ALAMAR'S MATERIAL WAREHOUSE

' Worker, build your own machinery!'
(Ernesto Che Guevara)

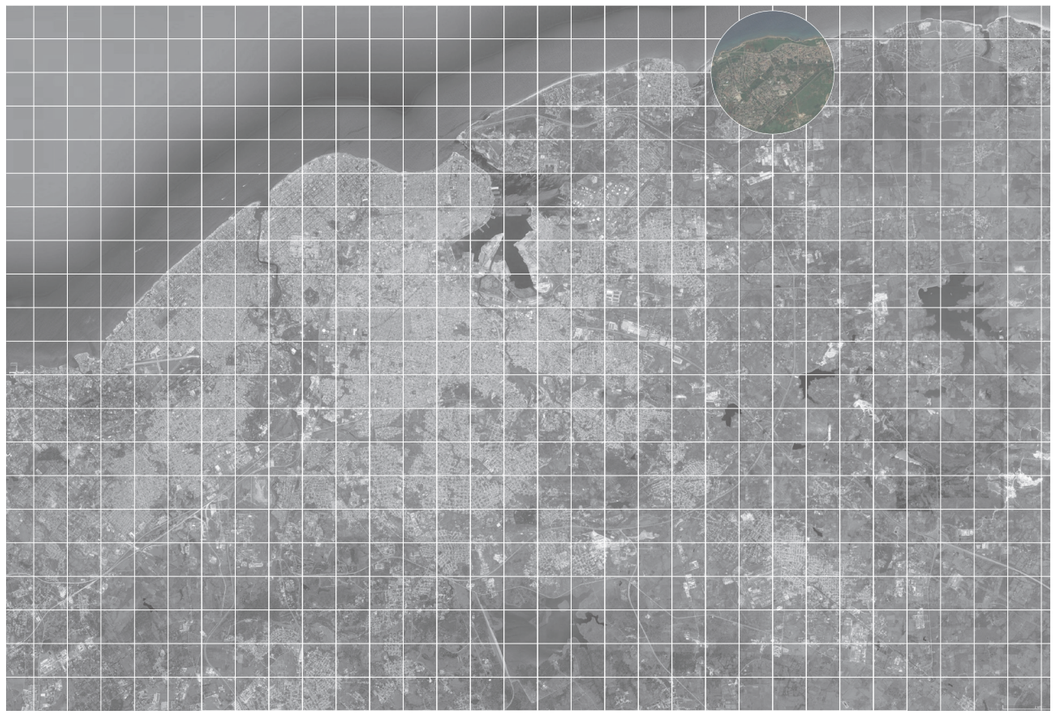
Wesley Verhoeven

Complex Studio : Havana
Tutors : Olindo Caso & Gilbert Koskamp

INTRODUCTION

CUBA - HAVANA

HABANA DEL ESTE



Outskirt Alamar, isolated from Havana

CUBAN REVOLUTION

1960

‘ Revolution is not a bed of roses.
Revolution is a battle between the past and the future’
(Fidel Castro)

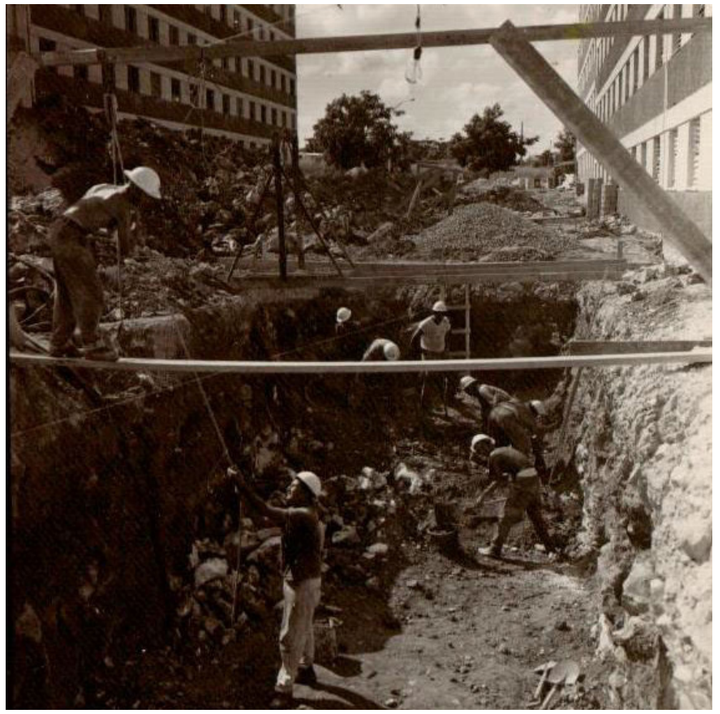
ALAMAR

CITY OF THE FUTURE

Alamar is the only large scale physical manifestation of the revolution.

MICROBRIGADES

1972



New town
Self-build housing

ALAMAR IDENTITY

SPECIAL PERIOD

Self-build sheds
(local craftmanship of reuse)

Organoponico's
(self-sufficiency)

Counter culture
(scrap-artists, musicians, poets)

CURRENT SITUATION

PHYSICAL STRUCTURES

CURRENT STRUGGLES

No hierarchy and lack of diversity

No jobs (bedroom community)

Undefined and vacant spaces

MENTAL STRUCTURES

CURRENT STRUGGLES

"This one is a neighborhood of 100% marginal people, even if they have culture, even if they have everything,.... when your workplace is not in your city and you need to move out, not only are you marginal, that means that they have marginalized you! "

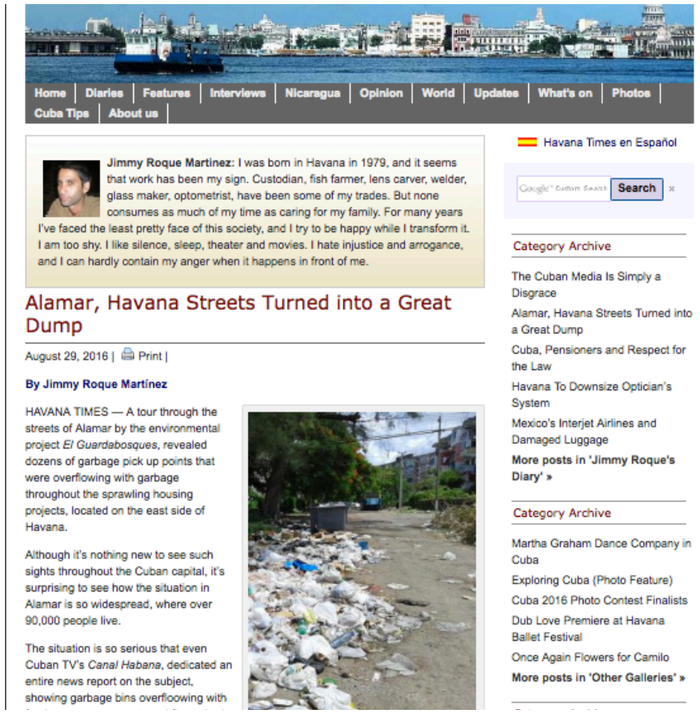
Doble Forza - Ogino Knauss
(documentary on Vimeo about Alamar)

ALAMAR PROBLEMS

TRASH

Trash among Alamar coast

Trash among Alamar streets



Havana Times adressing trash issues

ALAMAR LANDFILL

ILLEGALLY DUMPING TRASH

RESEARCH TOPIC

DISREGARDED MATERIALS (TRASH)

RELEVANCY

WASTE AND RECYCLING

Future cities need to transform their relationship to waste in what is effectively an inversion of the current paradox. It is time that urban dwellers became far more uneasy with the systems that obscure the material scale of waste production, and far more comfortable with its matter so that we can interact with it in a way that is realistic and sustainable.

