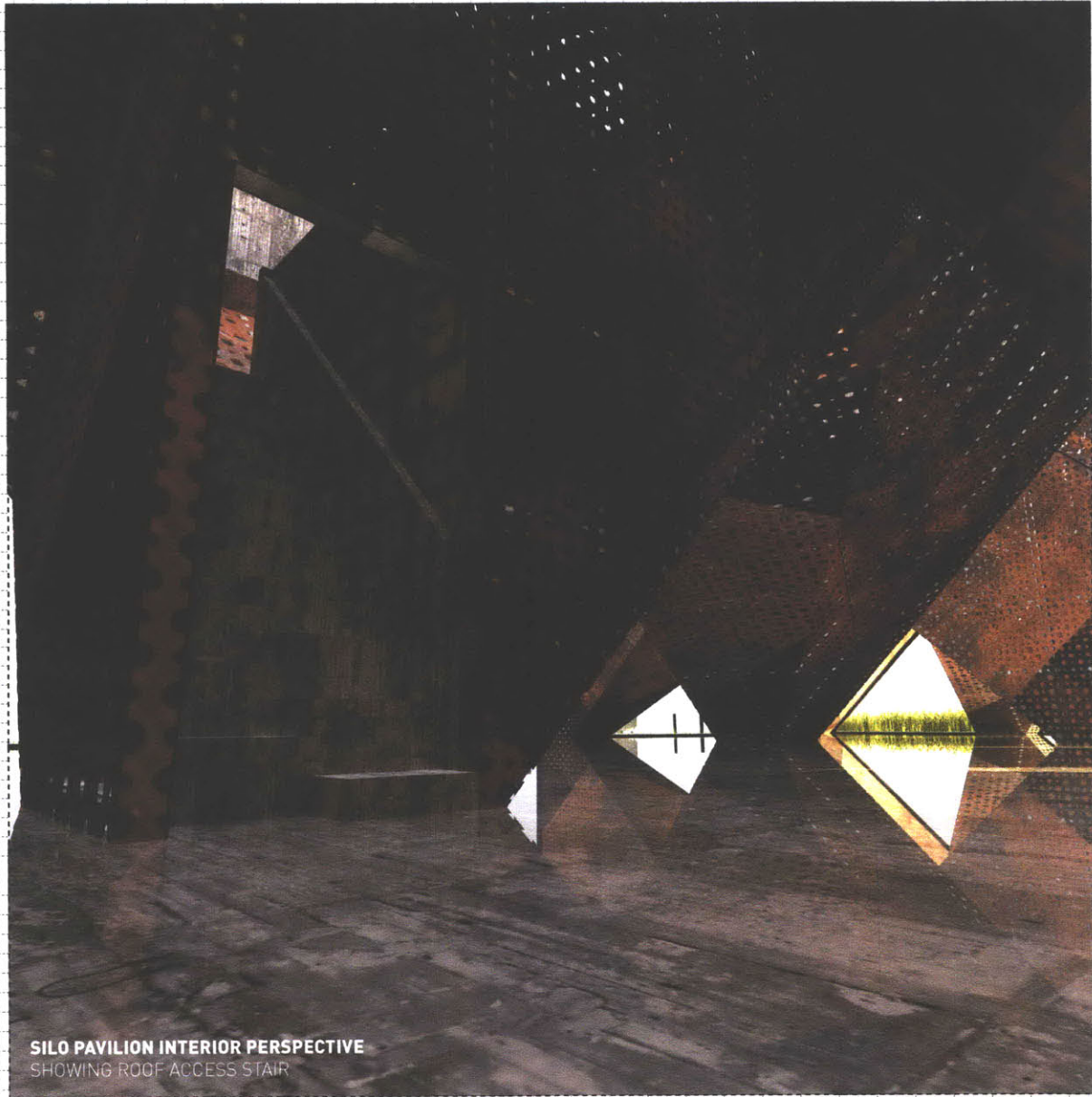
SILO PAVILION INTERIOR PERSPECTIVE
SHOWING INTERIOR LIGHTING CONDITIONS



SILO PAVILION FINAL MODEL
AERIAL PERSPECTIVE



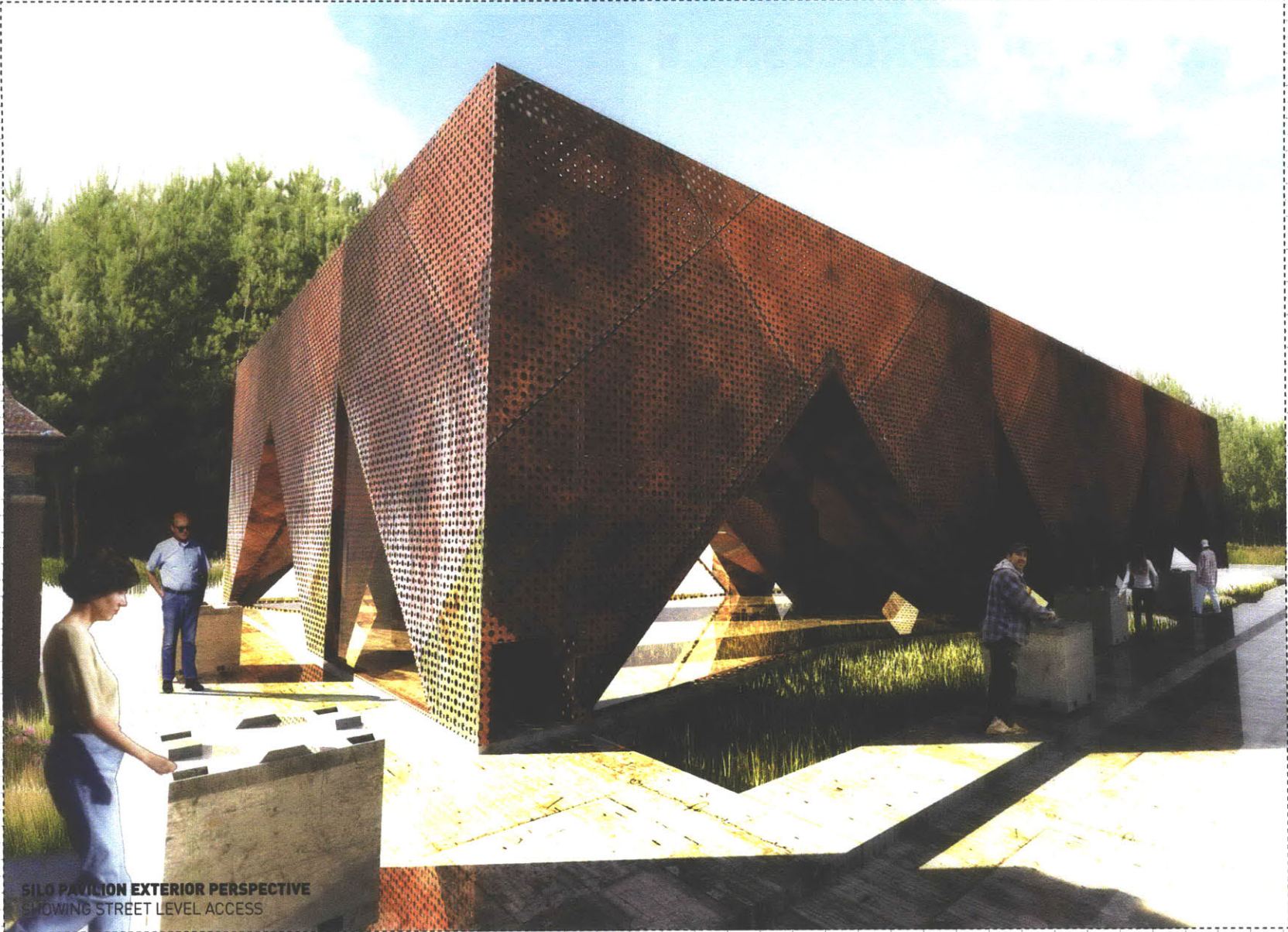
SILO PAVILION FINAL MODEL
AERIAL ELEVATION, SHOWING SKIN TRANSPARENCY



SILO PAVILION INTERIOR PERSPECTIVE
SHOWING ROOF ACCESS STAIR



SILO PAVILION FINAL MODEL
SHOWING THE ARRANGEMENT OF STORAGE AND ACCESS CONES



SILLO PAVILION EXTERIOR PERSPECTIVE
SHOWING STREET LEVEL ACCESS

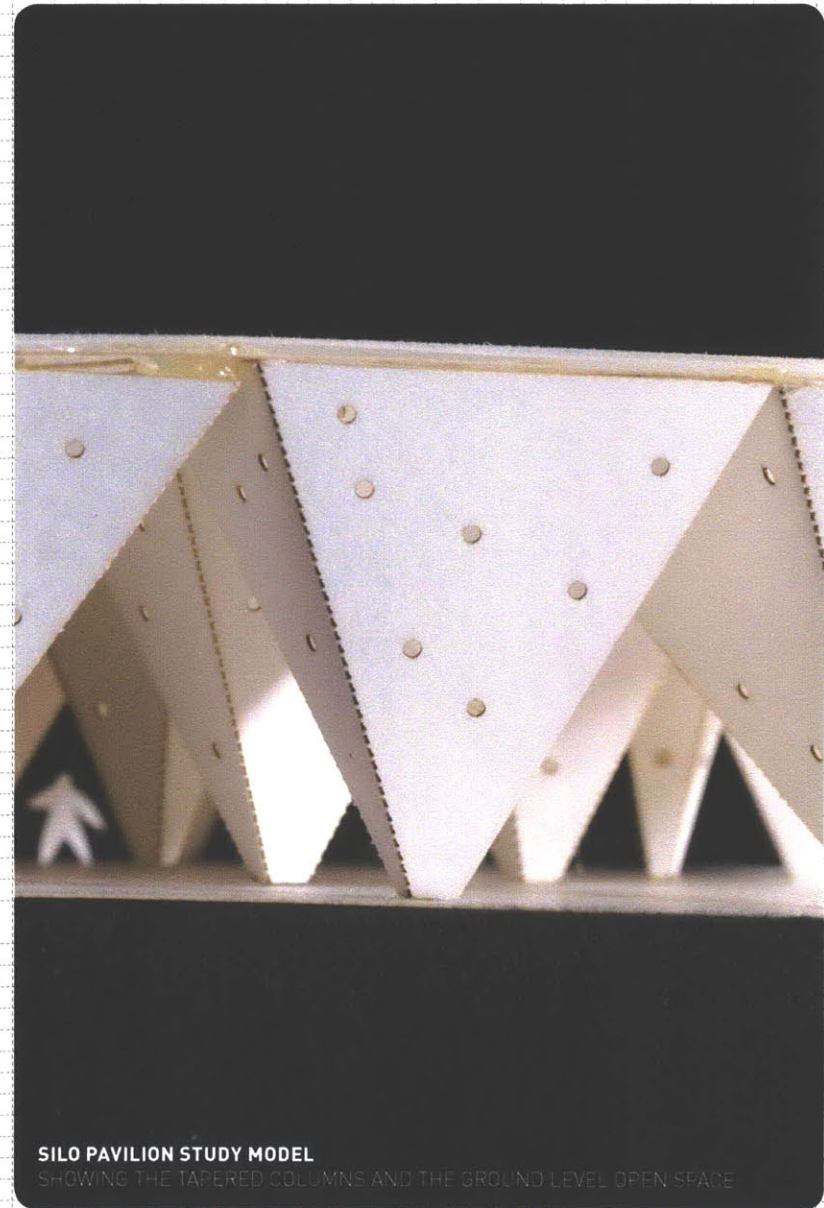
SILO PAVILION PROCESS

THE GOOD, THE BAD AND THE UGLY

___The following pages contain a selection of studies which were produced prior to the final Silo Pavilion Proposal. From the outset the Silo Pavilion was always imagined simply as a translation from a collection of typical storage silos into an architecturalized version in which a new type of covered public space could be produced below the storage basins. The original versions were a bit unconstrained, as the original idea was that these inverted conic shapes would serve as bulk storage. Bulk storage of granulated material would mean that virtually any conic shape could be used as long as the mechanism for loading and dispensing material from the silo was consistent. The result was that many of the initial proposals took on a much more random and unique form.

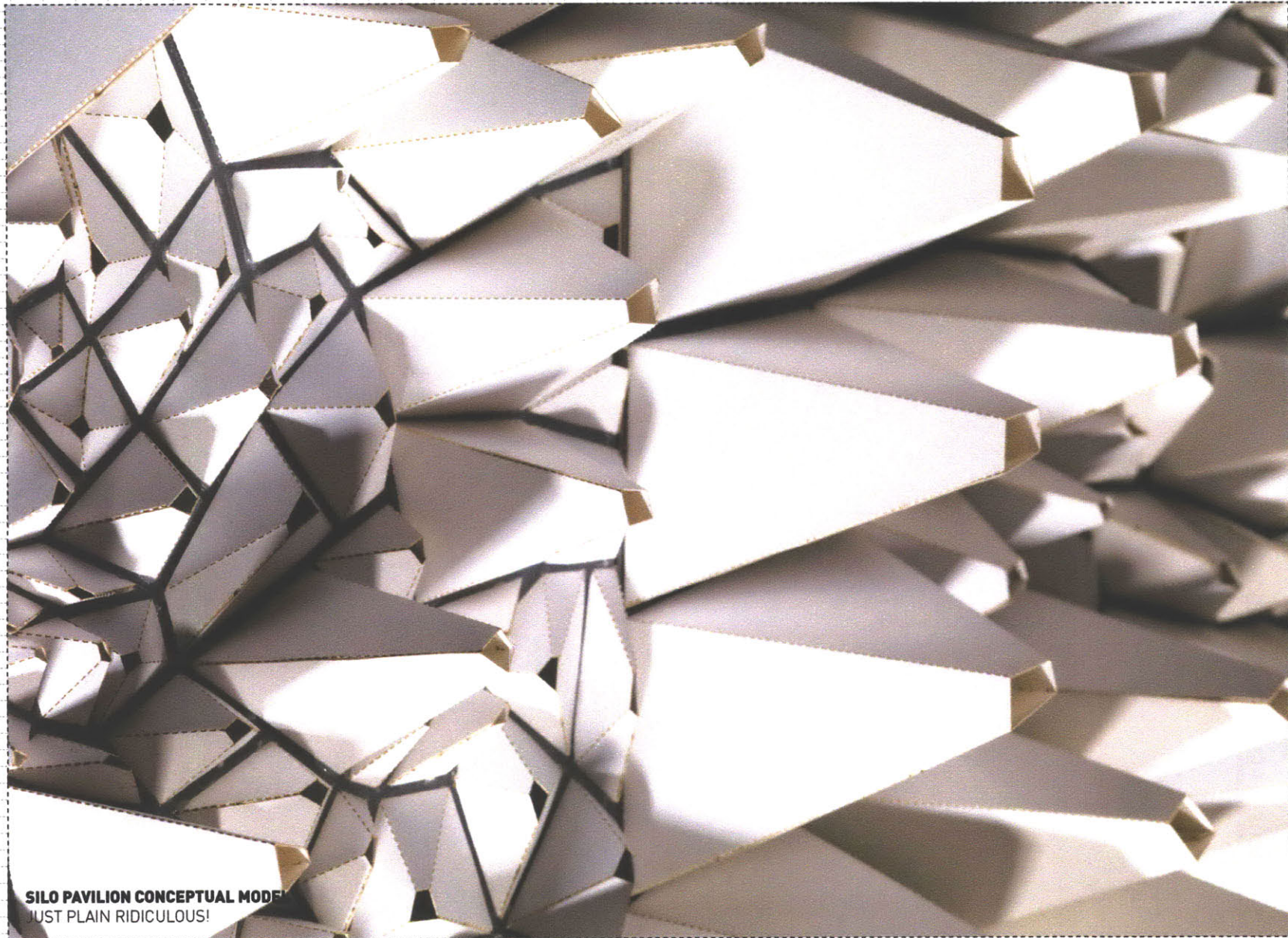
___The conic form was utilized in this project, because it allowed for a wealth storage space above the ground level, while leaving the ground plane open due to the tapering form of the cone.

___The final proposal was constrained in more interesting way than the original proposals. Rather than being a volume for bulk storage, it was designed to be a volume which would take on the pyramidal stacking of sealed Print Basins. The geometry of the final form was dictated by the cubic form of the print basin, resulting in a building which used common elements and repetitive angles.



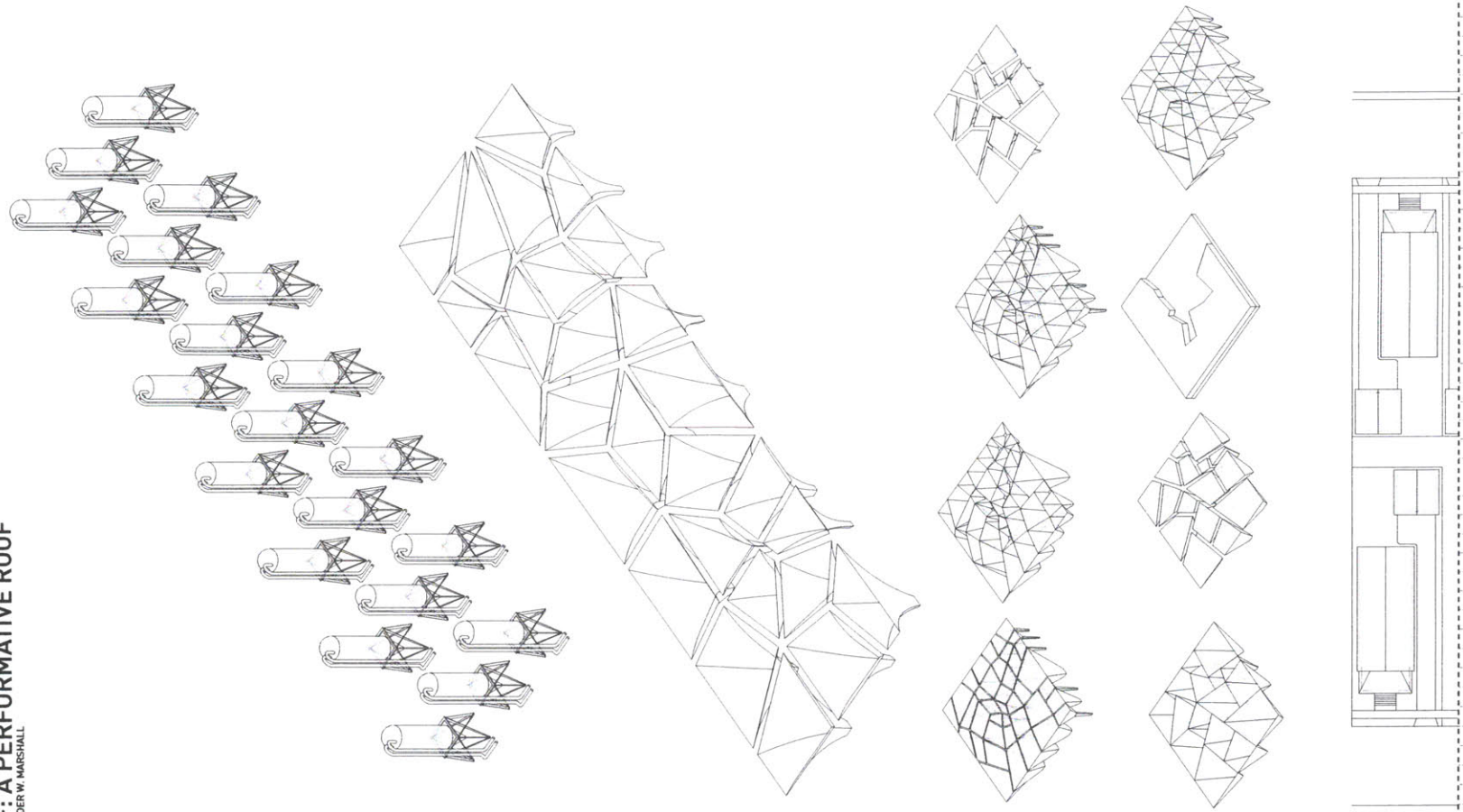
SILO PAVILION STUDY MODEL

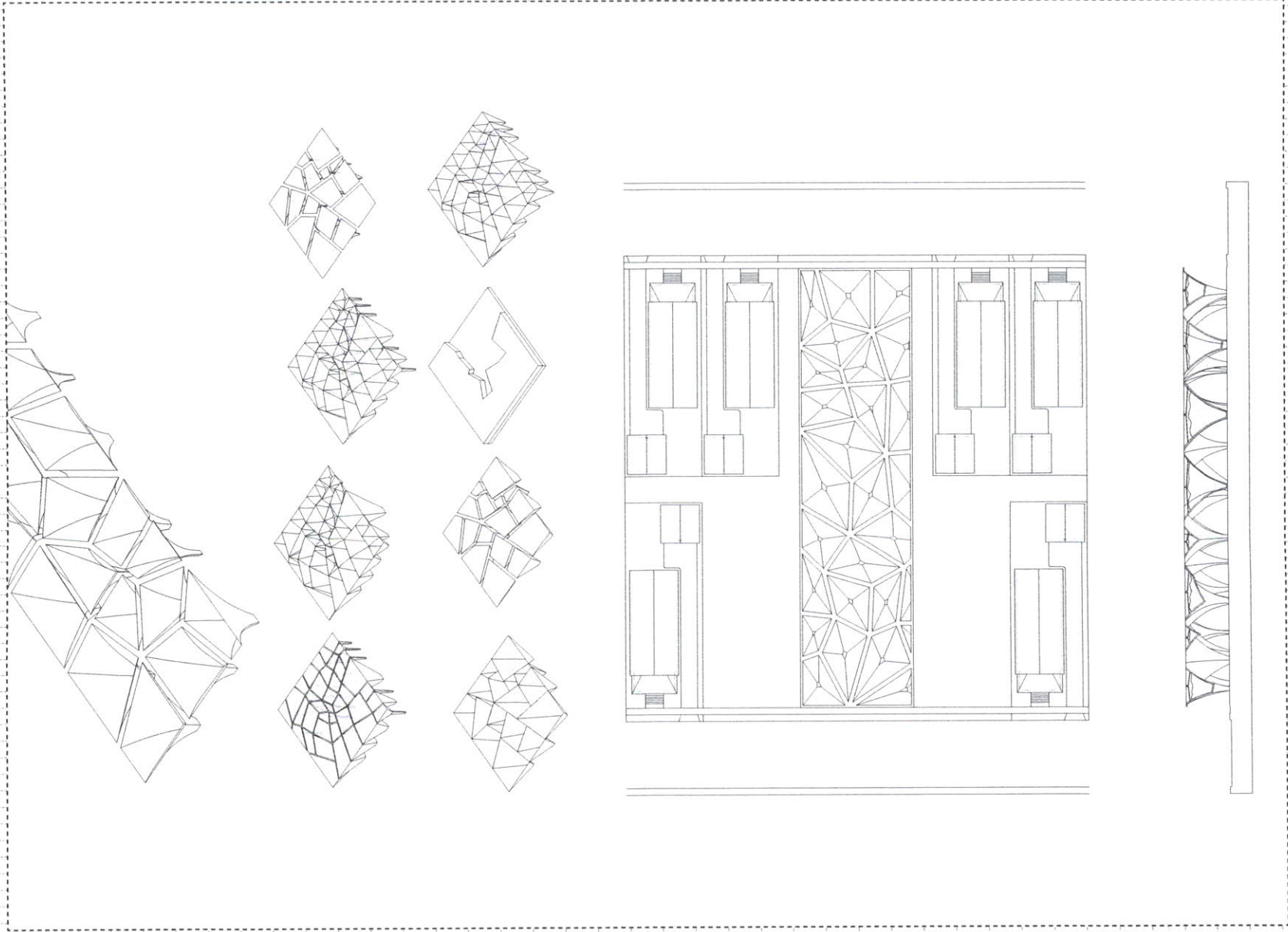
SHOWING THE TAPERED COLUMNS AND THE GROUND LEVEL OPEN SPACE

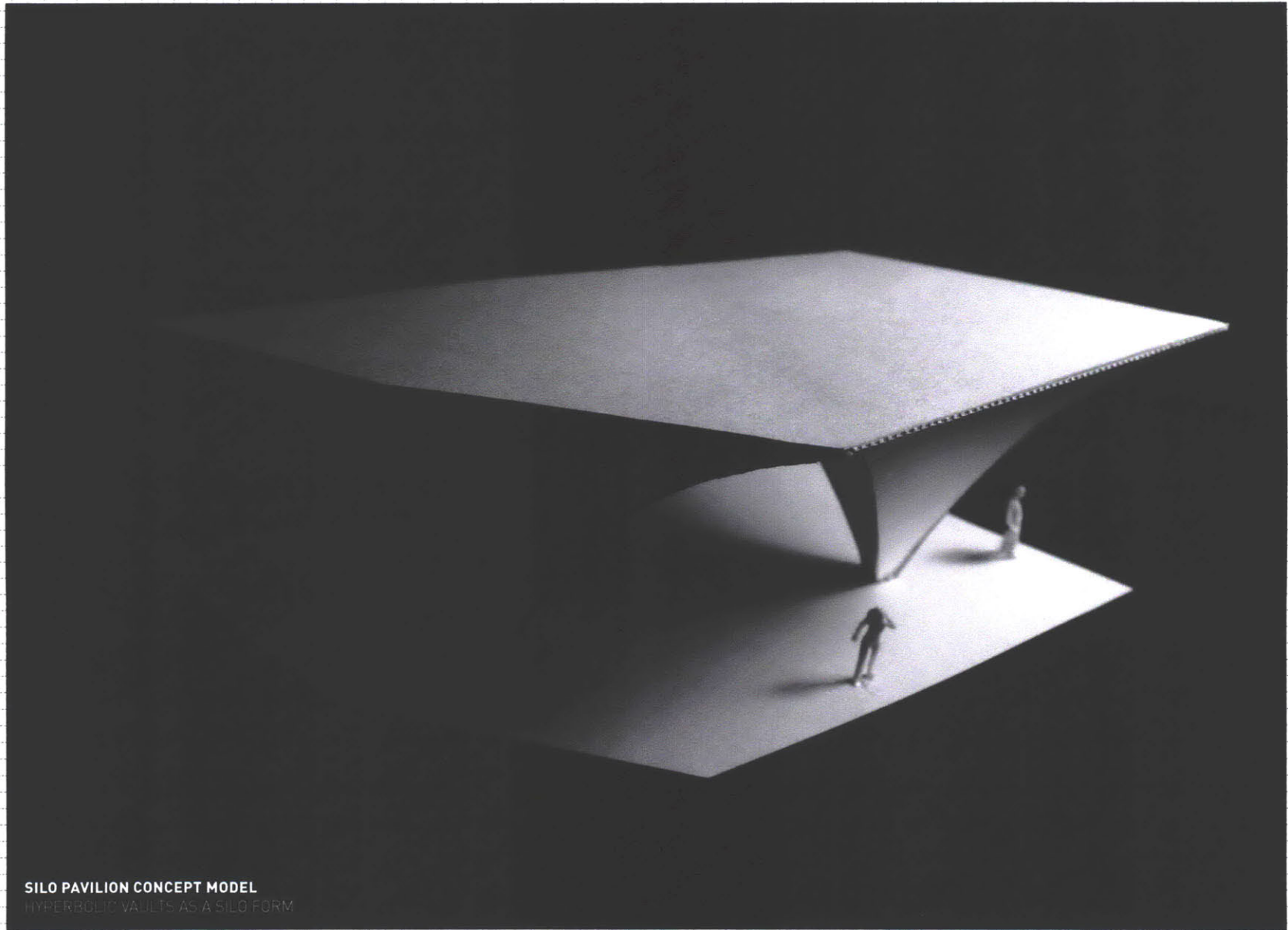


SILO PAVILION CONCEPTUAL MODEL
JUST PLAIN RIDICULOUS!