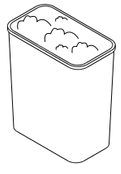
Not engaging with waste because it is conveniently hidden away, or because it is considered abject, directly inhibits the design and development of socially and environmentally sustainable and resilient cities.

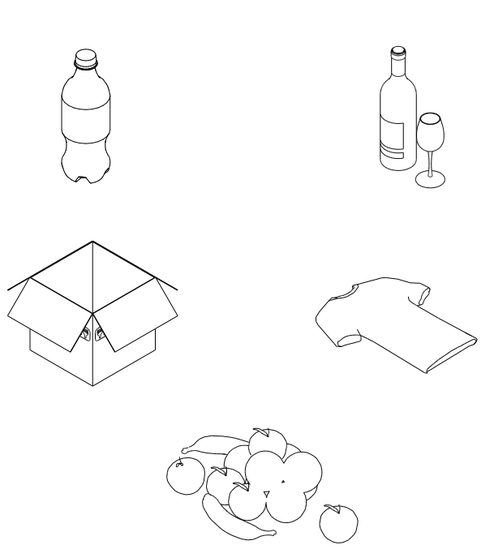
(Global Garbage: Urban Imaginaries of Waste, Excess, and Abandonment)

RESEARCH

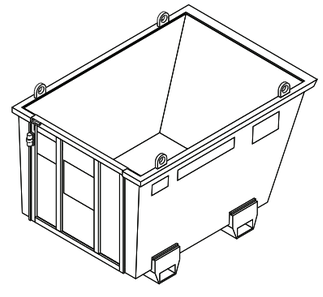
WASTE COMPOSITION

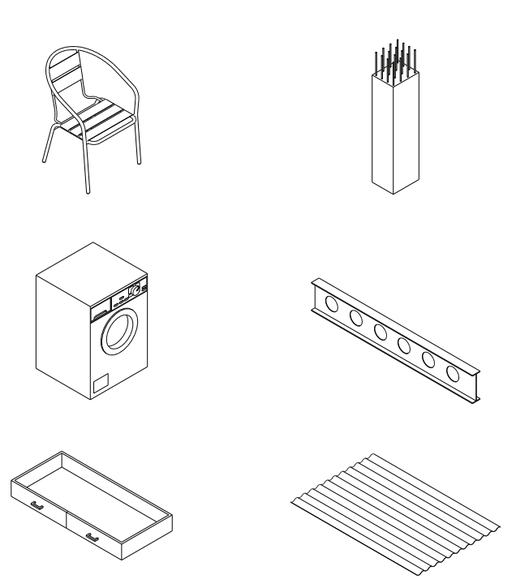
TYPES





Household and commercial waste





Bulky and construction waste

WASTE COMPARISON

CUBA - USA

Other	*2,0 %*
Rubber	*0,3 %*
Leather	*0,5 %*
Metals	*1,8 %*
Glass	*2,5 %*
Textiles	*2,9 %*
Wood	*3,5 %*
Plastic	*11 %*
Paper	*13,3 %*
Organic	*62,4 %*

Cuba waste

Other	*3,2 %*
Metals	*9 %*
Glass	*4,4 %*
Textiles incl. rubber and leather	*9,5 %*
Wood	*6,2 %*
Plastic	*13 %*
Paper	*26,6 %*
Yard	*13,3 %*
Organic	*14,9 %*

USA waste

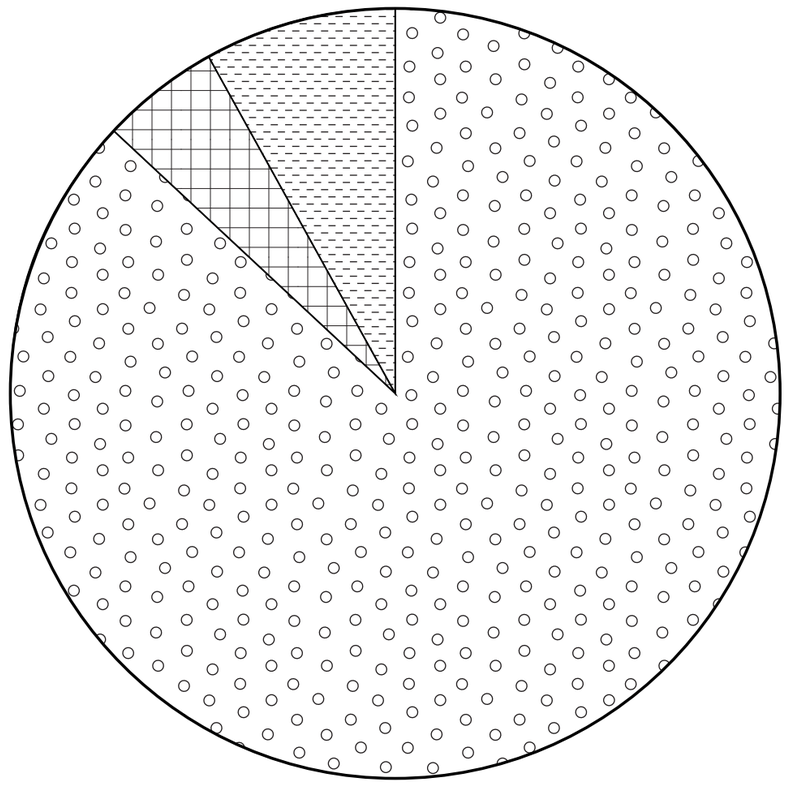
DESTINATION OF TRASH

LANDFILLING

Composted *8%*

Recycled *5 %*

Landfilled *87 %*



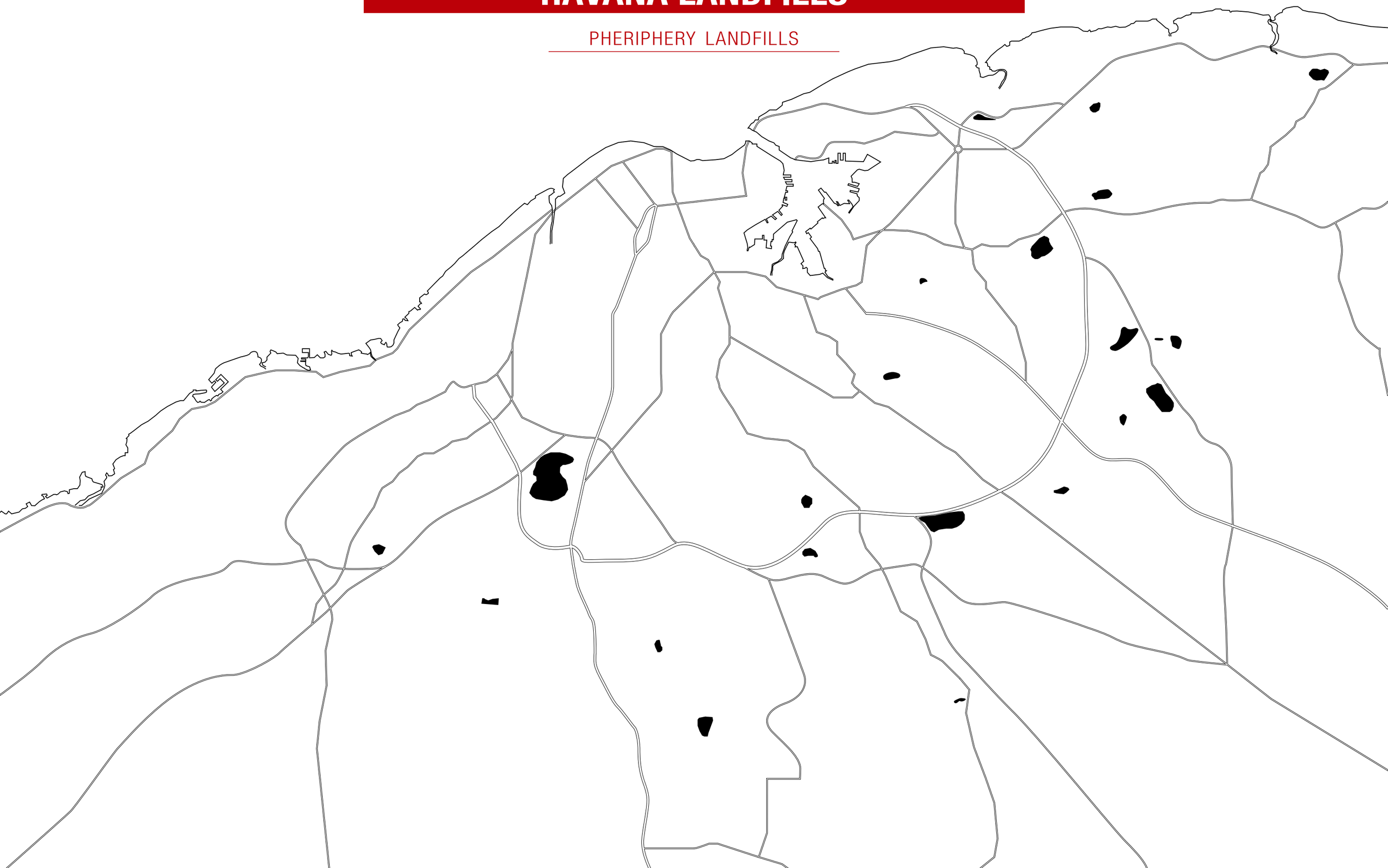
Some waste is illegaly dumped in the atlantic ocean