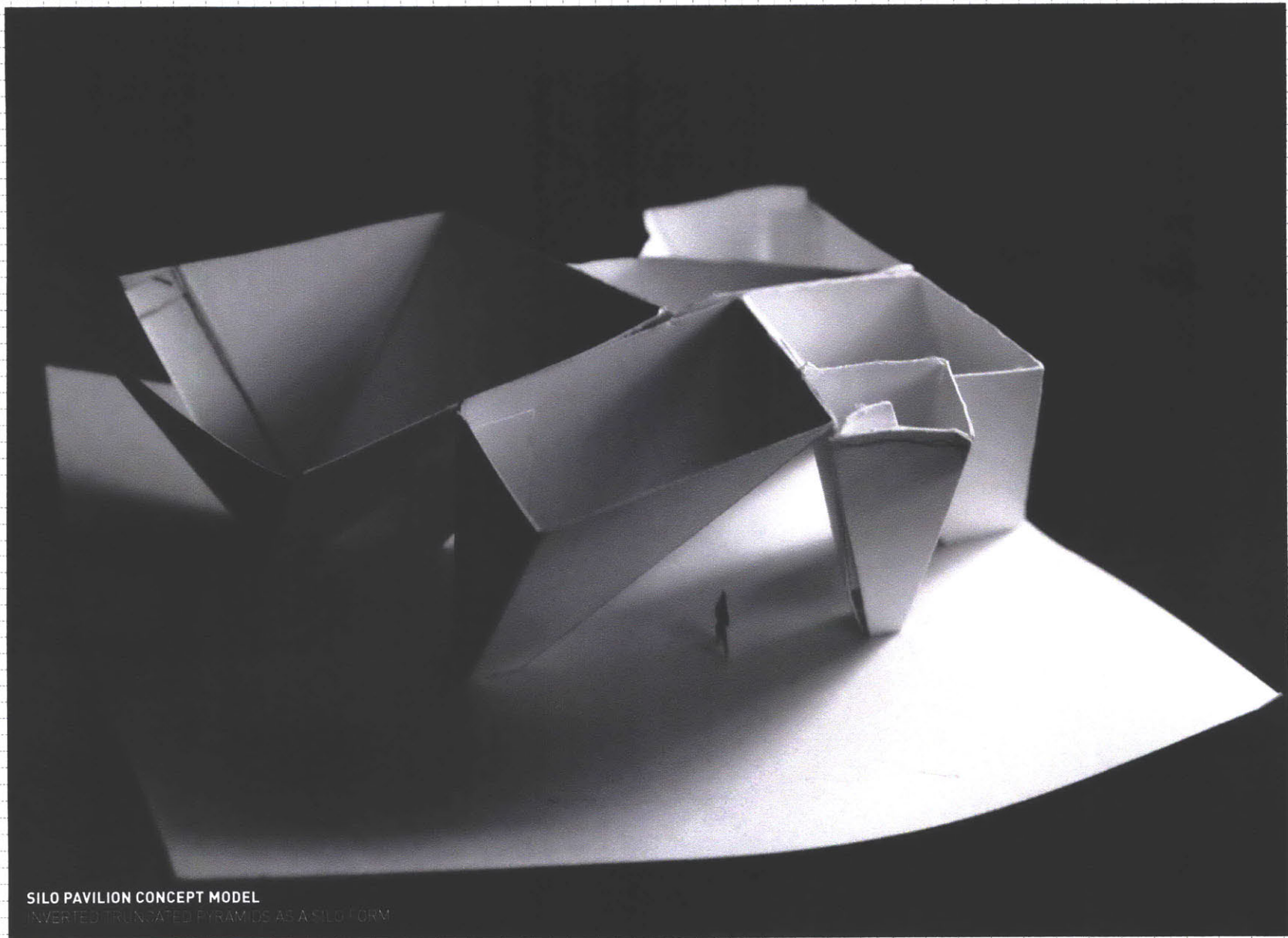
SILo ROOF: A PERFORMATIVE ROOF
M ARCH THESIS, ALEXANDER W. MARSHALL



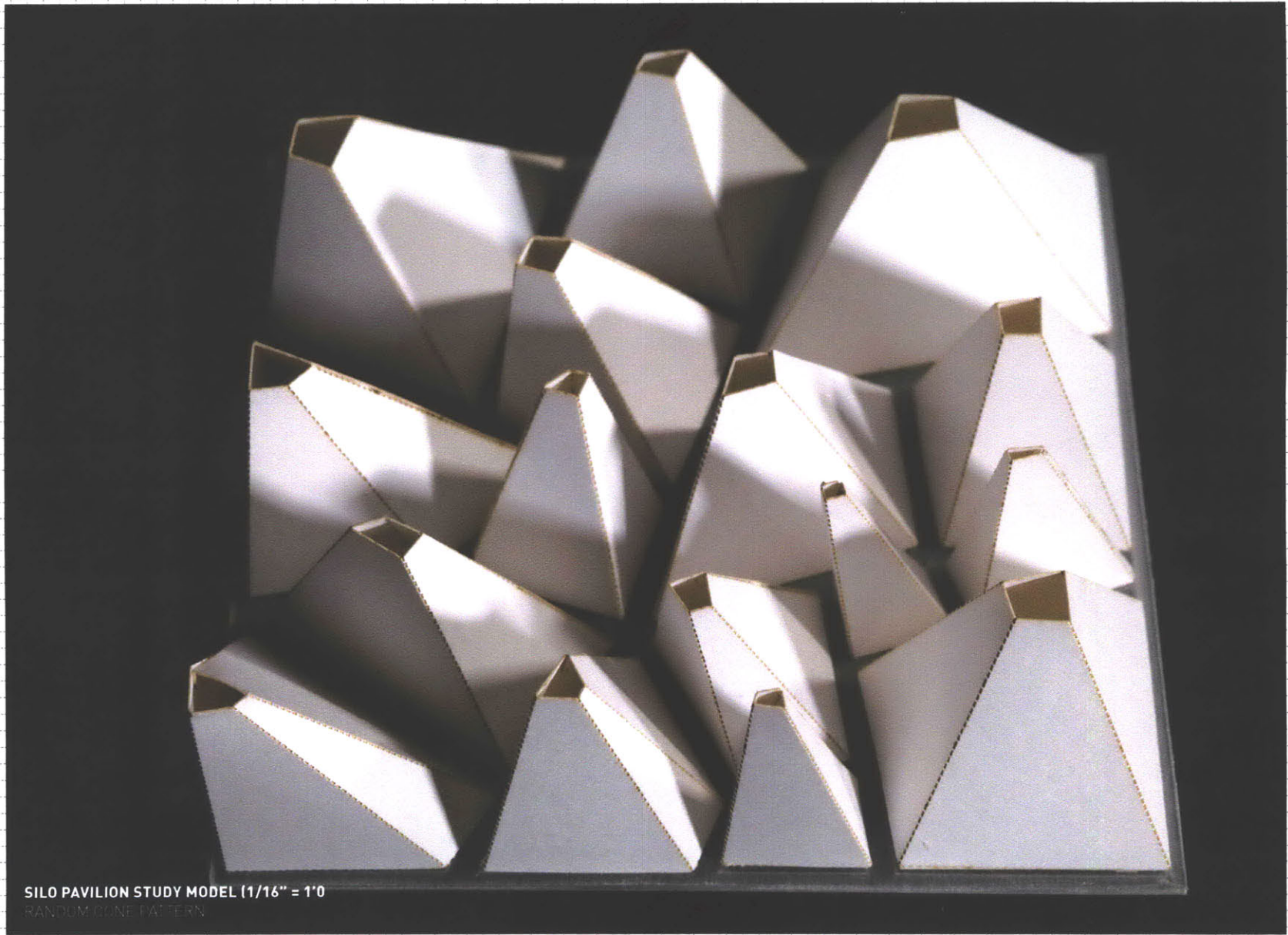




SILO PAVILION CONCEPT MODEL
HYPERBOLIC VAULTS AS A SILO FORM



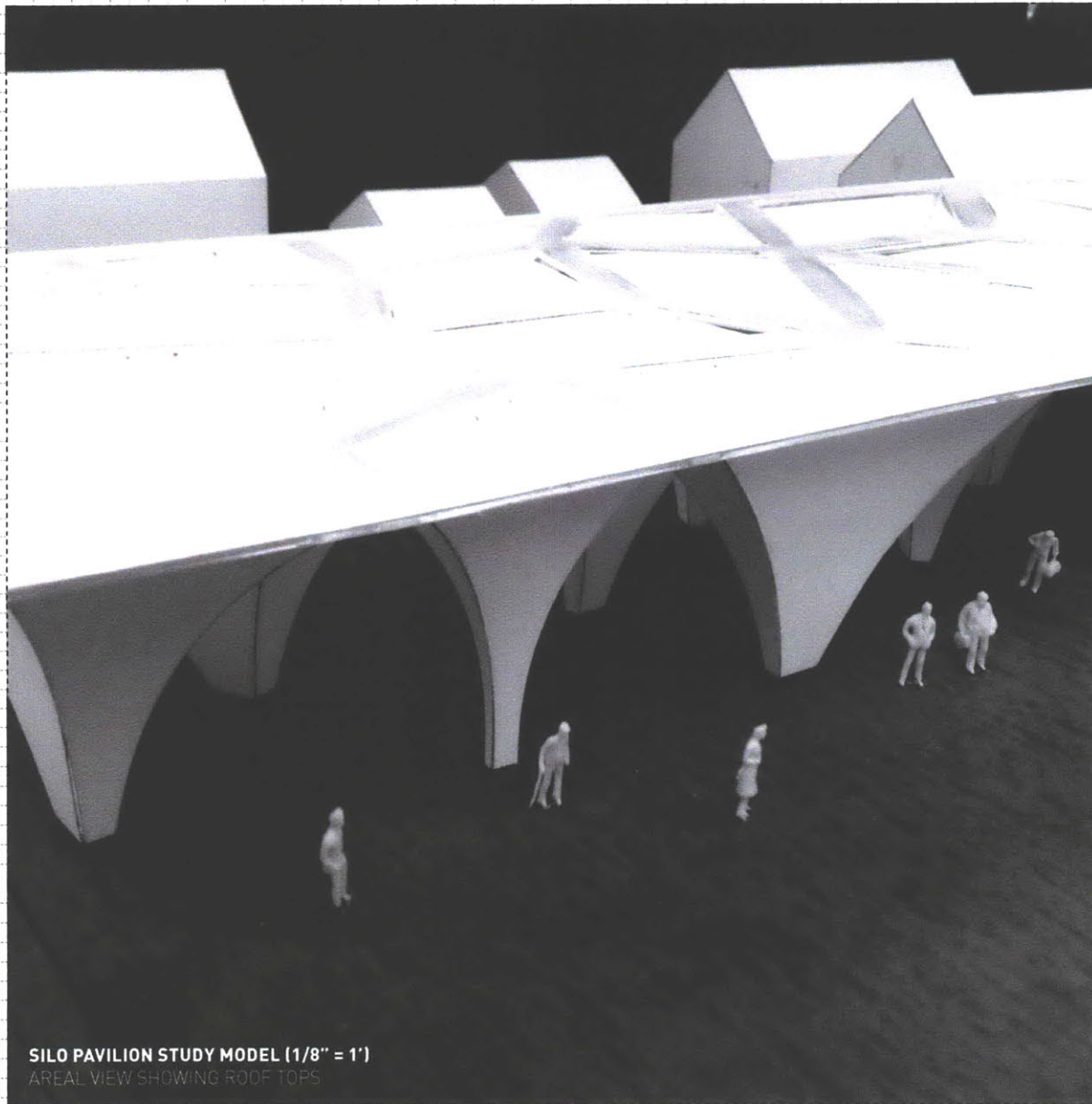
SILO PAVILION CONCEPT MODEL
INVERTED TRUNCATED PYRAMIDS AS A SILO FORM



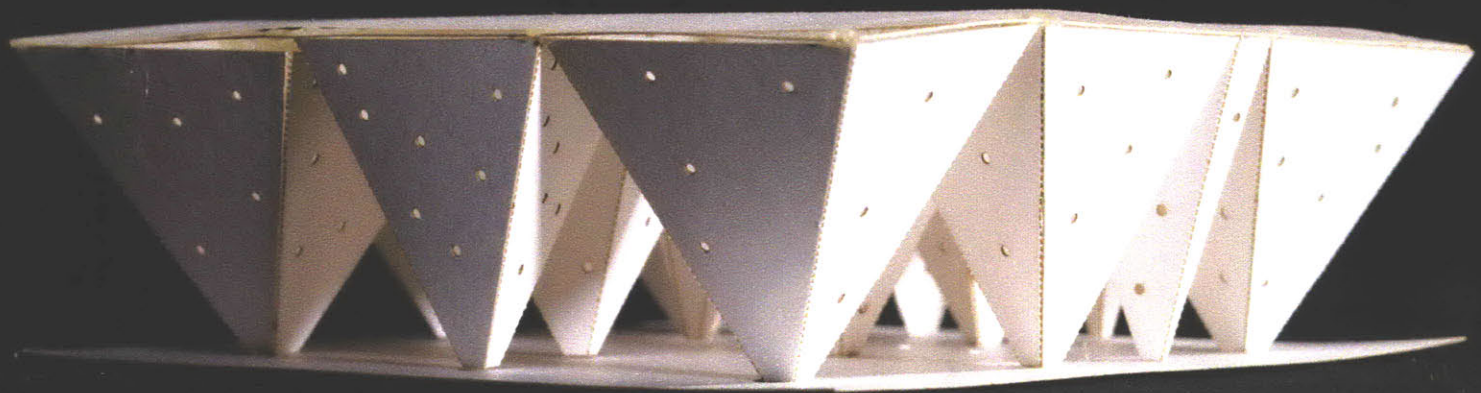
SILO PAVILION STUDY MODEL (1/16" = 1'0")
RANDOM CONE PATTERN



SILO PAVILION STUDY MODEL (1/8" = 1')
MINIMAL SURFACE CONES AS A STRUCTURAL LOGIC



SILO PAVILION STUDY MODEL (1/8" = 1')
AREAL VIEW SHOWING ROOF TOPS



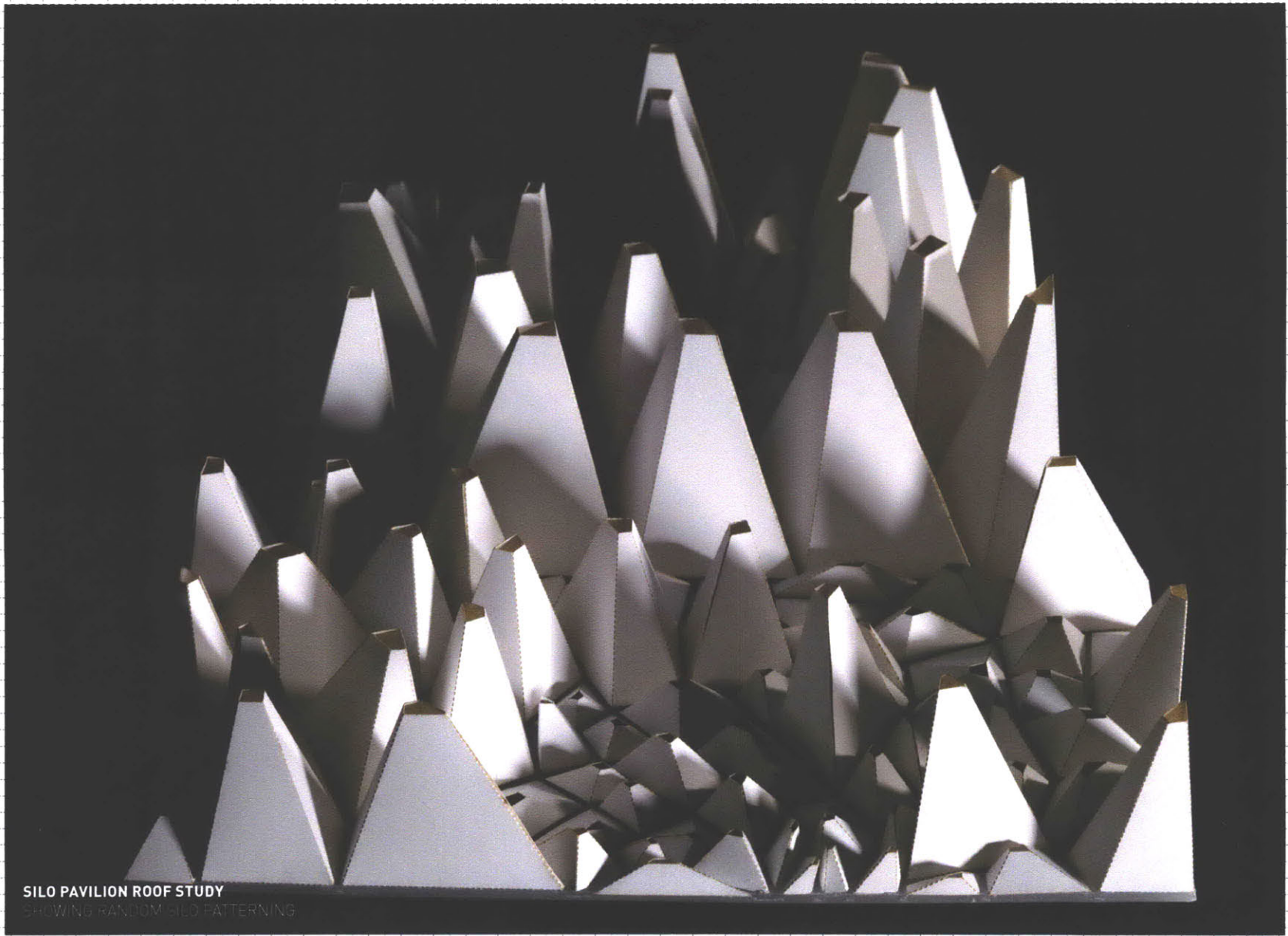
SILO PAVILION STUDY MODEL (1/16" - 1')
AN EARLY ITERATION, SIMPLE CENTERED BONES WITH PERFORATION.



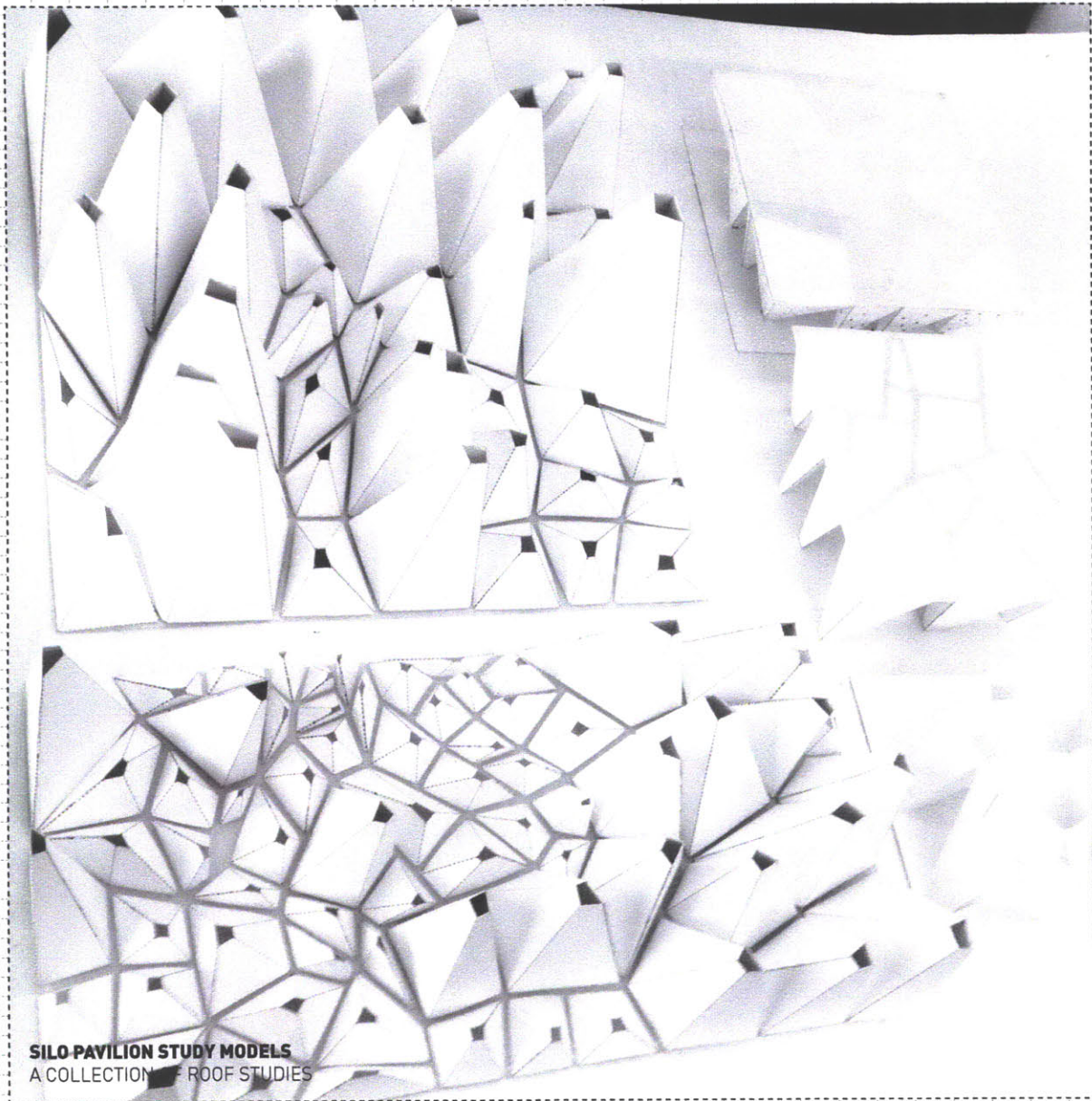
SILO - PAVILION STUDY MODELS
INTERIOR PERSPECTIVES



SILO - PAVILION STUDY MODELS
INTERIOR PERSPECTIVES

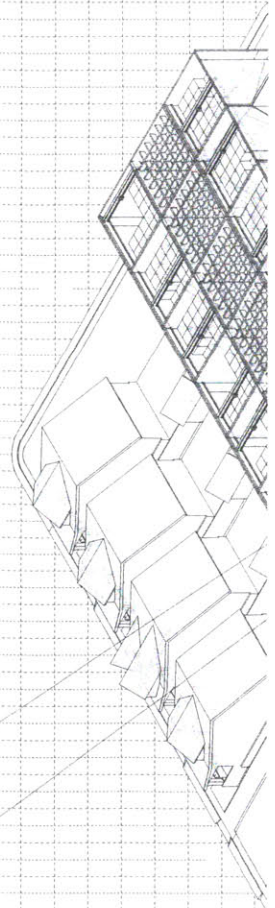
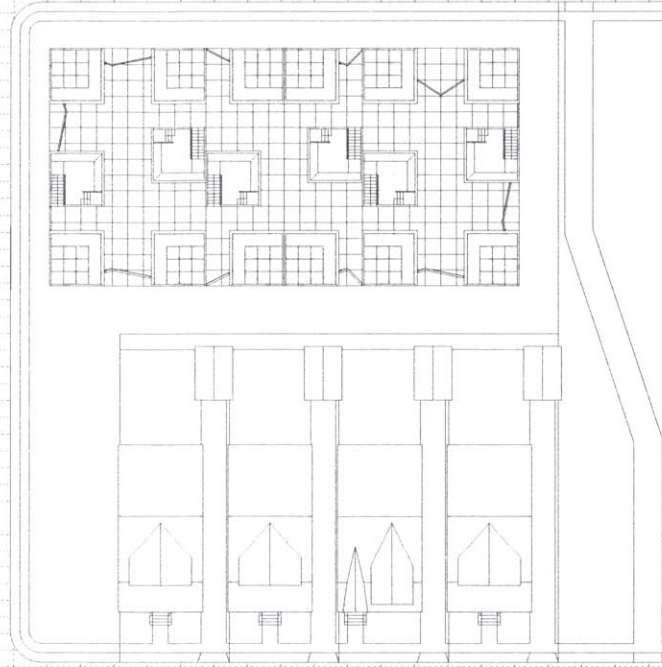
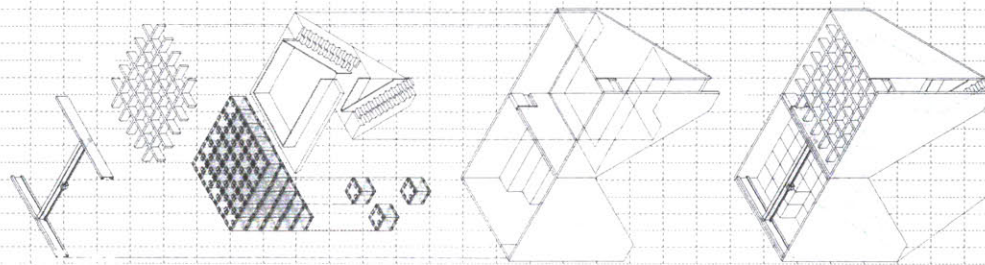


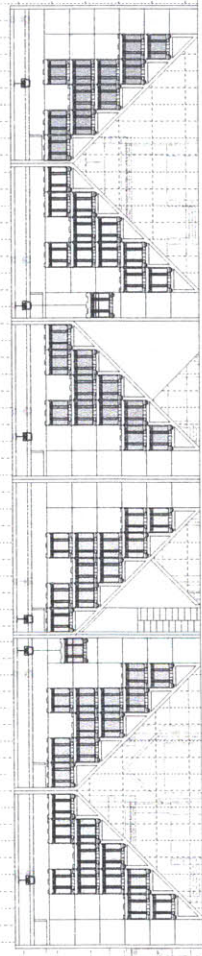
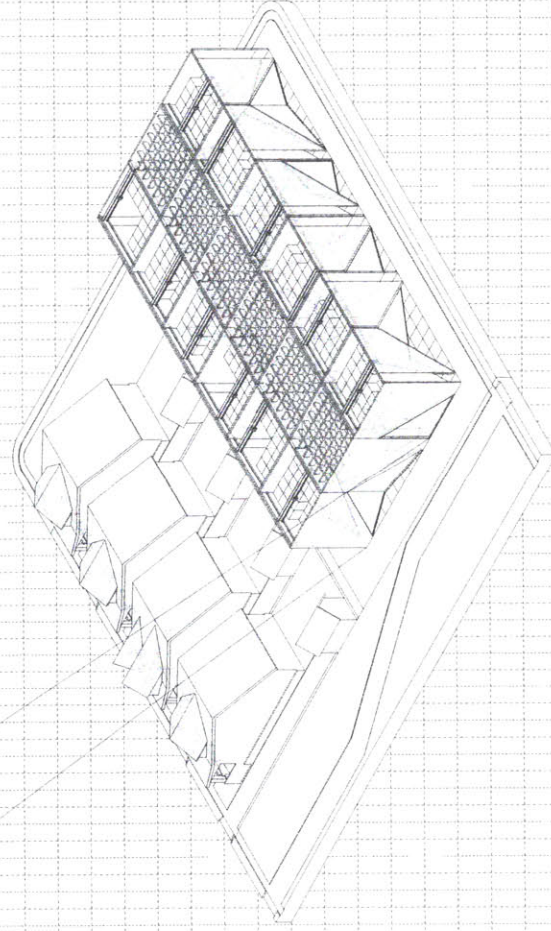
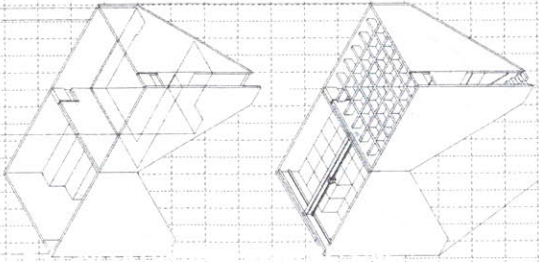
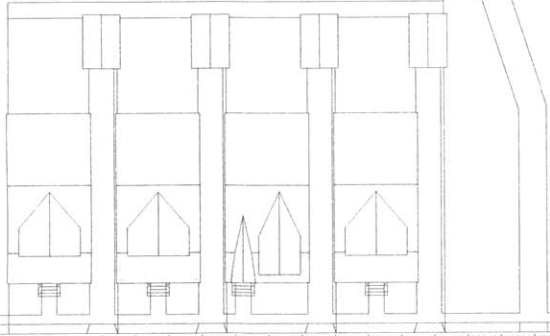
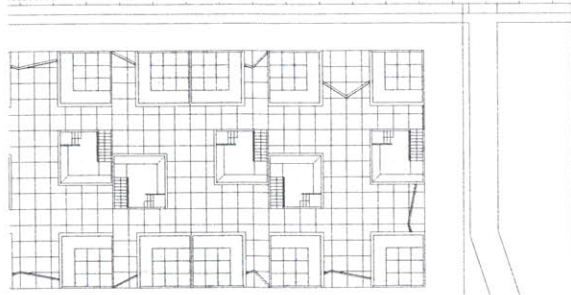
SILO PAVILION ROOF STUDY
SHOWING RANDOM SILO PATTERNING



SILO PAVILION STUDY MODELS
A COLLECTION OF ROOF STUDIES

T YPOLOGY B: THE SILO PAVILLION
M ARCHIT HESIS, ALEXANDER W. MARSHALL





PRINTER'S COTTAGE

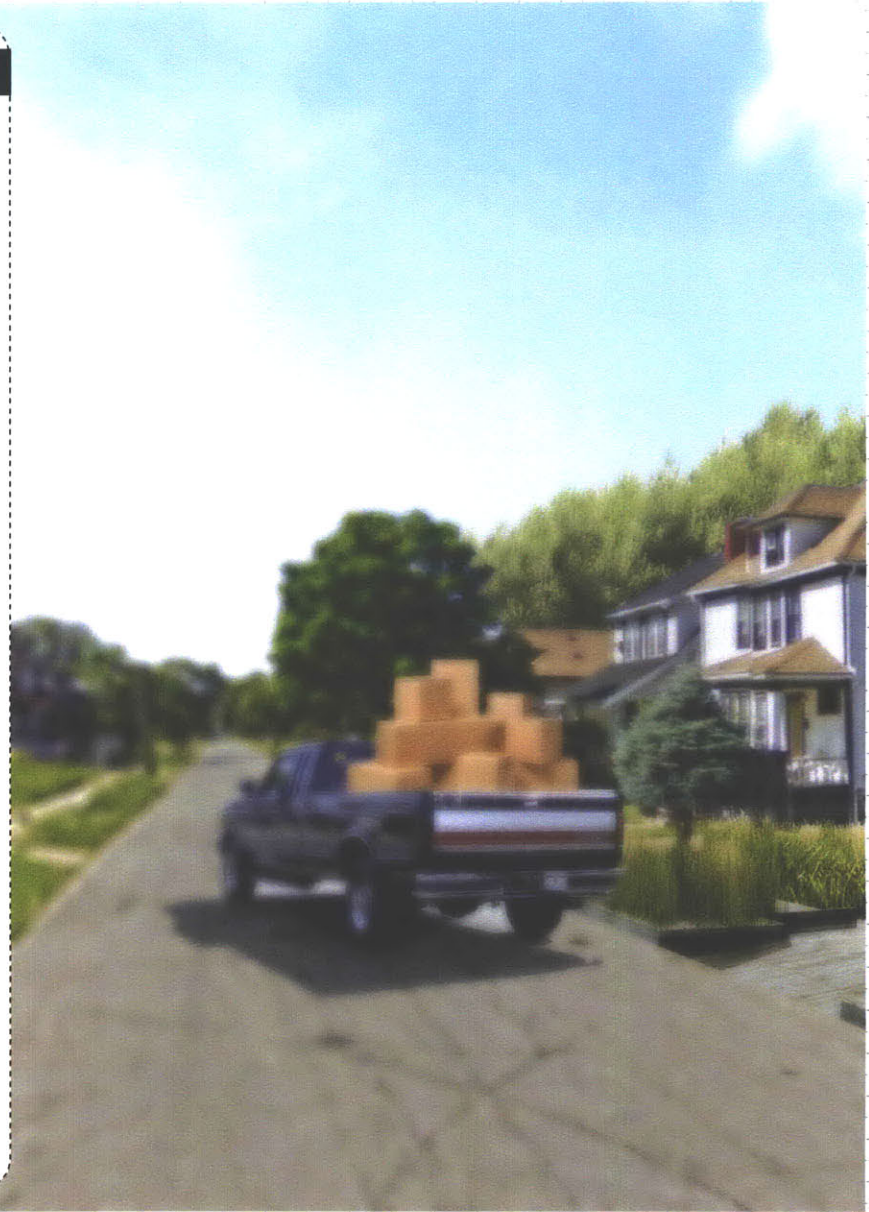
A RESIDENT OWNED MICRO FACTORY

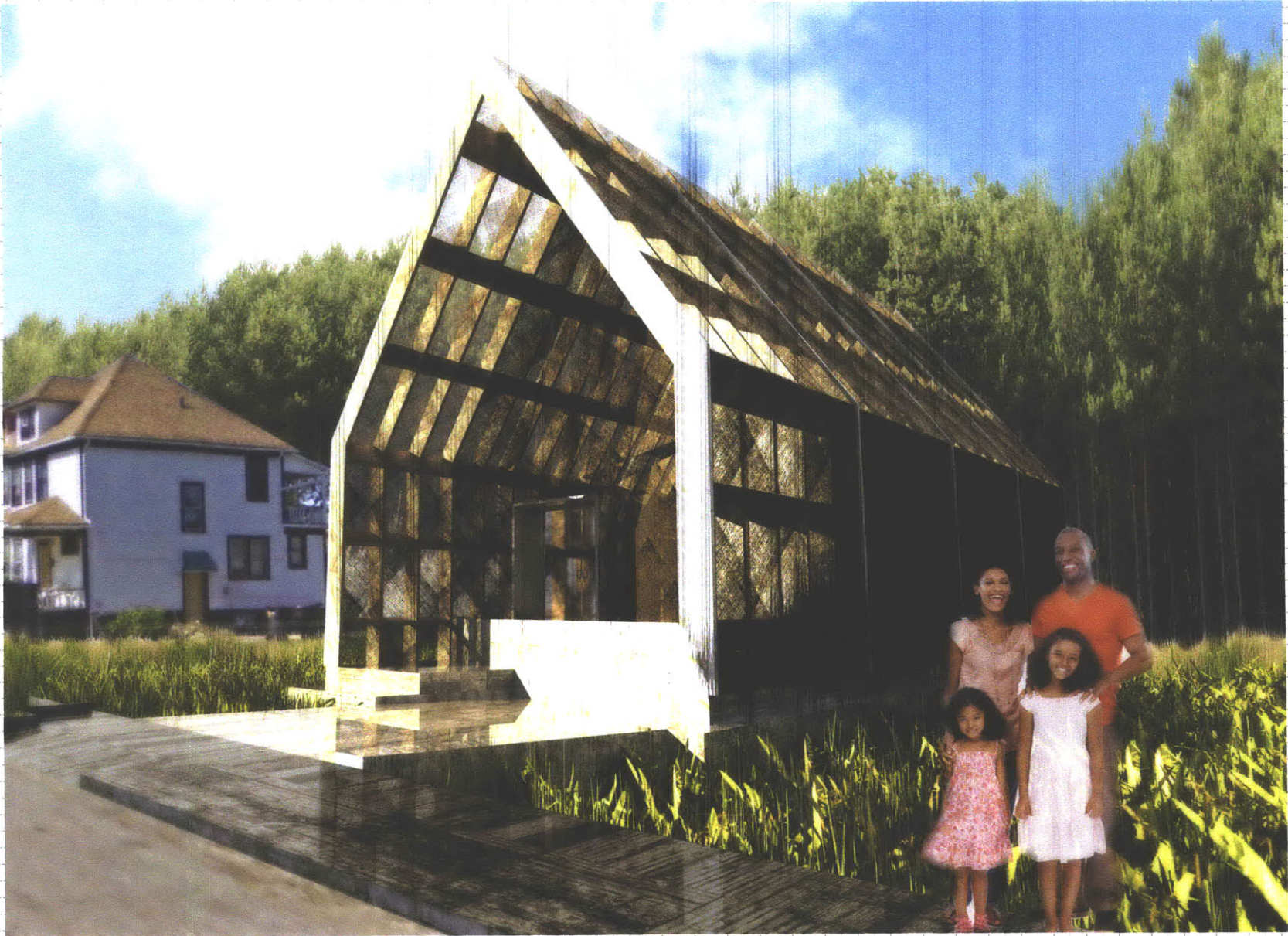
___The Printer's Cottage typology refills vacant lots in the neighborhood, while simultaneously re-valuing the homes around it. At first glance, this cousin of the modern kit home blends in to its surroundings. A second reading reveals the absence of certain domestic motifs such as shutters, shingles, and ship-lap siding. Inside its walls one might find a wealth of production space, calibrated for additive manufacturing.

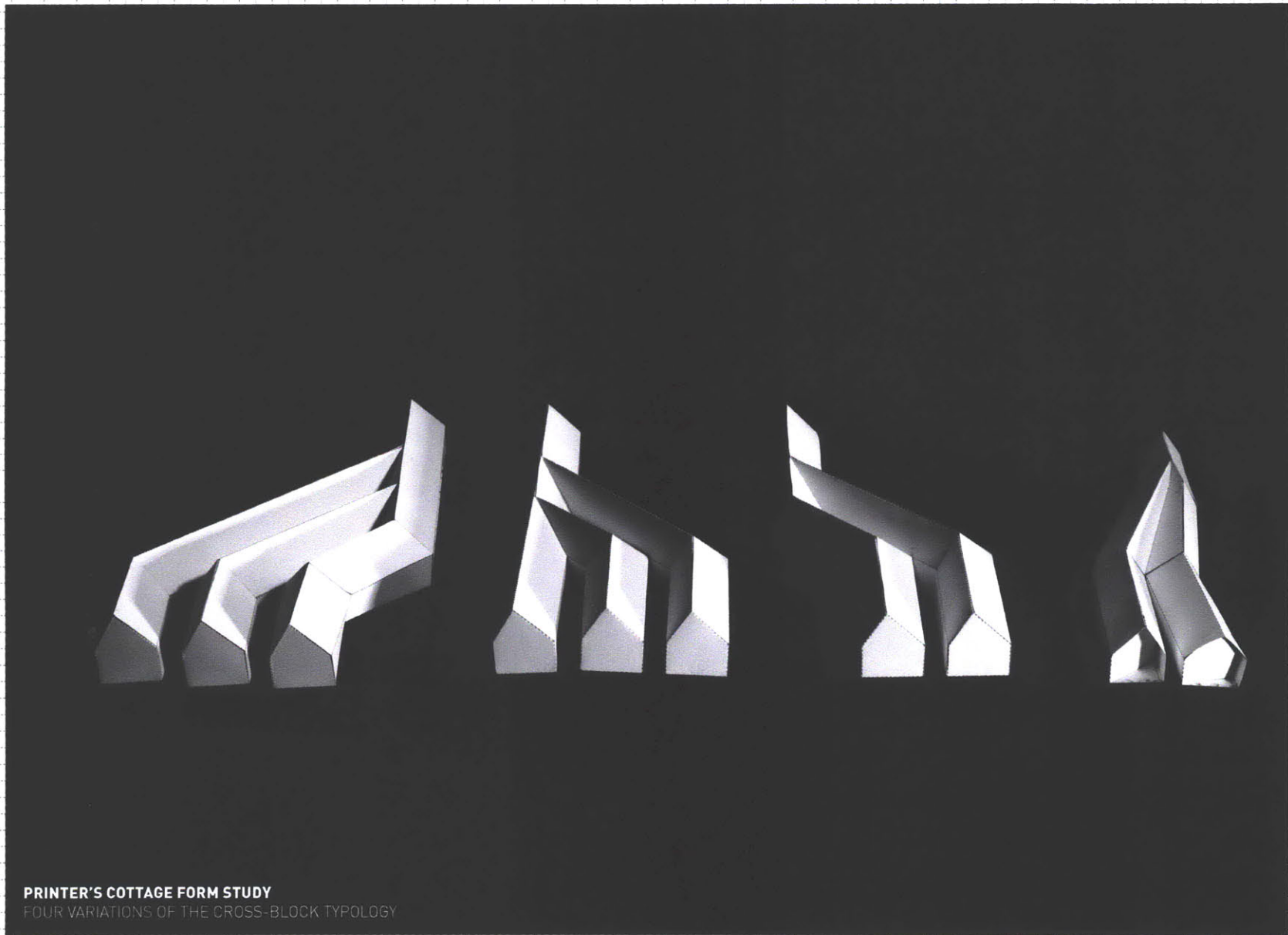
___This typology is thought to be shared between groups of residents, so its form is one which cuts across blocks, connecting adjacent streets, unlike the traditional home, which produces boundaries via lawns, driveways and picket fences. The plan shape of the Printer's Cottage is formed because the structure is always negotiating between existing homes, while attempting to fill up vacant lots.

___The Printer's Cottage has an archetypal relationship to the traditional single family home, but it intentionally clouds the diagram of the household, as it is not a place of dwelling at all. Giving this small industrial building certain traits similar to a residential dwelling, will help increase the neighborhood real estate values, by eliminating some of the blighted lots which still exist in Reverietown.

___The Printer's Cottage is constructed with a light aluminum structural frame, which can be assembled by one or two people. It is then clad in a lightweight, but thermally performative skin, which allows for daylight to fill the interior of the space. In plan the Printer's Cottage is laid out like a new hybrid version of an assembly line. A single corridor runs through the house from end to end, allowing for an efficient flow of material from intake to loading dock. Along the edges of the cottage's walls, a series of 3-D printers and Powder recovery units are built into the structural frame. The "Z" shaped plan is broken into three spaces, a small office, a print room, and an excavation and finishing room.



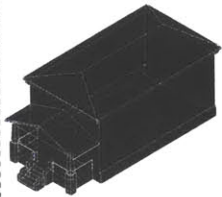




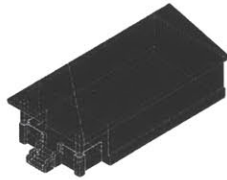
PRINTER'S COTTAGE FORM STUDY
FOUR VARIATIONS OF THE CROSS-BLOCK TYPOLOGY

NEIGHBORHOOD TYPOLOGIES

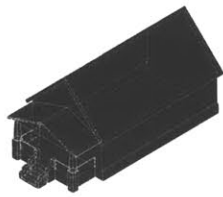
AN INVESTIGATION OF THE "HOUSE" ARCHETYPE