HAVANA LANDFILL

LIFE ON A LANDFILL

HAVANA LANDFILLS

PHERIPHERY LANDFILLS



CALLE 100 LANDFILL

HAVANA'S LARGEST LANDFILL

TRASH IN SOCIETY

EL BUZO

Aluminium cans are sold to big companies

Scavenging trash

El buzo, a term which originates from the Special period.

<u>Etymology :</u>
basurero : Spanish word for landfill
buzo : Spanish word for diver

CUBAN CREATIVE RECYCLERS

CUBAN INGENUITY

Cuba,

A DIY Society

(Technological Disobedience)

CUBAN INGENUITY

TECHNOLOGICAL DISOBEDIENCE

El Camello

Rikimbilli

HISTORY OF CUBA'S INGENUITY

1960

" Worker, build your own machinery!"
(Ernesto Che Guevara)

1960 revolution

HISTORY OF CUBA'S INGENUITY

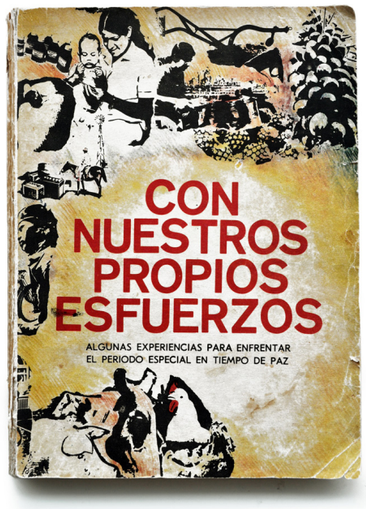
1962

1962 embargo usa

' To beat Imperialism in the Battle of Replacement Parts'.
(Ernesto Che Guevara)

HISTORY OF CUBA'S INGENUITY

ENCOURAGEMENT BY GOVERNMENT



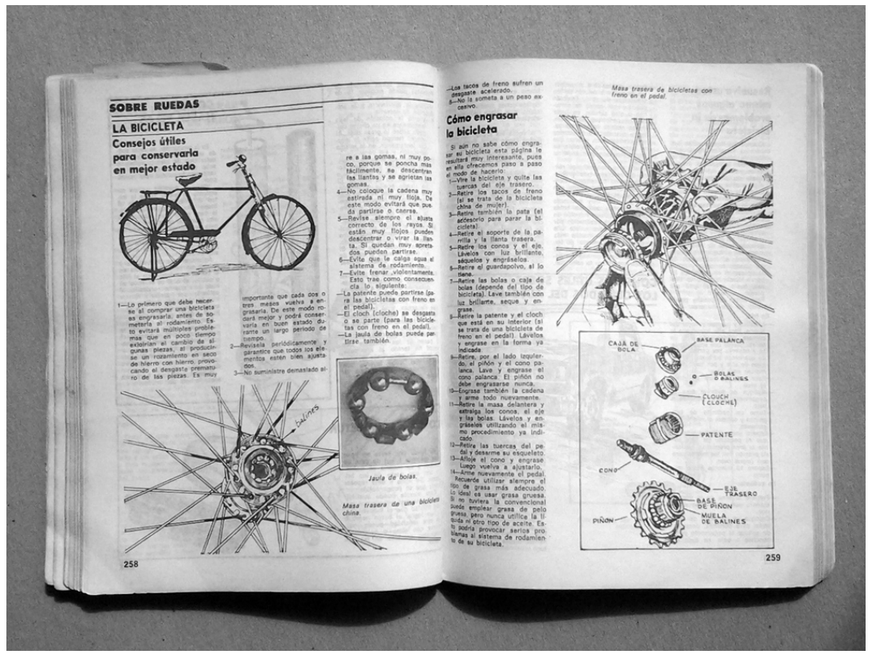
1965 Juventud Tecnica Magazinea

1991 el libro de la familia

1993 con nuestros propios esfuerzos

HISTORY OF CUBA'S INGENUITY

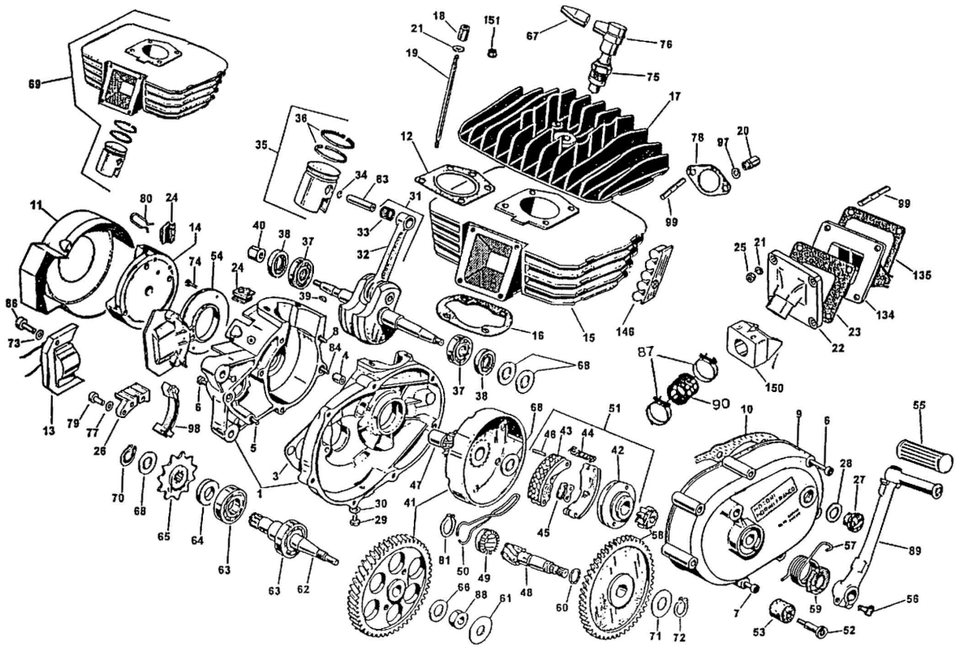
CON NUESTROS PROPIOS ESFUERZOS



1993 con nuestros propios esfuerzos

HISTORY OF CUBA'S INGENUITY

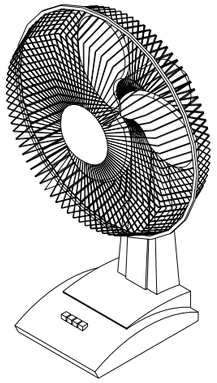
CUBAN MENTALITY



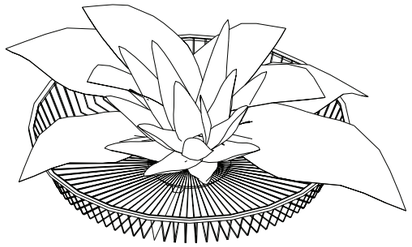
While reinventing their lives, an unconscious mentality emerged. As a surgeon becomes desensitized to wounds, Cubans became desensitized to designed objects. They stopped seeing the original purpose of the object; instead it became a sample of parts.
(Ernesto Oroza)