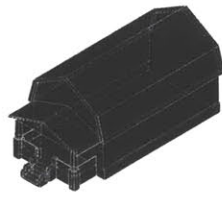
COLONIAL BUNGALOW



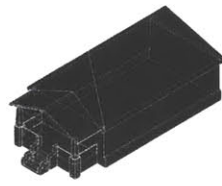
SIMPLE BUNGALOW



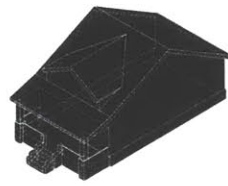
GABLE BUNGALOW



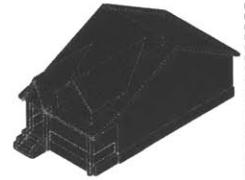
HEX BUNGALOW



HYBRID BUNGALOW



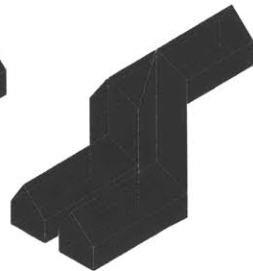
DETROIT BUNGALOW



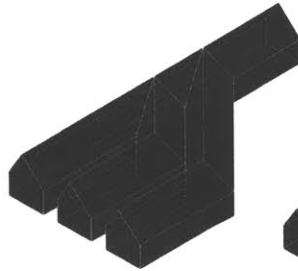
DETROIT GOTHIC BUNGALOW



SINGLE SHARE COTTAGE



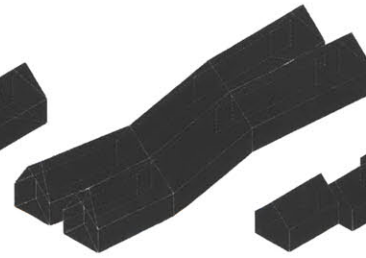
DOUBLE SHARE COTTAGE



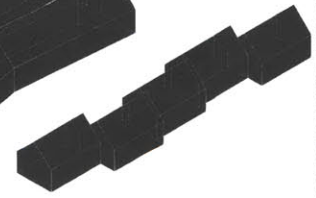
TRIPLE SHARE COTTAGE



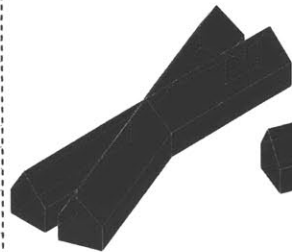
"Y" TYPE COTTAGE



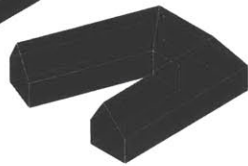
"H" TYPE COTTAGE



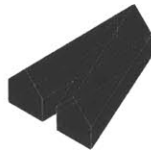
FRAGMENTED COTTAGE



"X" TYPE COTTAGE



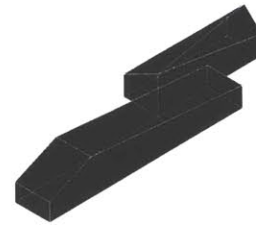
COURTYARD COTTAGE



"V" TYPE COTTAGE



BLOB COTTAGE

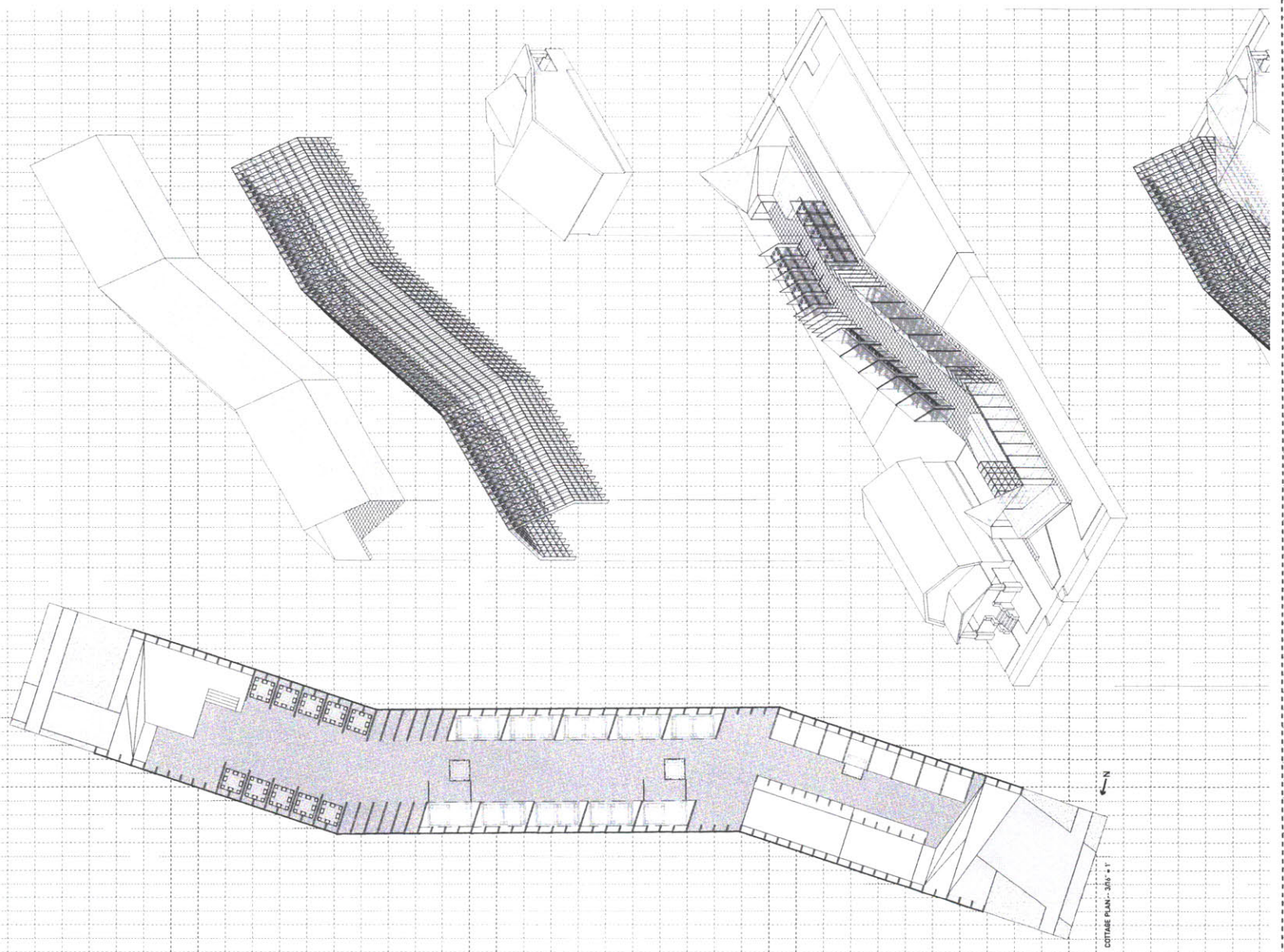


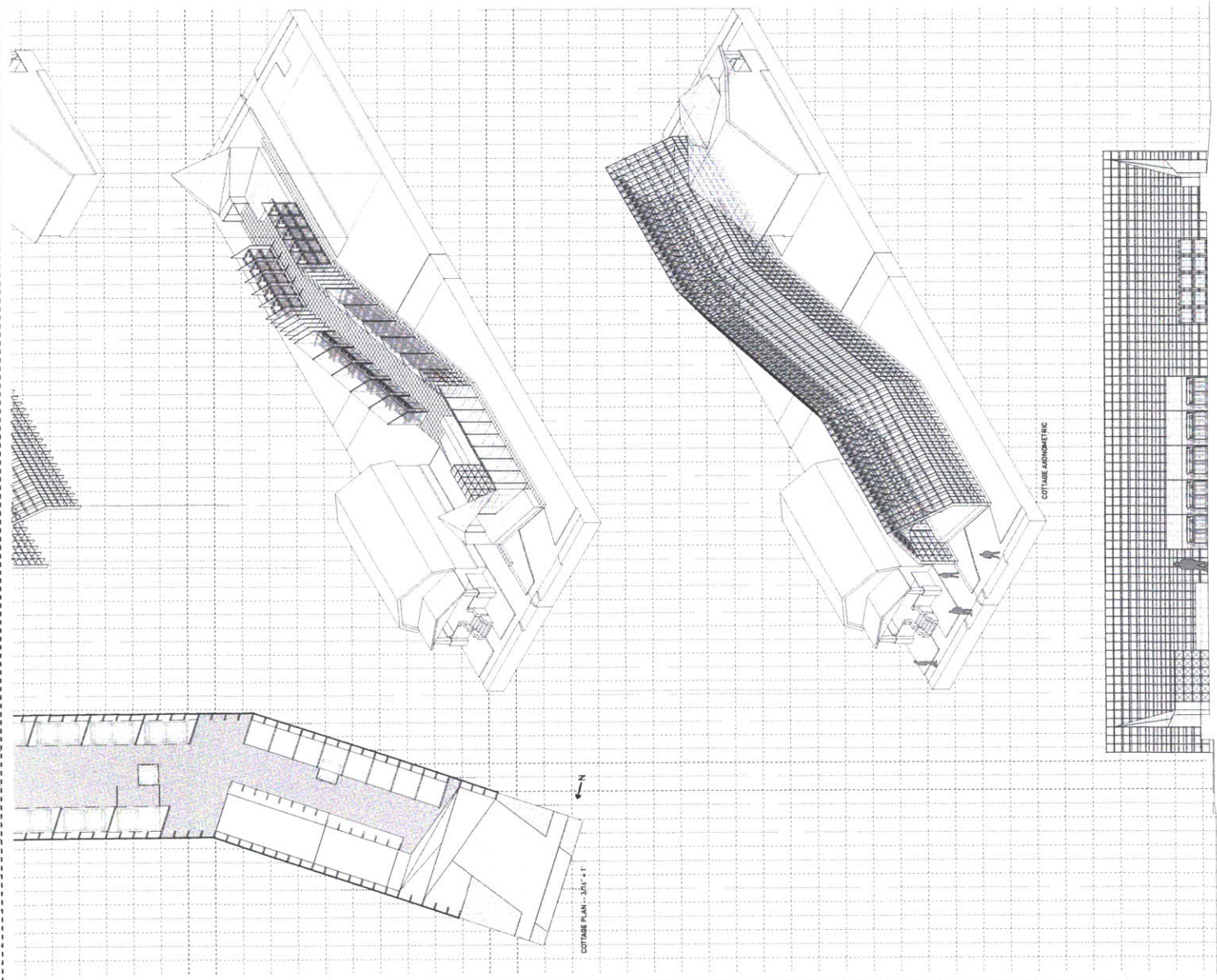
GABLE-BUNGALOW COTTAGE



PRISM COTTAGE

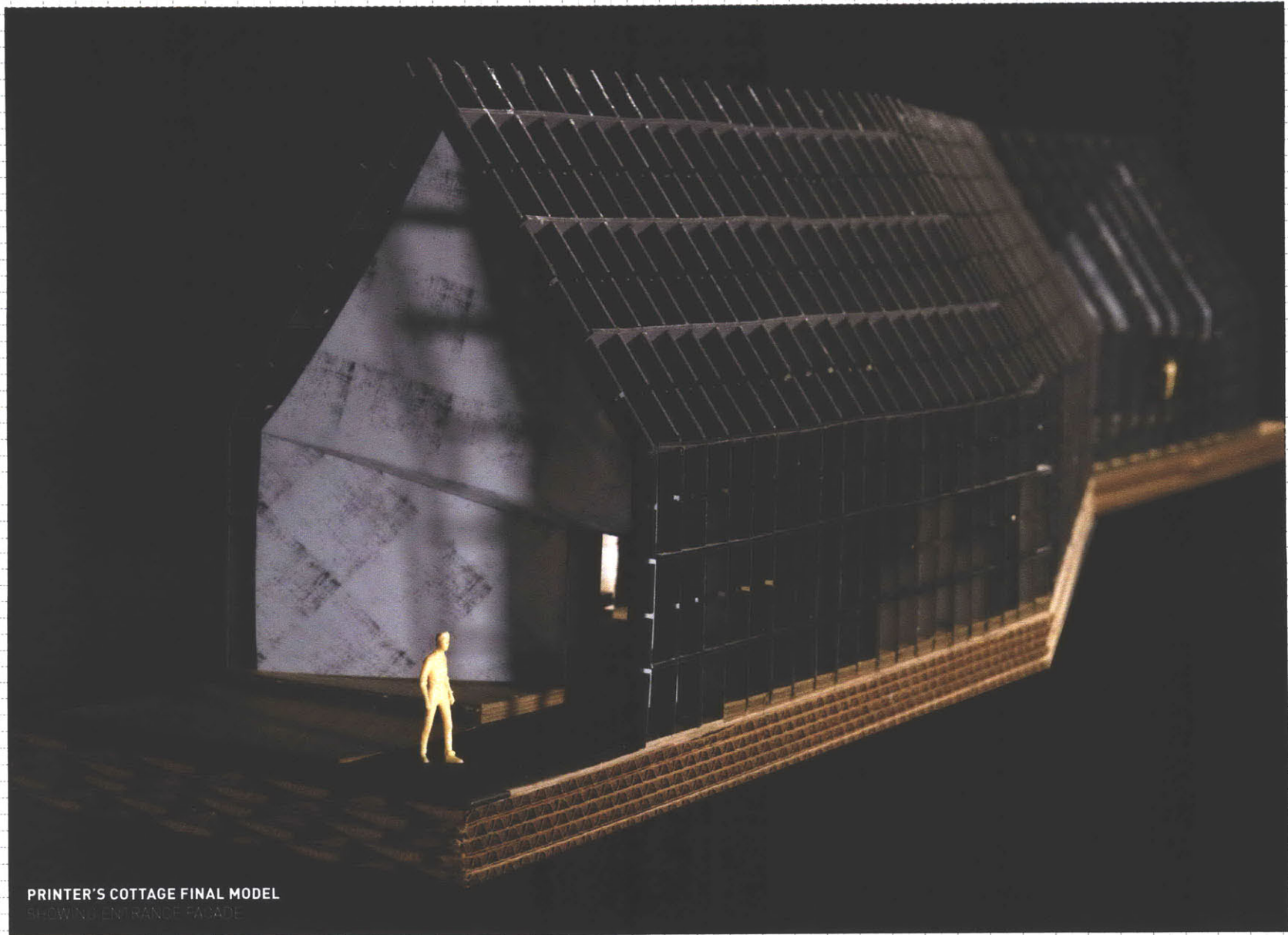
TYPOLGY A: THE PRINTERS COTTAGE
MARCH THESE, ALEXANDER W. MARSHALL







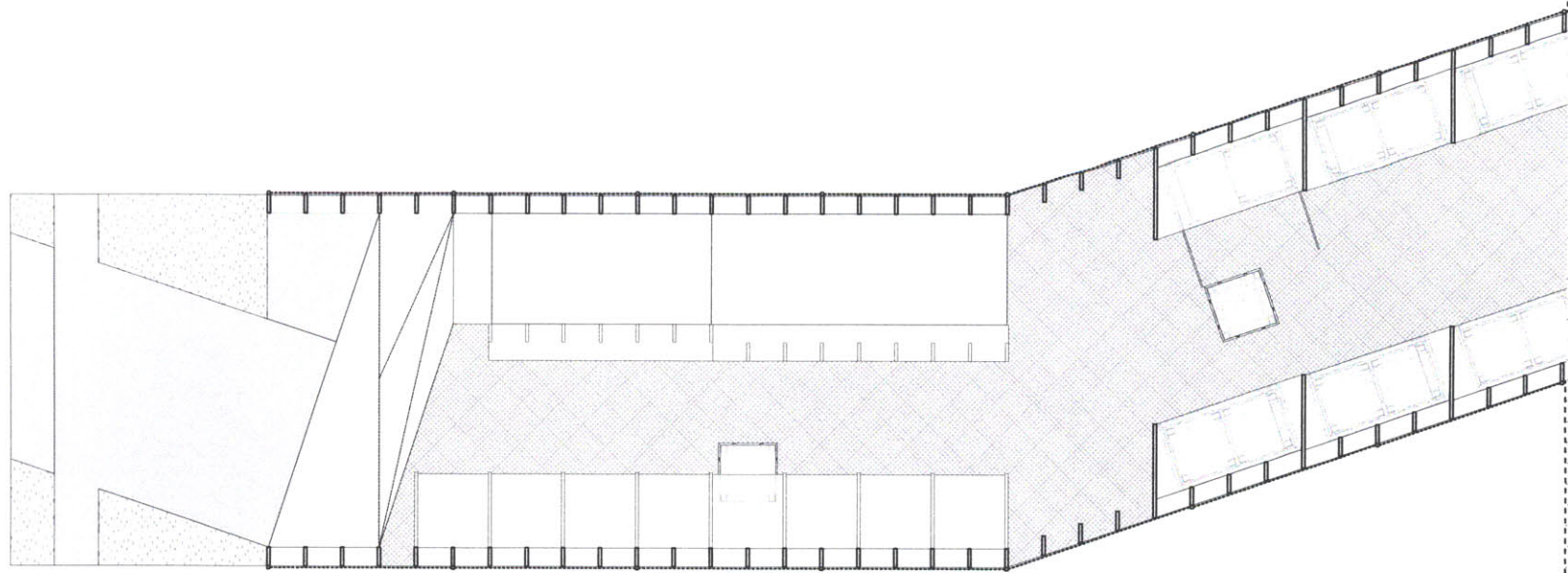
PRINTER'S COTTAGE EXTERIOR PERSPECTIVE
SHOWING LOADING DOCK



PRINTER'S COTTAGE FINAL MODEL
SHOWING ENTRANCE FACADE

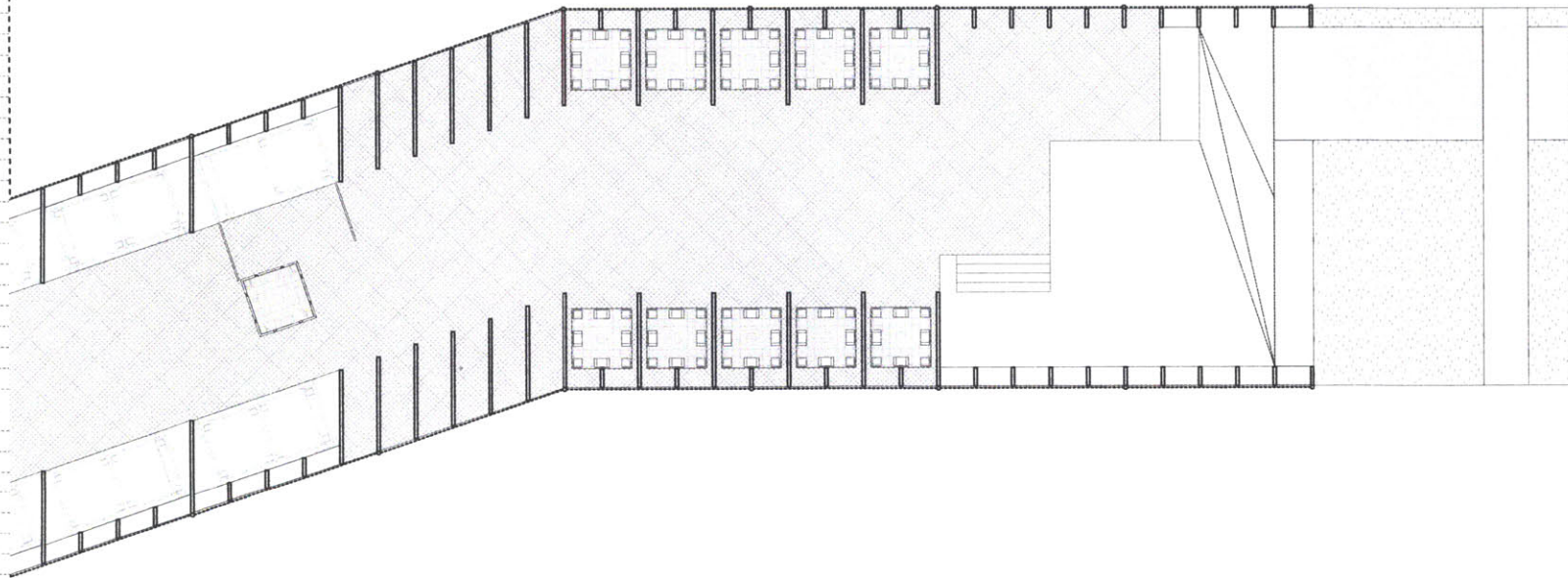
PRINTER'S COTTAGE PLAN

ORIGINAL SCALE 3/16" = 1'



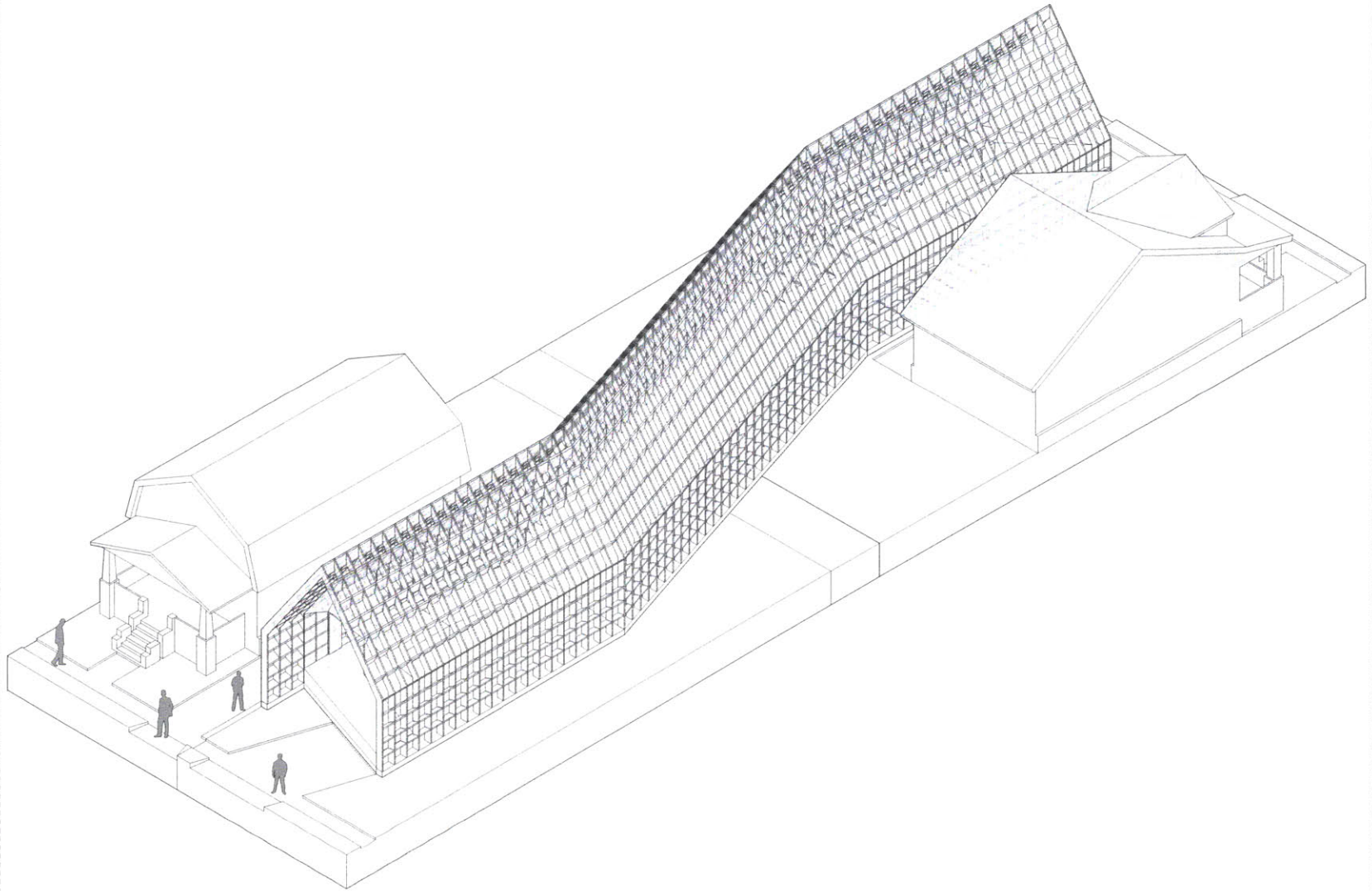
PRINTER'S COTTAGE PLAN

ORIGINAL SCALE 3/16" = 1'



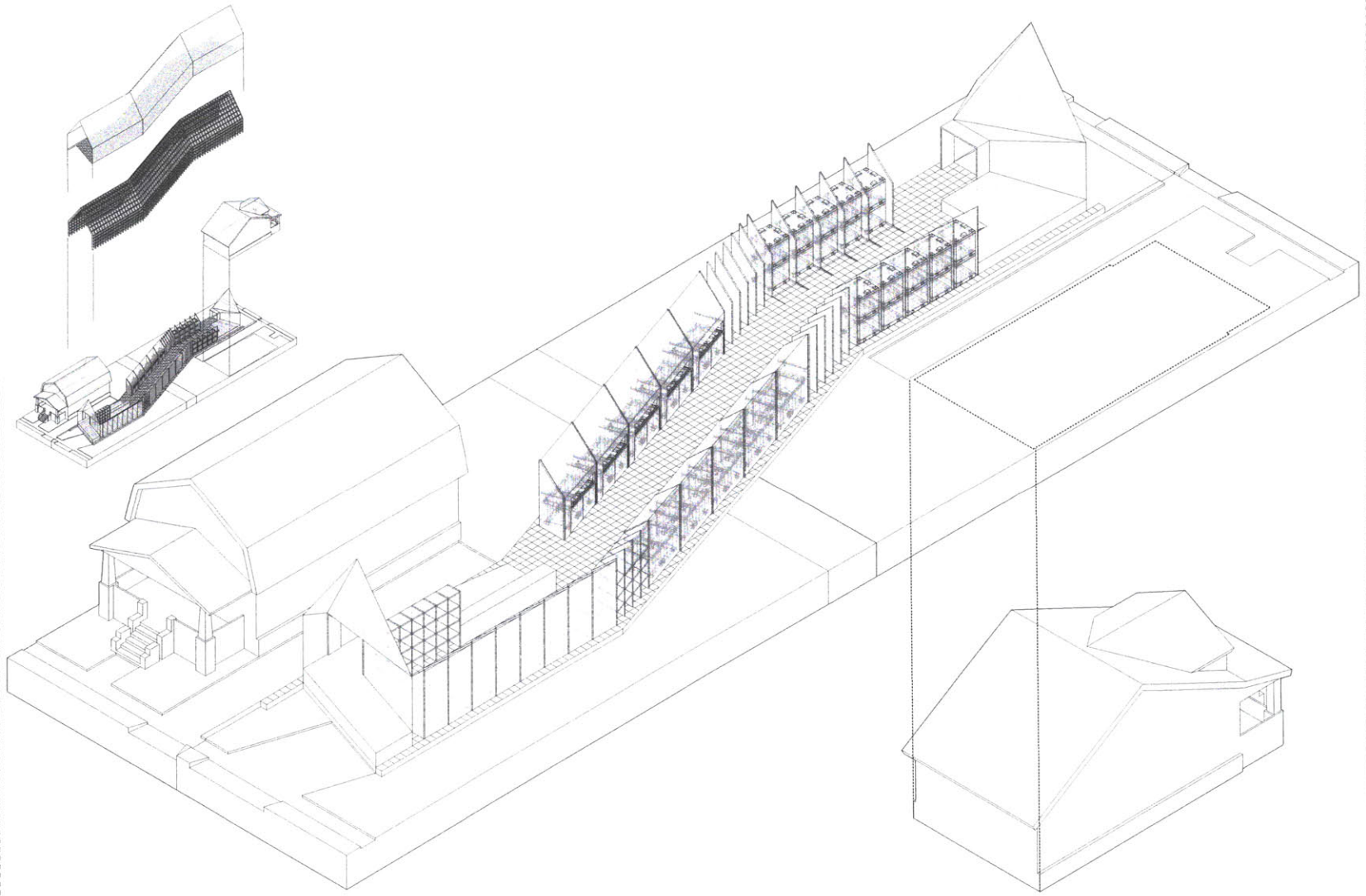
PRINTER'S COTTAGE AXO

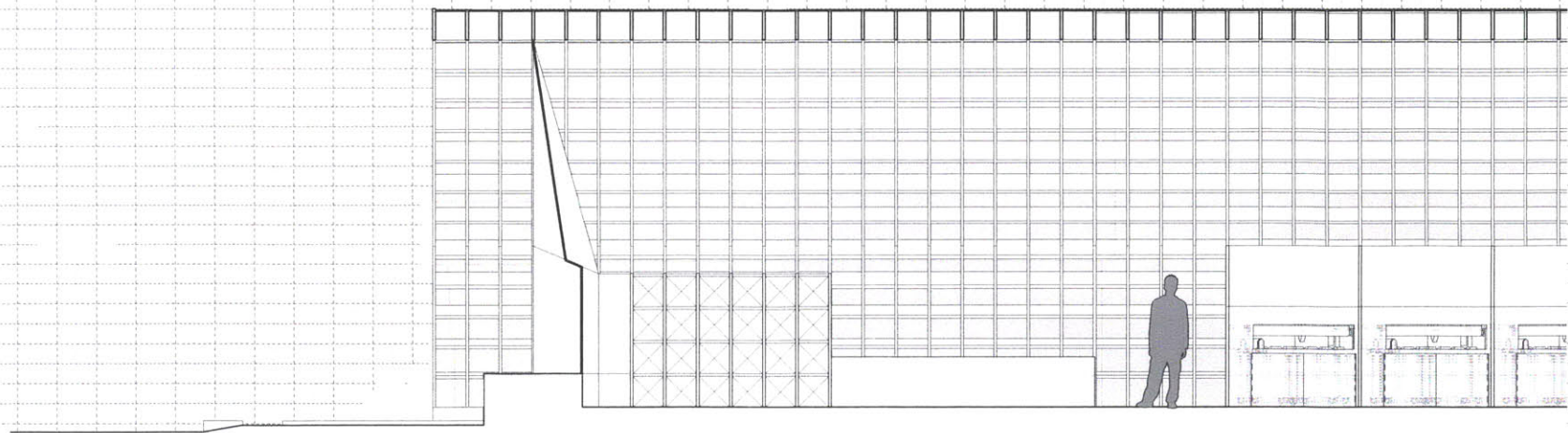
SHOWING IMMEDIATE CONTEXT



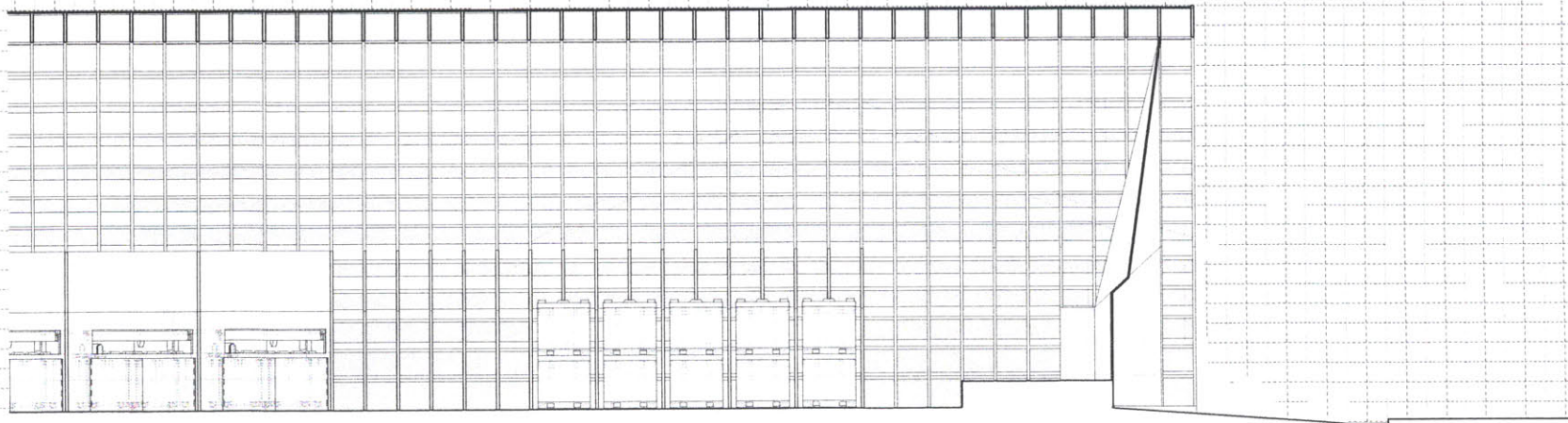
PRINTER'S COTTAGE AXO

SHOWING INTERIOR LAYOUT



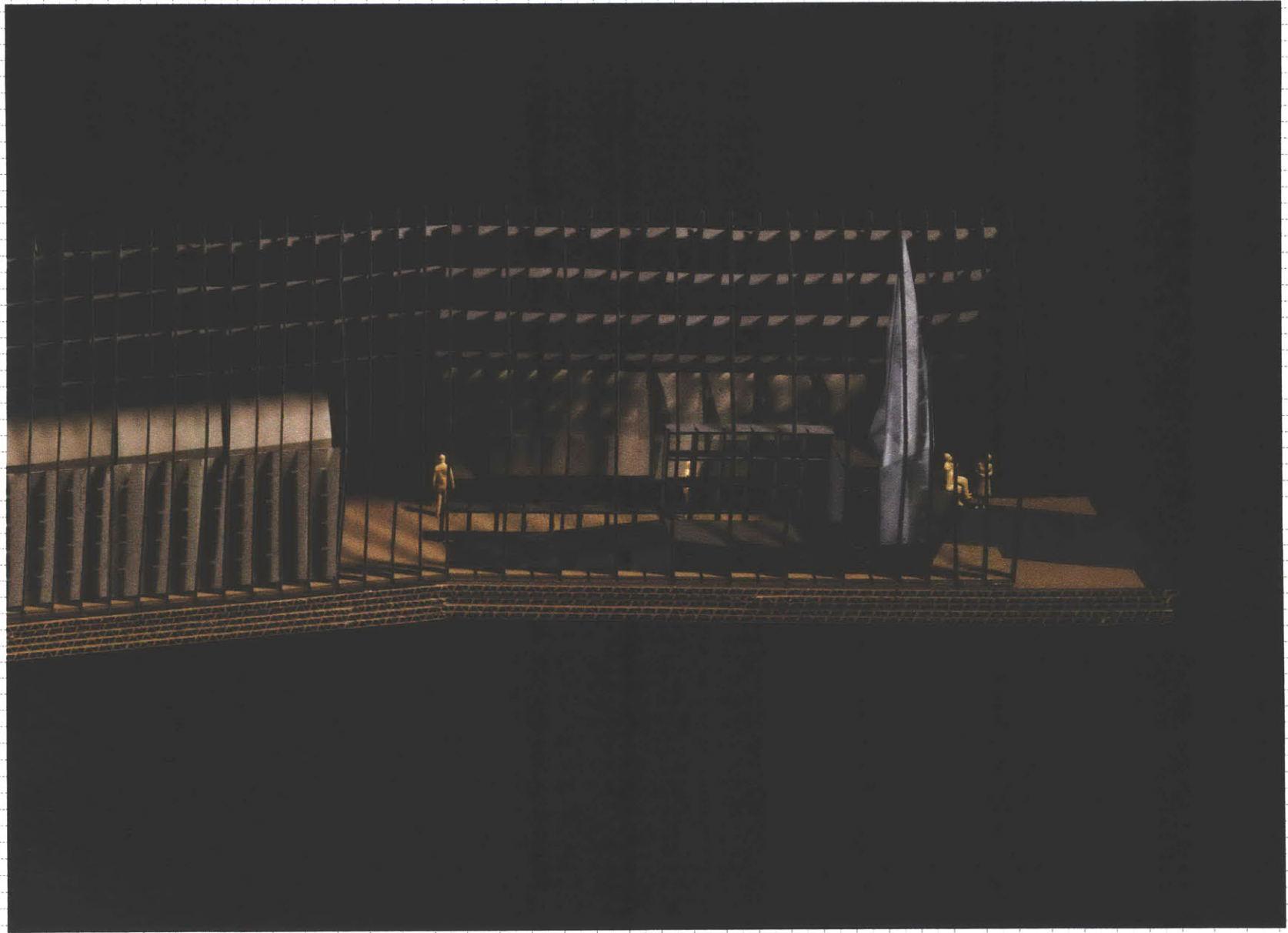


PRINTER'S COTTAGE SECTION
ORIGINAL SCALE: 1/8" = 1'