TECHNOLOGICAL DISOBEDIENCE

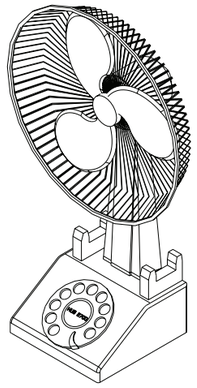
REPAIR, REPURPOSE, REINVENT



repair



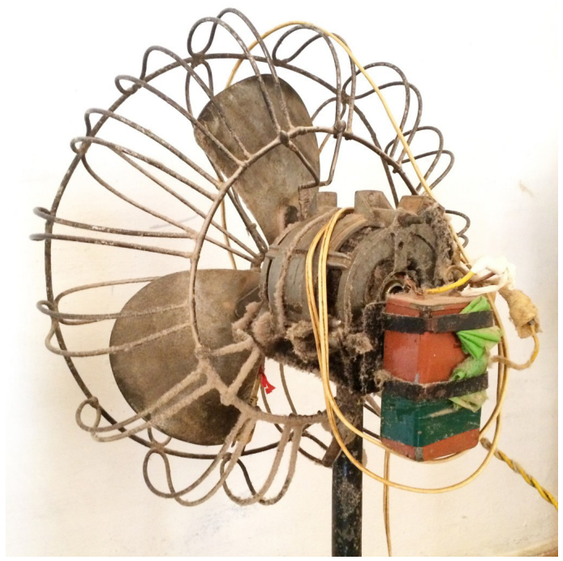
repurpose



reinvent

TECHNOLOGICAL DISOBEDIENCE

LABORATORY FOR INGENUITY



TECHNOLOGICAL DISOBEDIENCE

ALAMAR

TECHNOLOGICAL OBSOLESCENE

UNSUSTAINABLE CONSUMPTION

Meanwhile in Western countries

Capitalism invented
Technological Obsoloscene

TECHNOLOGICAL OBSOLESCENE

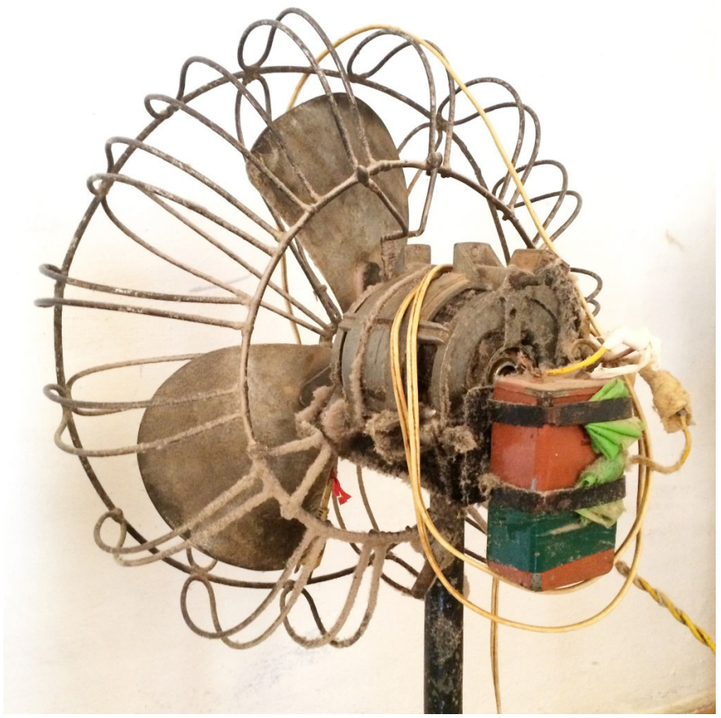
WESTERN WORLD

TECHNOLOGICAL OBSOLESCENE

THROW AWAY SOCIETY

STRUGGLE OF TOMORROW ?

WHAT WILL HAPPEN ?