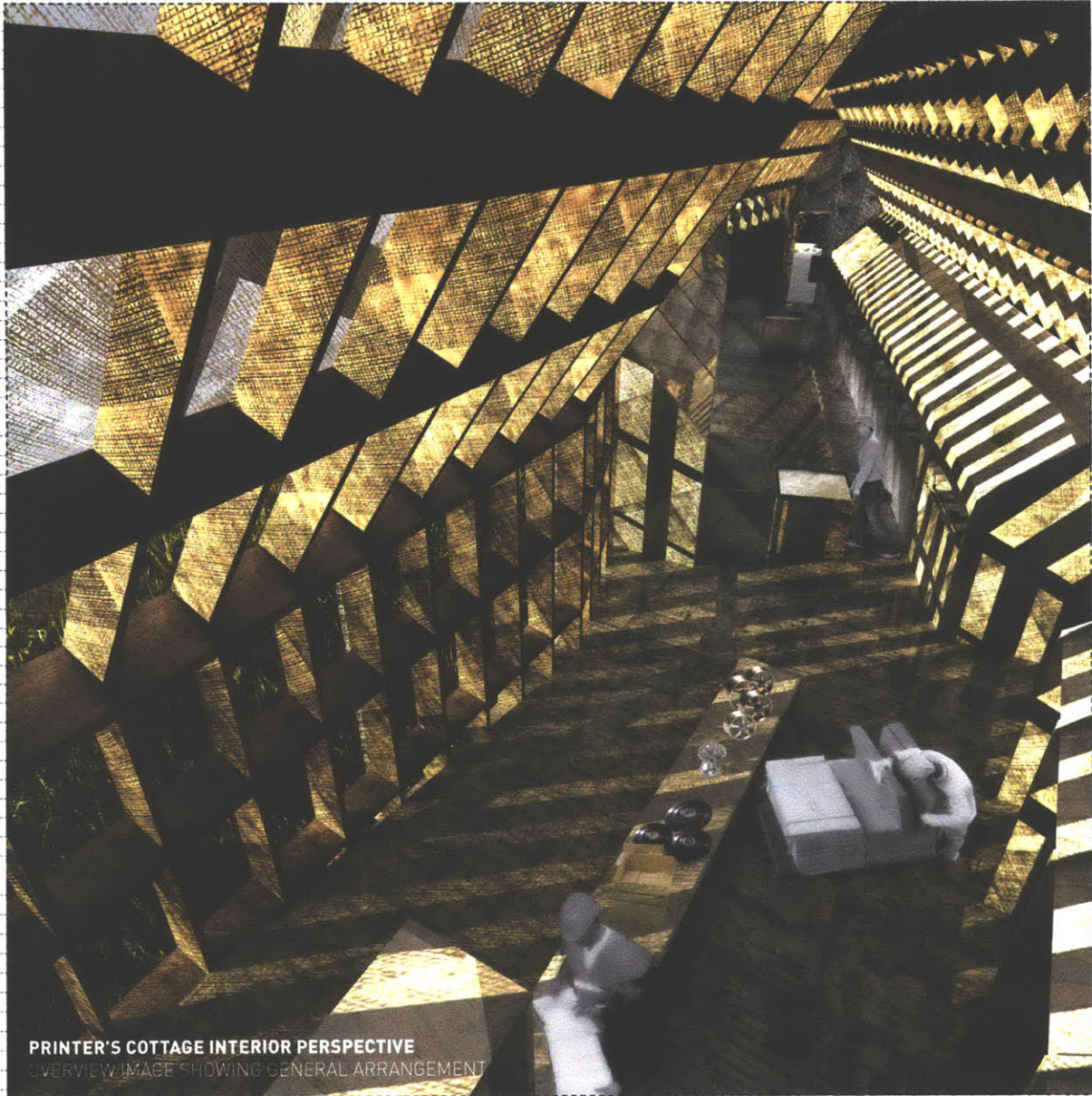


PRINTER'S COTTAGE FINAL MODEL
ELEVATION VIEW





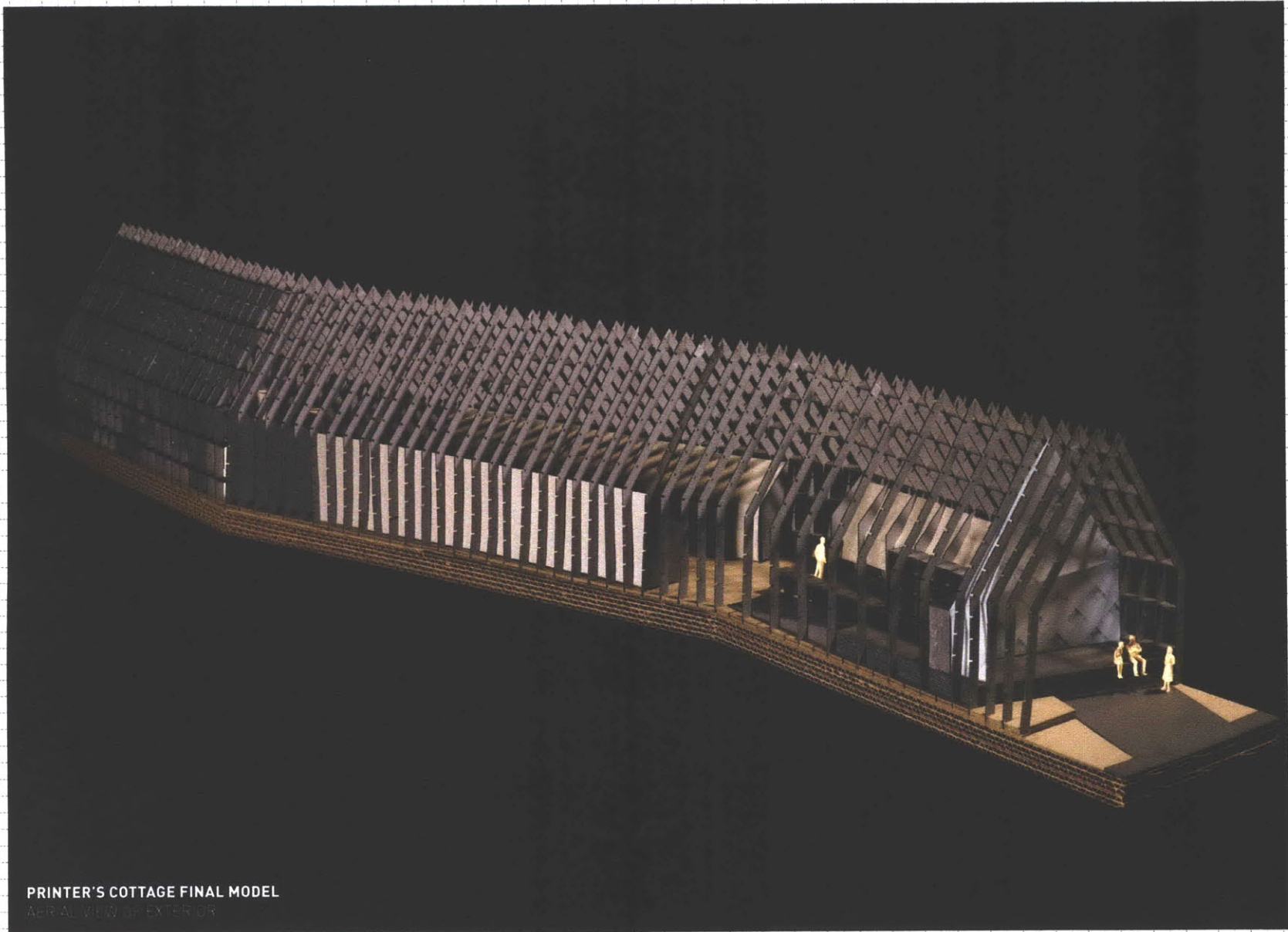
PRINTER'S COTTAGE FINAL MODEL
SHOWING PRINT EXCAVATION + PACKAGING STATION



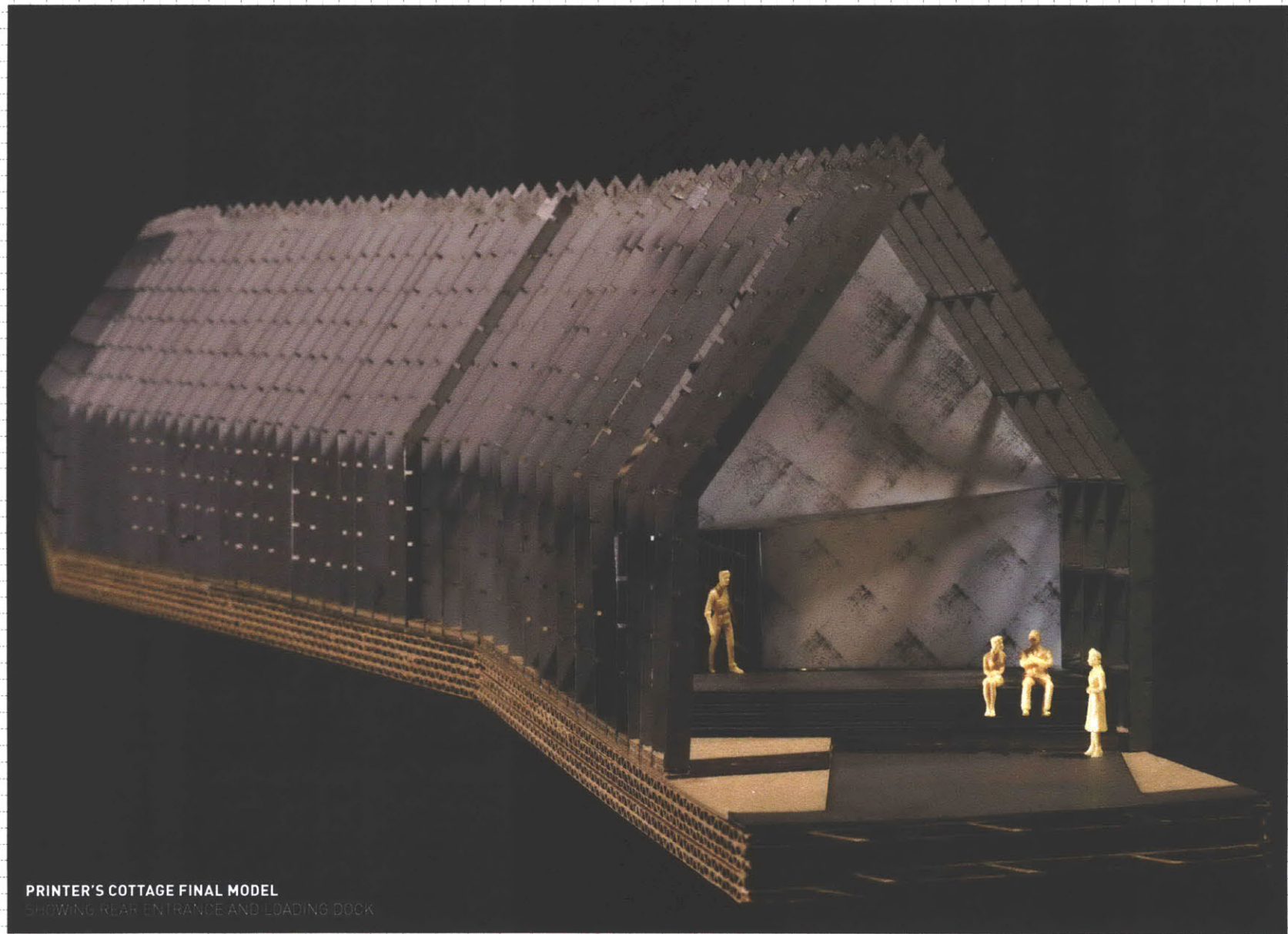
PRINTER'S COTTAGE INTERIOR PERSPECTIVE
OVERVIEW IMAGE SHOWING GENERAL ARRANGEMENT



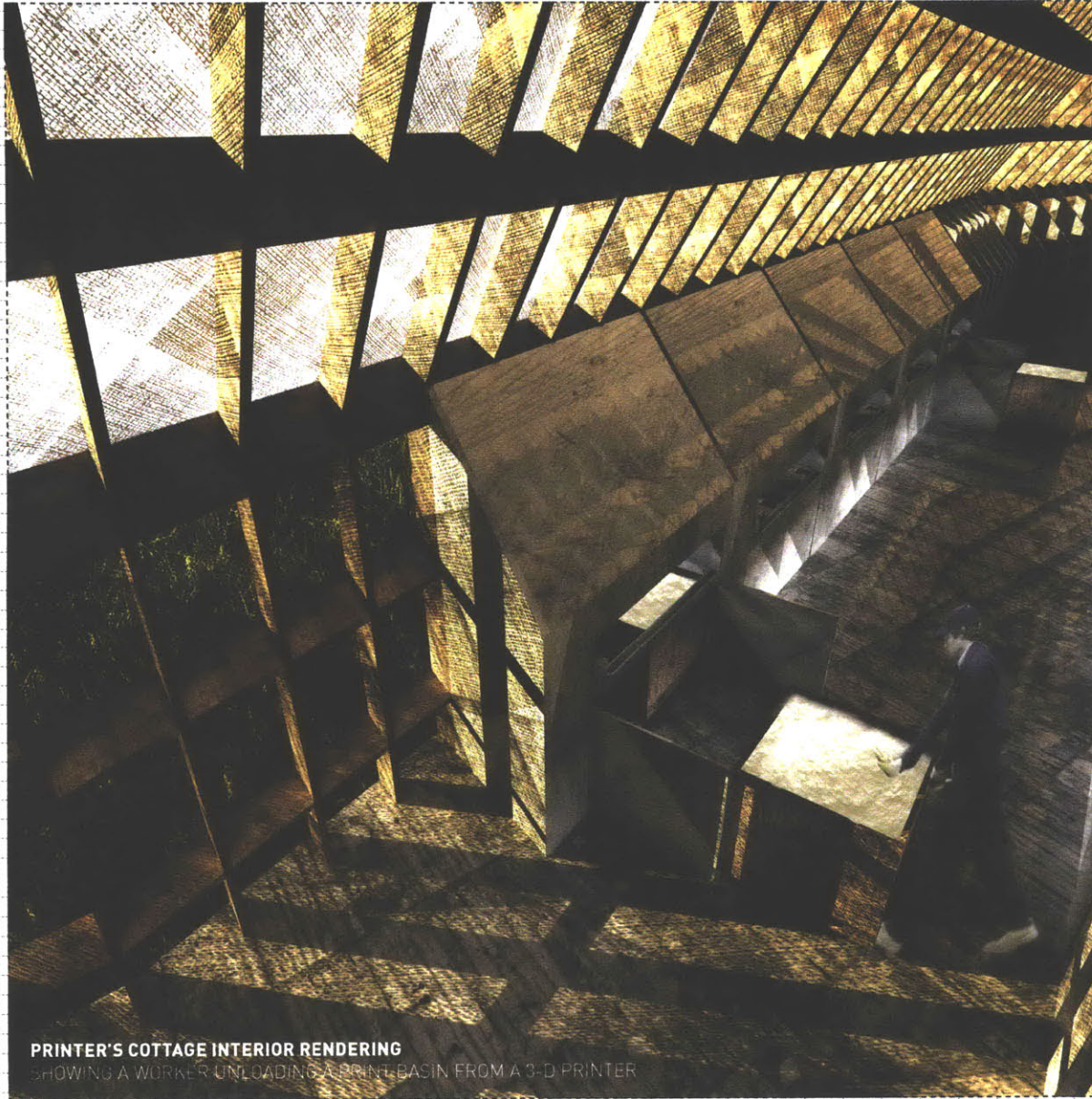
PRINTER'S COTTAGE INTERIOR RENDERING
SHOWING A WORKER LOADING A PRINT BASIN INTO A 3-D PRINTER



PRINTER'S COTTAGE FINAL MODEL
AERIAL VIEW OF EXTERIOR



PRINTER'S COTTAGE FINAL MODEL
SHOWING REAR ENTRANCE AND LOADING DOCK



PRINTER'S COTTAGE INTERIOR RENDERING
SHOWING A WORKER UNLOADING A PRINT BASIN FROM A 3-D PRINTER



PRINTER'S COTTAGE INTERIOR RENDERING
SHOWING A WORKER LOADING A PRINT BASIN INTO A POWDER RECOVERY UNIT



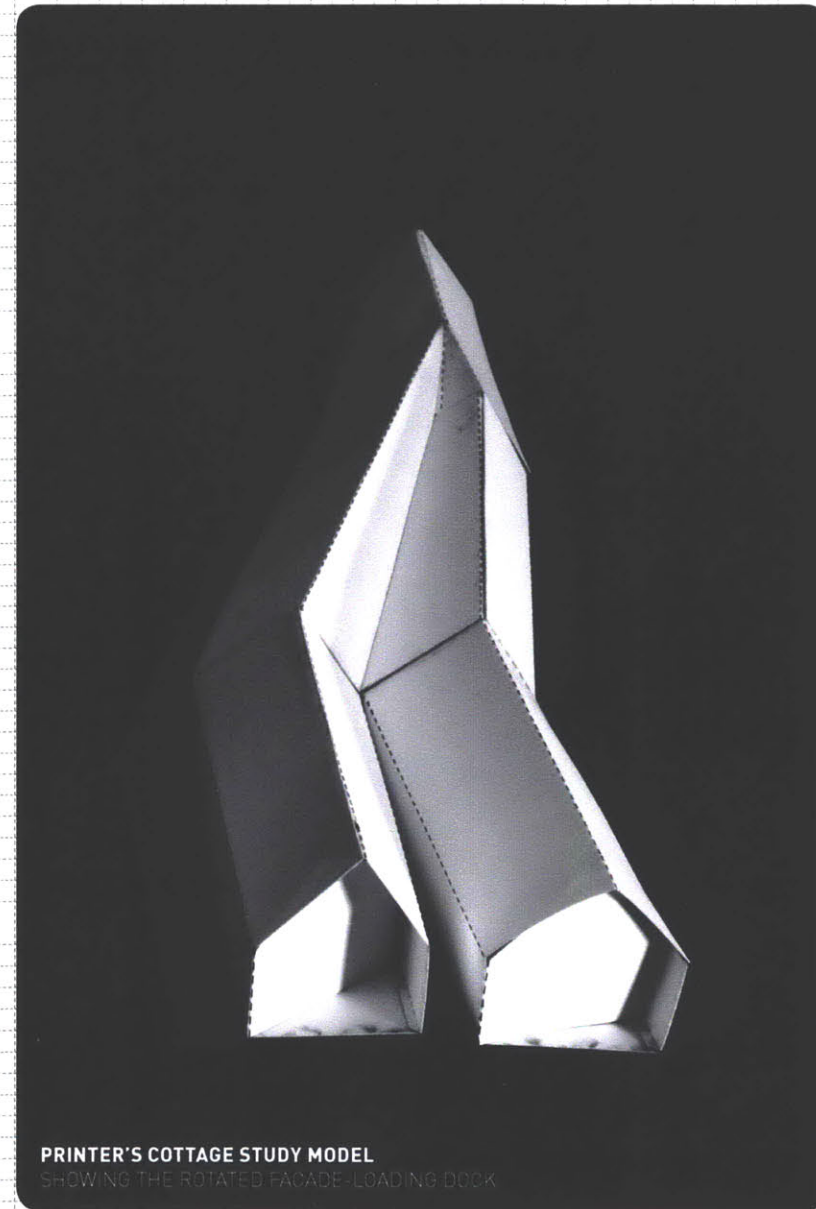
PRINTER'S COTTAGE EXTERIOR RENDERING
A NEW VISION OF THE AMERICAN DREAM

■ **PRINTER'S COTTAGE PROCESS** ■

THE GOOD, THE BAD AND THE UGLY.

___The following pages are a collection of models and renderings which were produced prior to the final proposal. The first version of the Printer's cottage can be seen at the end of the original Pre-Thesis document. The original version was modeled after a production kit home, and aptly titled the "Jubilee". It was the first version of this House-like mini-factory, but the original proposal was a dwelling space and a production space simultaneously. In later versions, it was decided that if the Printer's Cottage were to actually function as a small production facility, it would need to be separated from the dwelling unit. This was also prompted by the fact that there is not realistic need for new residential buildings in Detroit, given that the population has been steadily declining throughout the city.

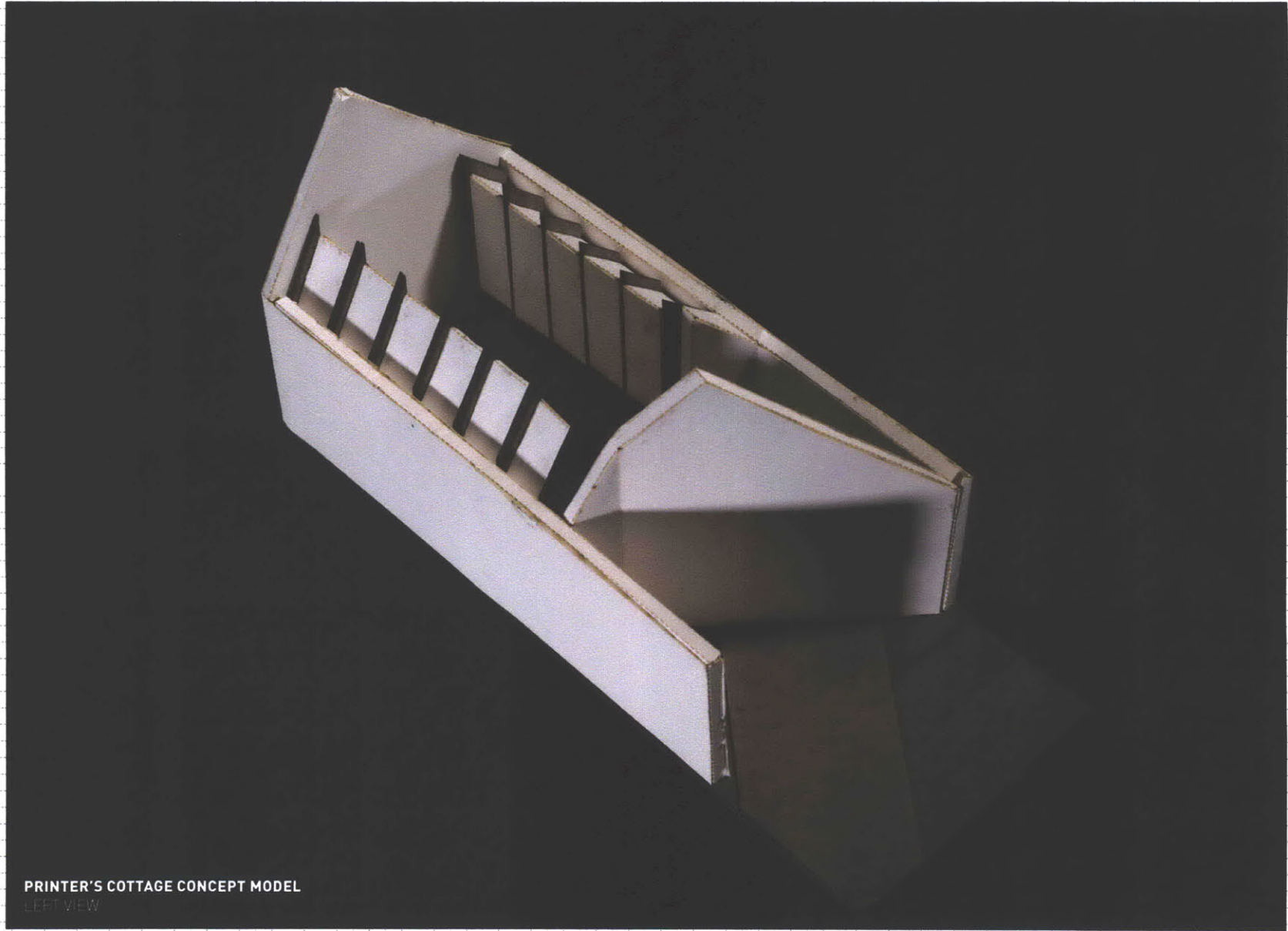
___In order for the Printer's cottage to maximize the amount of production space, it was always thought to make use of the 200' wide block s which make up the Reverietown Neighborhood. Conceptually the Cottage was attempting to mimic certain aspects of the house and a factory at the same time. The model at left shows an version of the Cottage, which the facades were rotated on a 45 degree angle, to serve as a small scale loading dock, which a delivery vehicle could easily back into from the existing residential street.



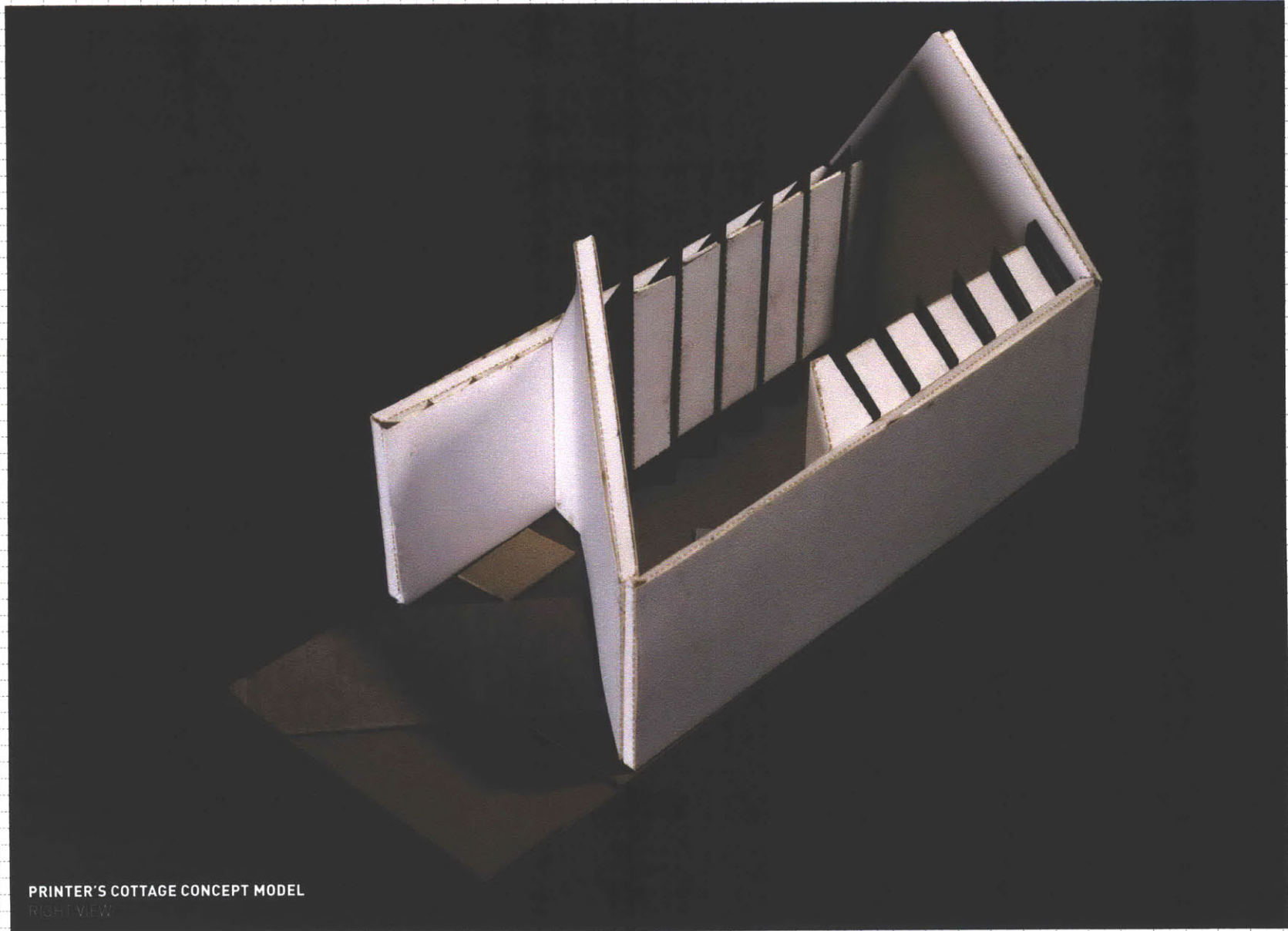
PRINTER'S COTTAGE STUDY MODEL
SHOWING THE ROTATED FACADE-LOADING DOCK



PRINTER'S COTTAGE PECHA KUCHA RENDERING
SHOWING A BLANK VERSION OF THE CLASSIC HOUSEHOLD ARCHETYPE

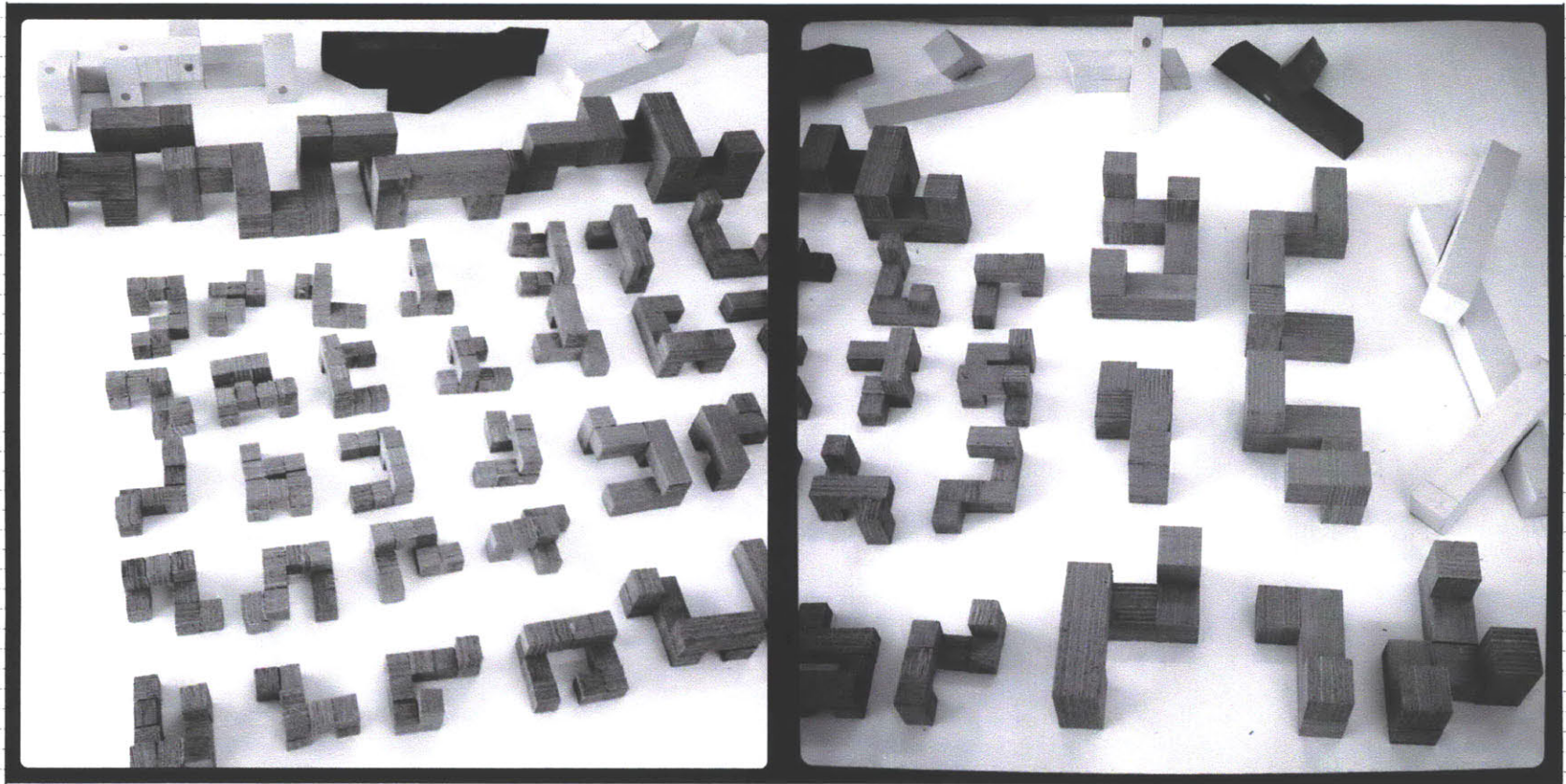


PRINTER'S COTTAGE CONCEPT MODEL
LEFT VIEW

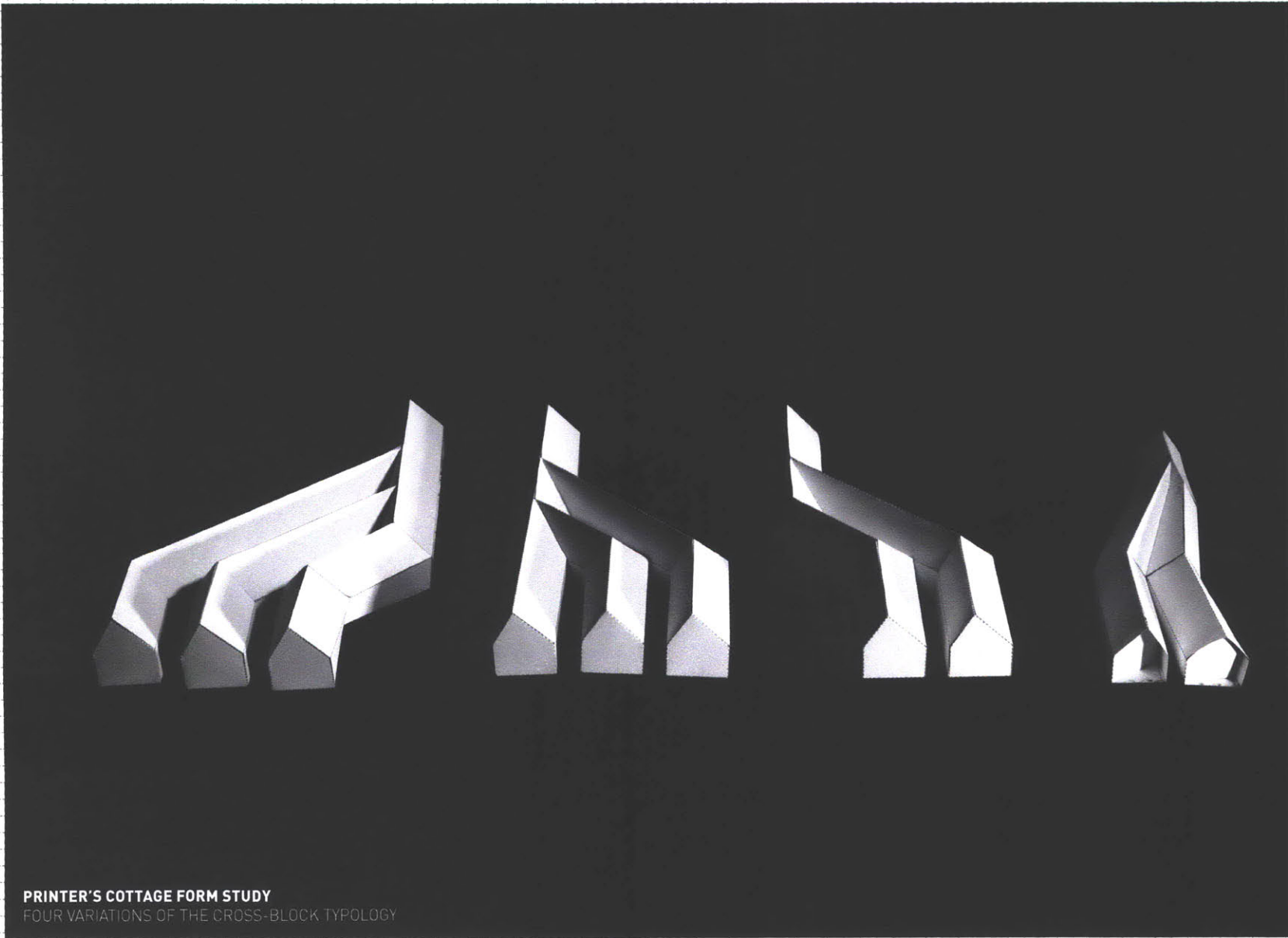


PRINTER'S COTTAGE CONCEPT MODEL

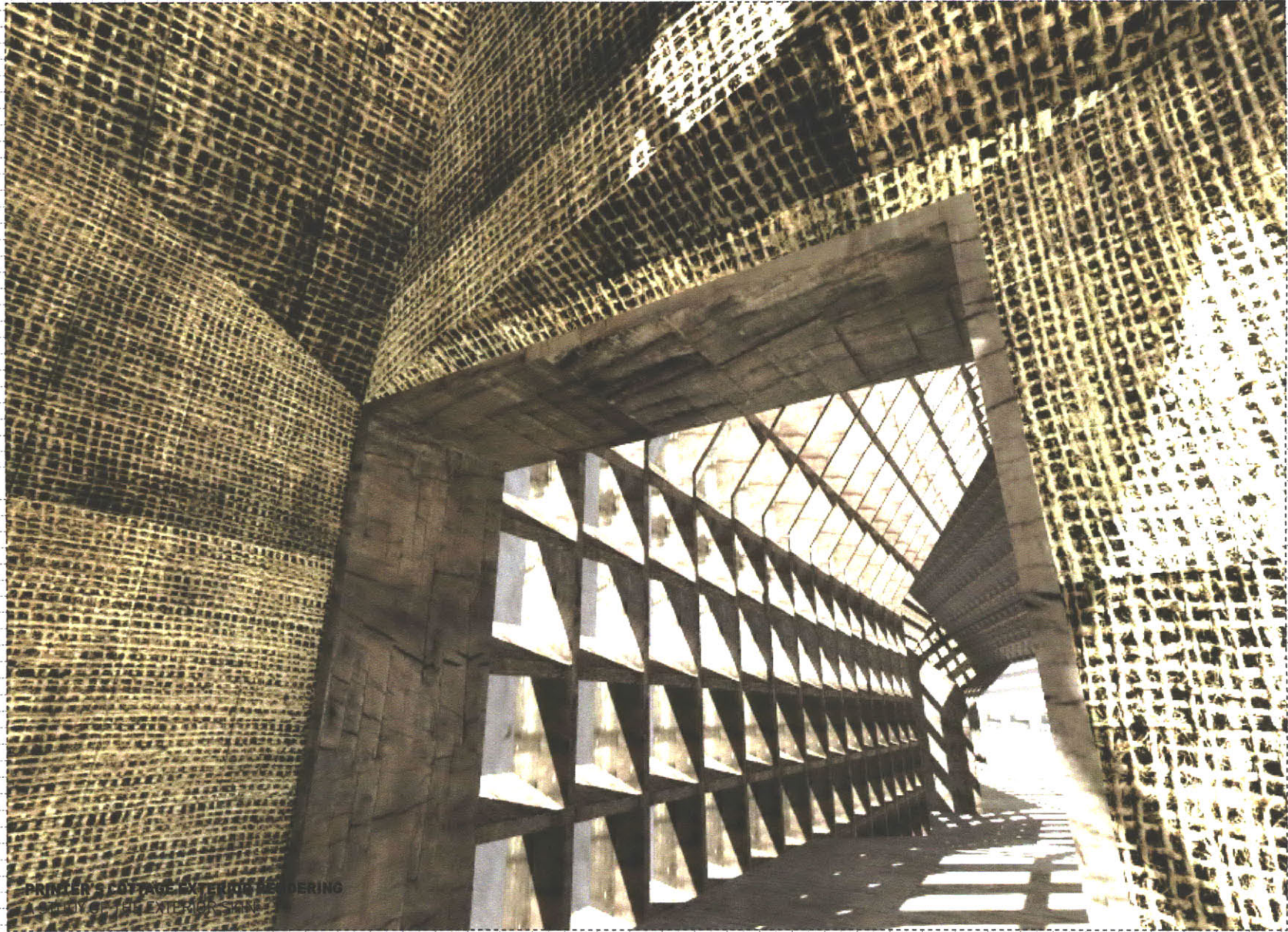
RIGHT VIEW



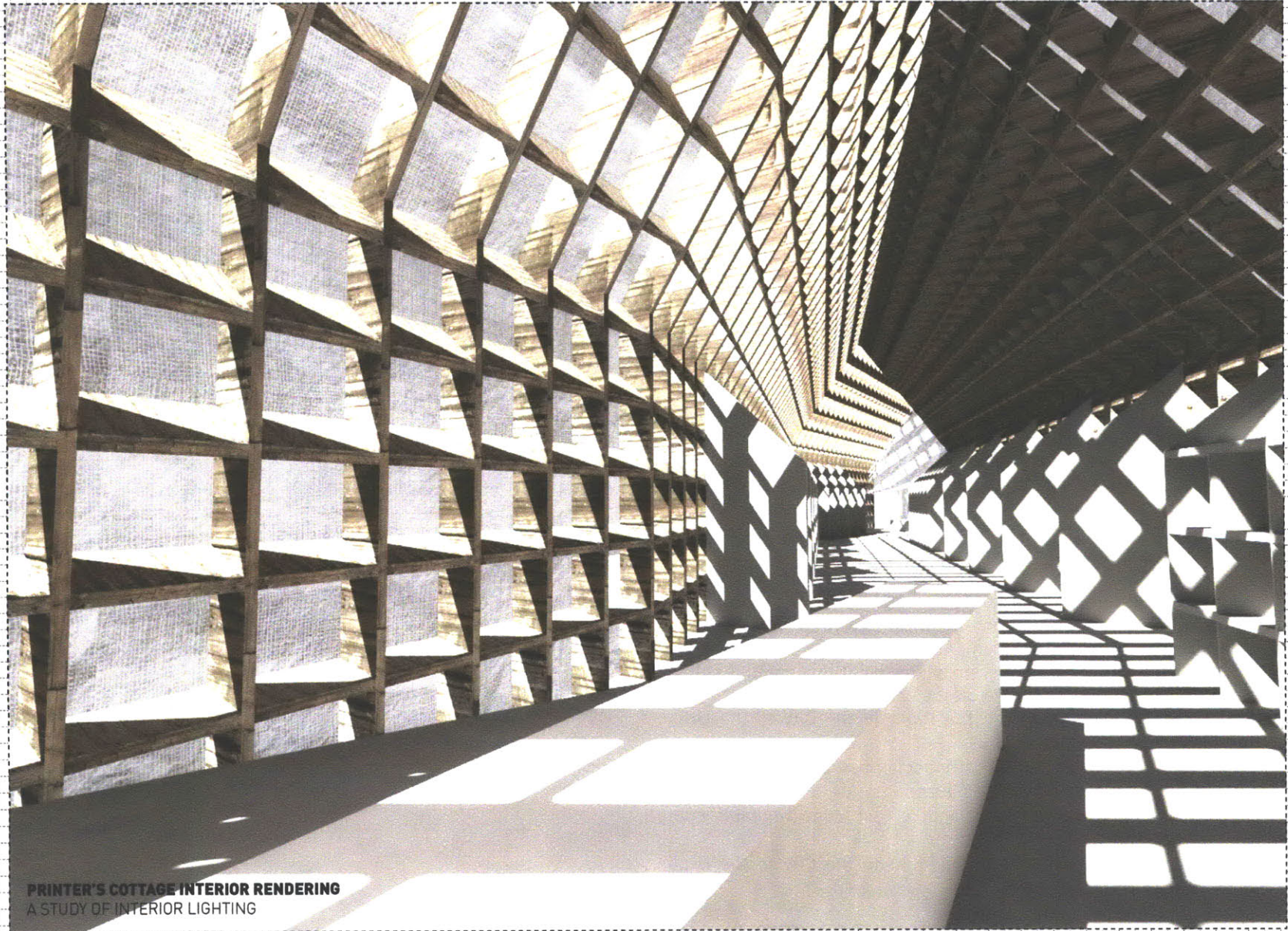
A COLLECTION OF MICRO FACTORIES
THE FIRST ITERATION



PRINTER'S COTTAGE FORM STUDY
FOUR VARIATIONS OF THE CROSS-BLOCK TYPOLOGY



PRINCE'S STORAGE EXTERIOR RENDERING
A STUDY OF THE EXTERIOR SKIN



PRINTER'S COTTAGE INTERIOR RENDERING
A STUDY OF INTERIOR LIGHTING

FOOTNOTES

SOME NOTES ON THE SOURCES CITED

1. In reference the Housing Bubble and the recent Foreclosure Crisis.
2. Capitalismo, Latin for Capitalism.
3. James Truslow Adams is the originator of the Terminology 'American Dream'
4. This is a wildly inaccurate portrayal of how Truslow's dream was expressed. The original Transcript can be found in "The Epic of America" by James Truslow Adams.
5. (Fisher, 1973) Paraphrased Version of Fisher's Description of the 'Moralistic myth'
6. (Fisher, 1973) Paraphrased Version of Fisher's Description of the 'Materialistic Myth'
7. This is not a real journal, It is however a means to explain the negative impacts of capitalism on a society.
8. (Harvey, The Enigma of Capital and the Crisis of Capitalism, 2010) This is an abbreviated version of the Capitalist mode of production as laid out by David Harvey.
9. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
10. (Hayden, 2002) Sentiments from both texts are condensed into one sentence.
11. See: Denail in the Tire Industry (Tedlow, 2010)
12. (Harvey, The Enigma of Capital and the Crisis of Capitalism, 2010), This segment is paraphrased from a animated short of David Harvey's "The Crisis of Capitalism" found at http://fora.tv/2010/04/26/David_Harvey_The_Crises_of_Capitalism_Animated
13. This should be profoundly clear to anyone at this point. If not see "Income Inequality in The United States" via Wikipedia.
14. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
15. Sub-prime Lending by various financial institutions, SEE: Fannie May or Freddie Mac for any further Questions.
16. This segment is paraphrased and re-cast from a notable quote from J.G. Ballard.
17. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
18. (Fisher, 1973) As mentioned Above.

19. Oxford English Dictionary, Online Search Term "Labor"
20. (Lipson & Kurman, 2010)
21. Type "Cheap 3-D Printer" into the google search tab, and you'll find several companies entrenched in a technology boom, to many to list, and for the sake of brevity, just take my word for it.
- 22.. (Lipson & Kurman, 2010)
23. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
24. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
25. (Harvey, Rebel Cities: From the Right to the City to the Urban Revolution, 2012)
26. This sentence is in reference to the "Modern Home No XXXXX" as seen in early editions of the Sears and Roebuck Catalog.
27. 2,349 Square feet, is the average size of the American Household, According to the Homebuilders Association of America.

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MAPPING RESOURCES + GIS DATA:

The City of Detroit
Data Driven Detroit
The Detroit Data Collaborative
The US Census Bureau