technological disobedience

system : communism

technological obsolescene

system : capitalism

STRATEGY

STRATEGY OF RESILIENCE

MANIFESTO

REVOLUCION 2.0

SOCIALIST REVOLUTION

AUTARKIC COMMUNITY

SHARING ECONOMY

MANIFESTO

REVOLUCION 2.0

SOCIALIST REVOLUTION

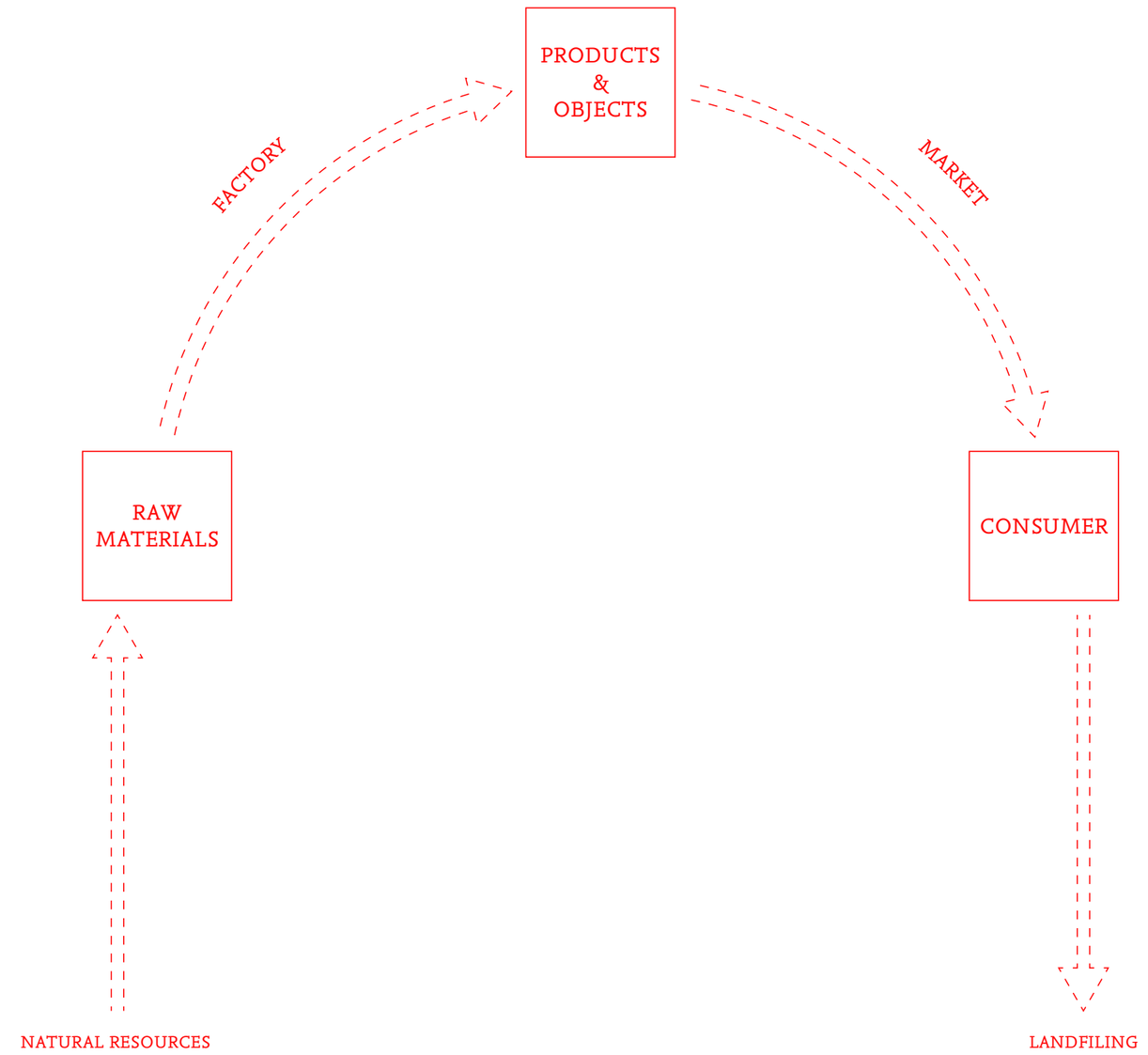
AUTARKIC COMMUNITY

SHARING ECONOMY

CIRCULAR ECONOMY

STRATEGY

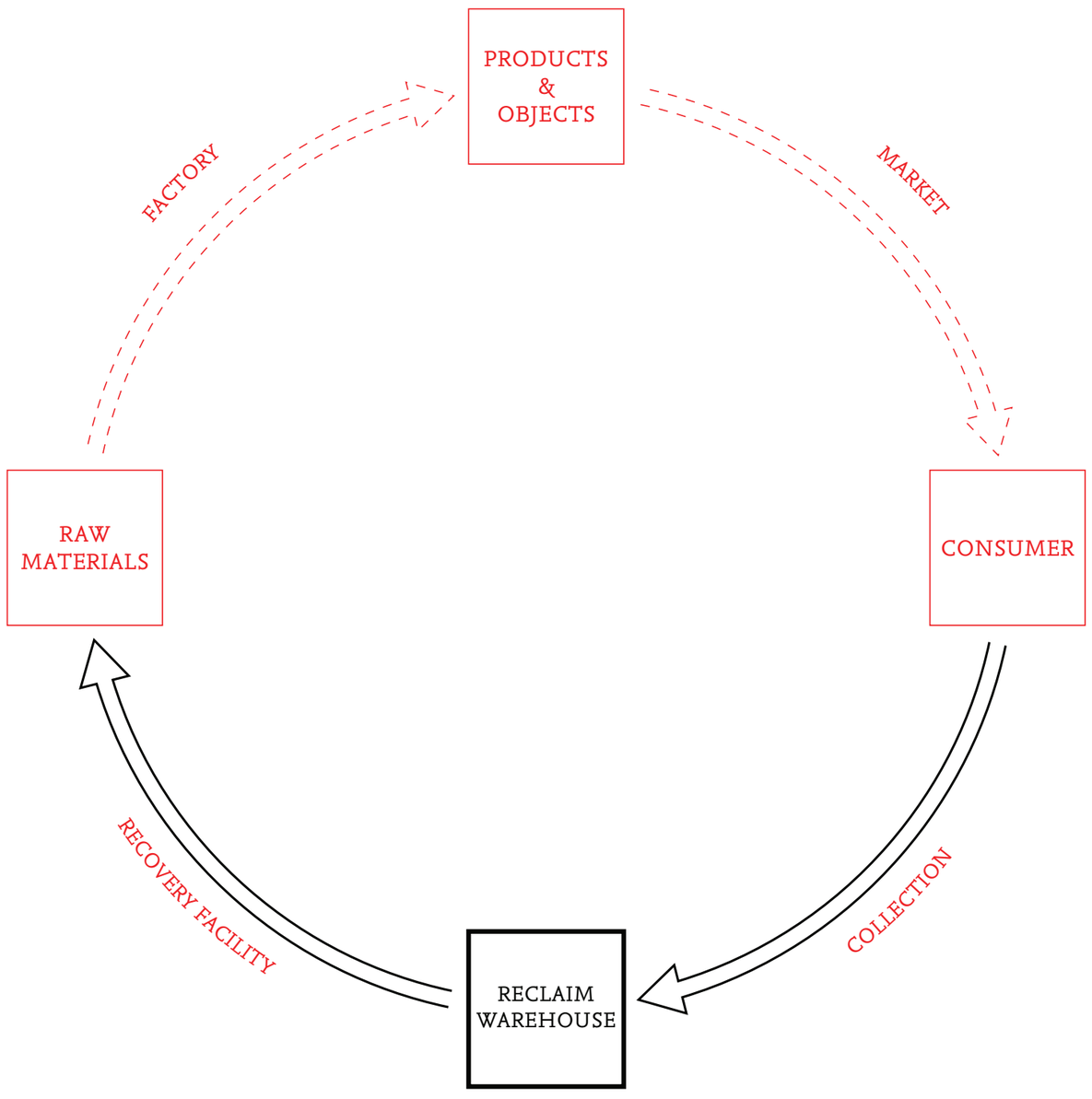
PRODUCTION PROCESS



Landfilling

STRATEGY

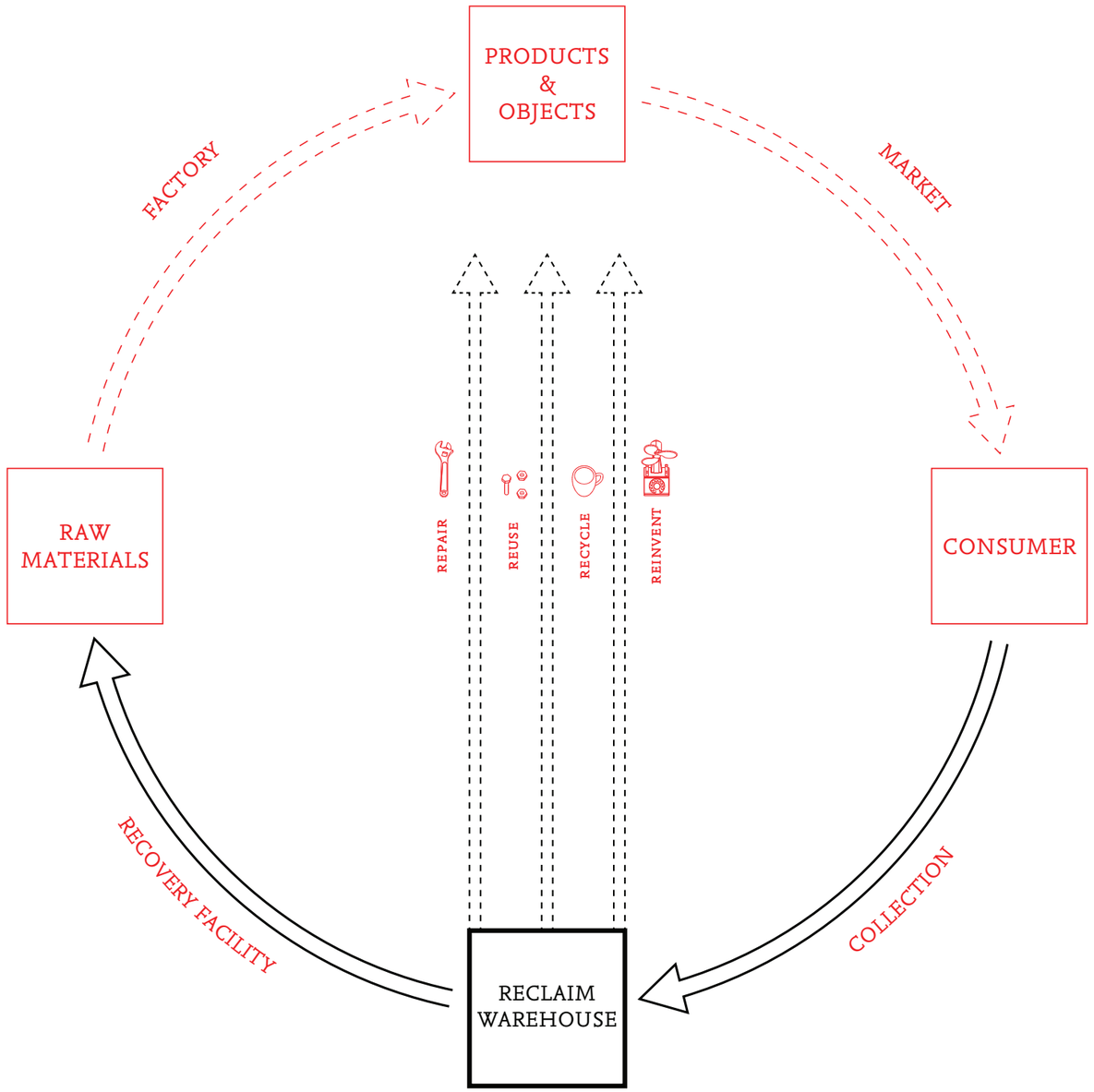
CIRCULAR ECONOMY



Closing the circle

STRATEGY

CIRCULAR ECONOMY



reduce, repair, reuse, recycle, reinvent

COMMUNITY SERVICES

SERVICES

COMMUNITY IMPACT

UP-CYCLED OBJECTS

NEW FURNITURE TO ELDERLY CARE CENTRE OR OTHER FACILITIES
INSTRUMENTS TO CULTURAL PLATFORM
PROVIDE UP-CYCLED OBJECTS TO ALAMAR PEOPLE

CATEGORIZED REUSABLES & RAW MATERIALS

REPARATIONS

BORROW TOOLS SERVICES

SERVICES

COMMUNITY IMPACT

UPCYCYCLED OBJECTS

CATEGORIZED REUSABLES & RAW MATERIALS

REUSABLE MATERIALS FOR ALAMAR PEOPLE AND NEW FACTORIES
RAW MATERIALS FOR ALAMAR PEOPLE AND NEW FACTORIES

REPARATIONS

BORROW TOOLS SERVICES

SERVICES

COMMUNITY IMPACT

UPCYCYCLED OBJECTS

CATEGORIZED REUSABLES & RAW MATERIALS

REPARATIONS

REPAIR OF INSTRUMENTS, FURNITURE, MACHINES OR OTHER APPLIANCES

BORROW TOOLS SERVICES

SERVICES

COMMUNITY IMPACT

UPCYCYCLED OBJECTS

CATEGORIZED REUSABLES & RAW MATERIALS

REPARATIONS

BORROW TOOLS SERVICES

CABINETS/BOXES OF TOOLS FOR CRAFTMANSHIPS
SELF-BUILD MACHINERY FOR CRAFTMANSHIPS

PROGRAM

TRASH AND ARCHITECTURE

PROGRAM

NEW TYPOLOGY

Material Recovery Facility (MRF)

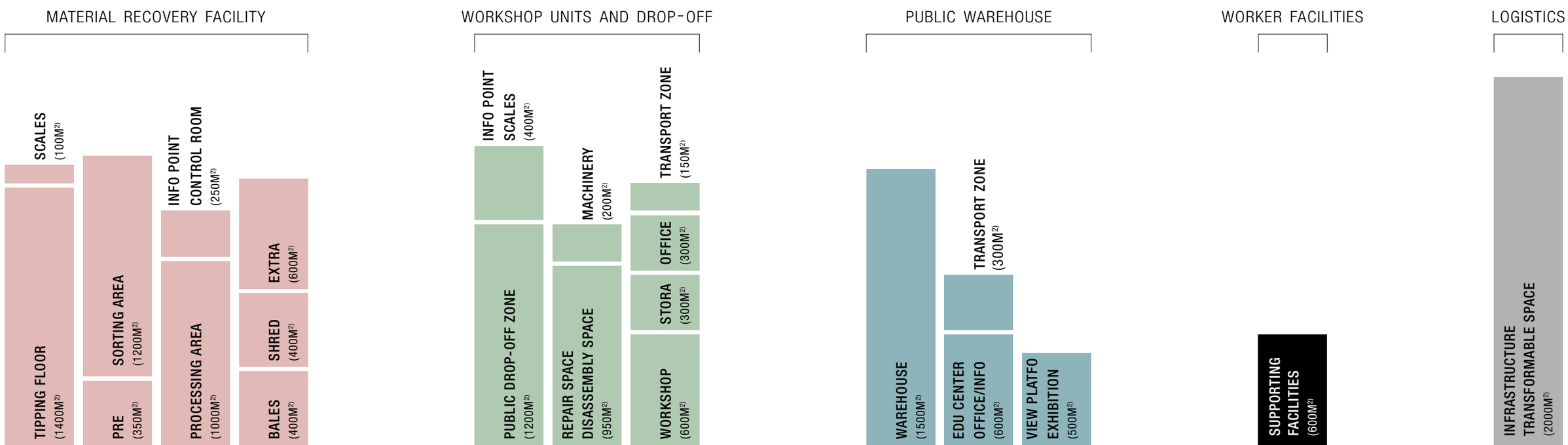
Transfer station

Workshop units

Warehouse

PROGRAM

SQUARE METERS



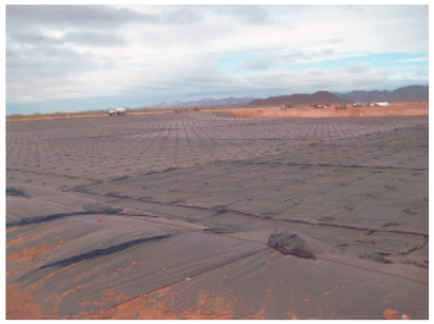
ALIENATION

THE MISSING LINK

No. 40 / Well, Well, Well
ESSAY

The Missing Link: Architecture and Waste Management

Leire Asensio Villoria, Hanif Kara, Andreas Georgoulias



Mesquite Regional Landfill under construction, El Centro, California, 2008.

BIG, Amager Resource Center, Copenhagen, Denmark, under construction. The facility utilizes flue gas cleaning, a highly efficient technology

Puente Hills, California, is an unhealthy place. Home to one of the largest landfills in the United States, it was the main repository for all of Los Angeles County's waste until the landfill closed in 2013. Over a period of more than 50 years, Puente Hills Landfill had expanded to cover an area of almost 1,400 acres, accommodating compacted waste stacks as high as 500 feet.

It is hard to visualize such an eyesore, but according to Edward Humes, author of *Garbology: Our Dirty Love Affair with Trash*, the landfill could hold all the cars produced in the United States over the past 15 years while its height exceeded that of many skyscrapers. Because regulations require waste to be covered with soil as soon it enters the landfill, these "towers" were invisible—the problem was sealed from sight.[1] Mesquite Regional Landfill, a much larger and more remote mega-landfill, now serves as the county's main waste repository. Located 200 miles southeast of Puente Hills and just over 10 miles from the US-Mexico border, it is expected to remain operational for the next 100 years.

Like many affluent societies, the United States is a land of insatiable, resource-intensive consumption, and has built these mega-landfills to accommodate the products of our vicious, and increasingly detrimental, resource-to-waste conversion cycle. In 2012, Americans generated approximately 251 million tons of waste, of which 135 million tons headed to landfills. Given the average landfill gate fee of $48 per ton, the simple act of throwing waste into landfills amounts to nearly $6.5 billion per year.

Often situated in remote locations next to forests, on land that could otherwise be used for recreational purposes, the roughly 2,000 operational landfills in the United States occupy more than 6,000 acres. They emit greenhouse gases that account for 2 to 5 percent of the country's total emissions, pose significant health risks, and cause long term disruptions to their surrounding environments.[2] Why, then, are landfills still the most prominent means of waste management in the United States?

ALIENATION

MISSING LINK

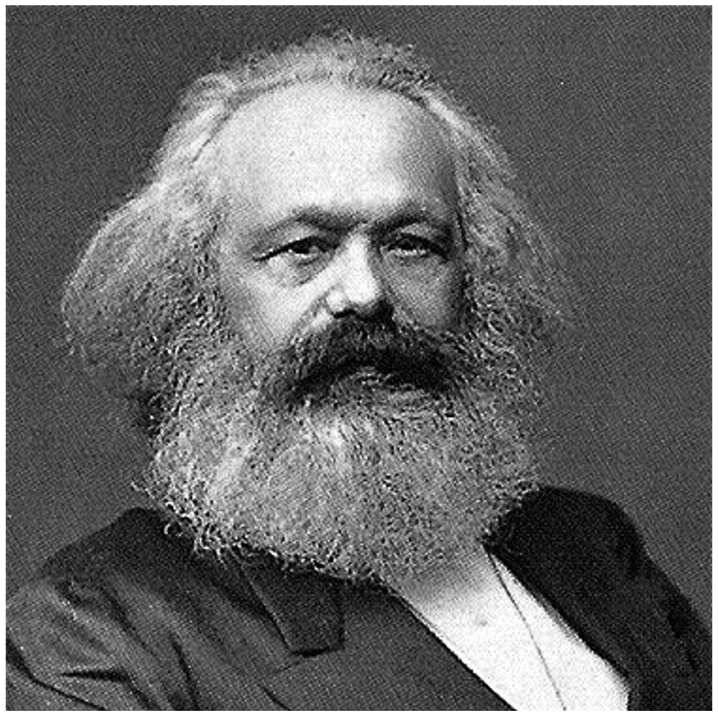
Drastic efficiency leaps, environmental impact improvements, and technological innovations all happen far from the public eye. It's nearly impossible to observe and understand what takes place in an incinerator or a recycling plant. Outsiders are rarely allowed on-site. ***The design of the plants, which seldom involves architects, only increases this sense of alienation.*** *These strange edifices seem to be remnants of a not-so-distant past of exhaust fumes and industrial pollution.* ***Their bleak, unwelcoming architecture makes no gesture to connect with the public, visually or socially; they offer no amenities beyond their core function, no opportunities for visitors or communities to engage,*** *and only minimal integration with their built and natural surroundings.*

Harvard Design Magazine Issue 40 - The Missing Link: Architecture and Waste Management

INTENTIONS

ALIENATION

KARL MARX

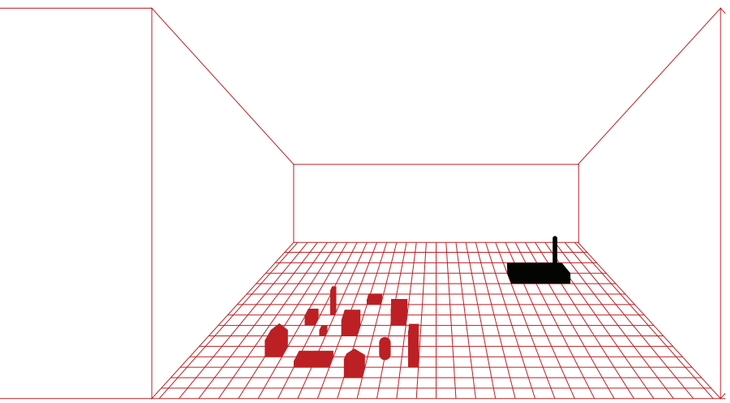


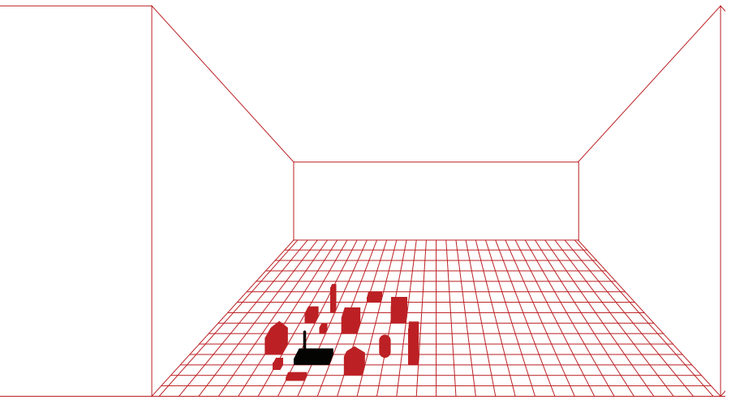
Alienation is a disorienting sense of exclusion and seperation.

INTENTIONS

URBAN SCALE

Urban scale





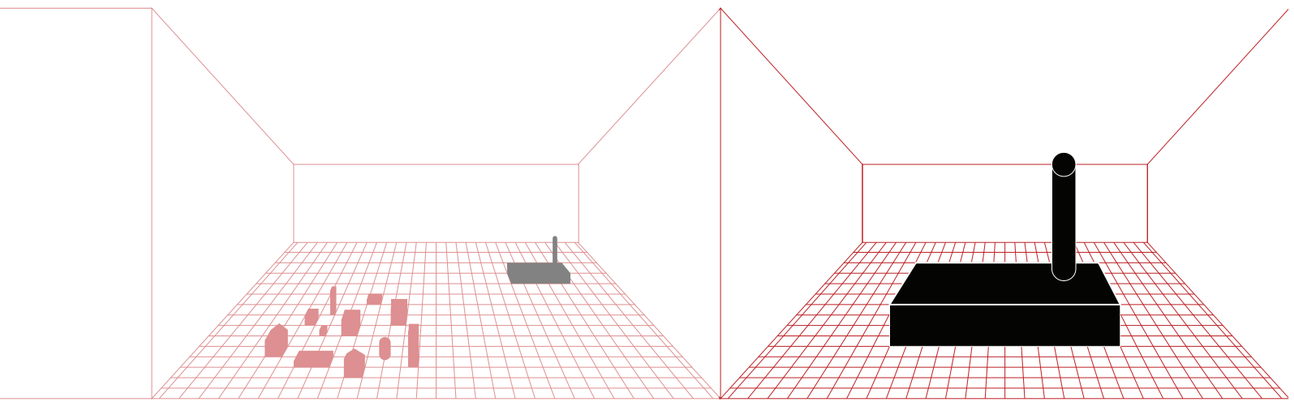
Landmarks of communities

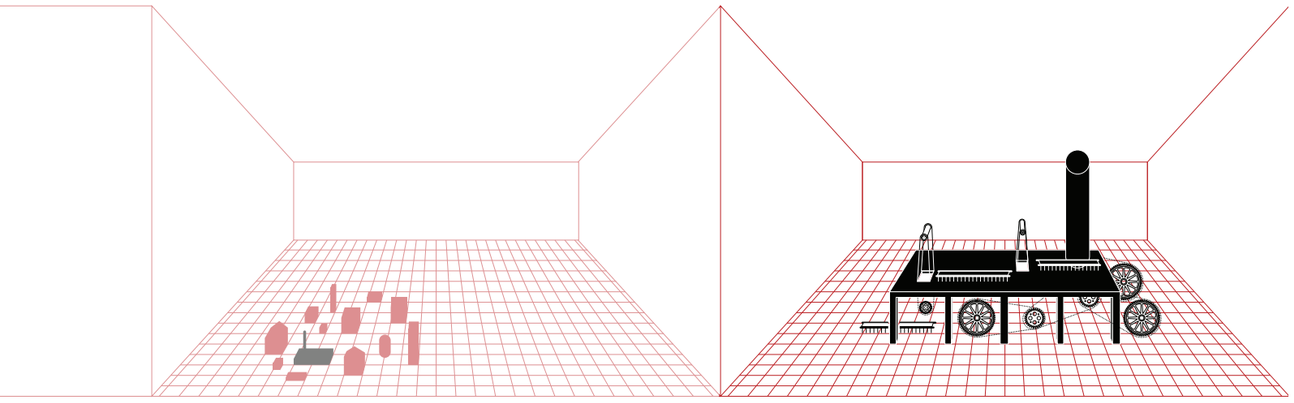
INTENTIONS

BUILDING SCALE

Urban scale

Building scale





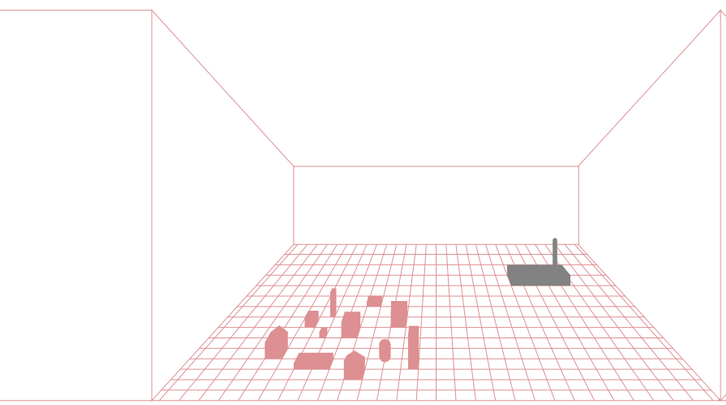
Landmarks of communities

Transparent machine

INTENTIONS

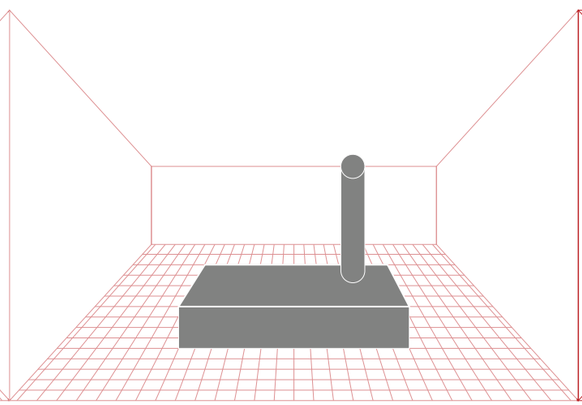
WORKER SCALE

Urban scale



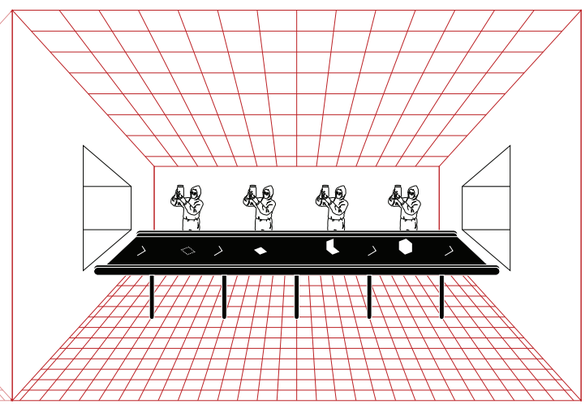
Landmarks of communities

Building scale



Transparent machine

Worker scale

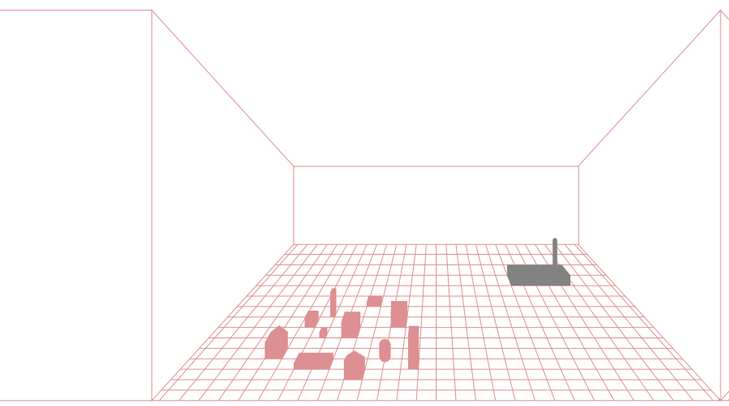


Shifts of different labor encourage creativity

INTENTIONS

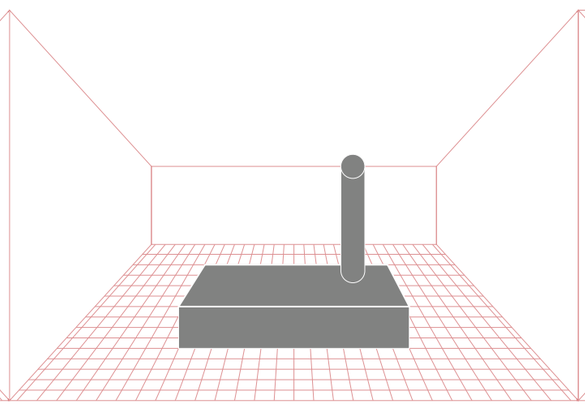
OBJECT SCALE

Urban scale



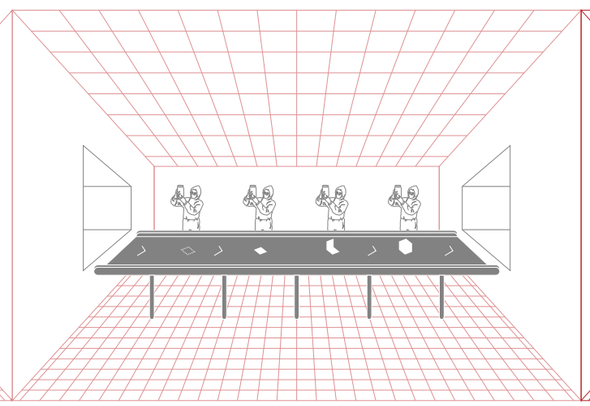
Landmarks of communities

Building scale



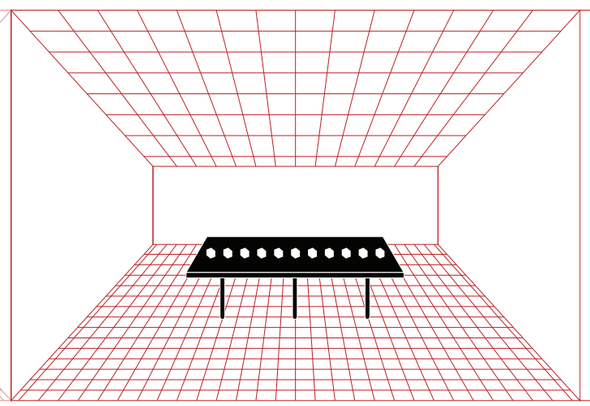
Transparent machine

Worker scale



Shifts of different labor encourage creativity

Object scale



Encourage creativity through specialized craftsmanship and interaction with community

URBAN STRATEGY

URBAN SCALE

ALAMAR

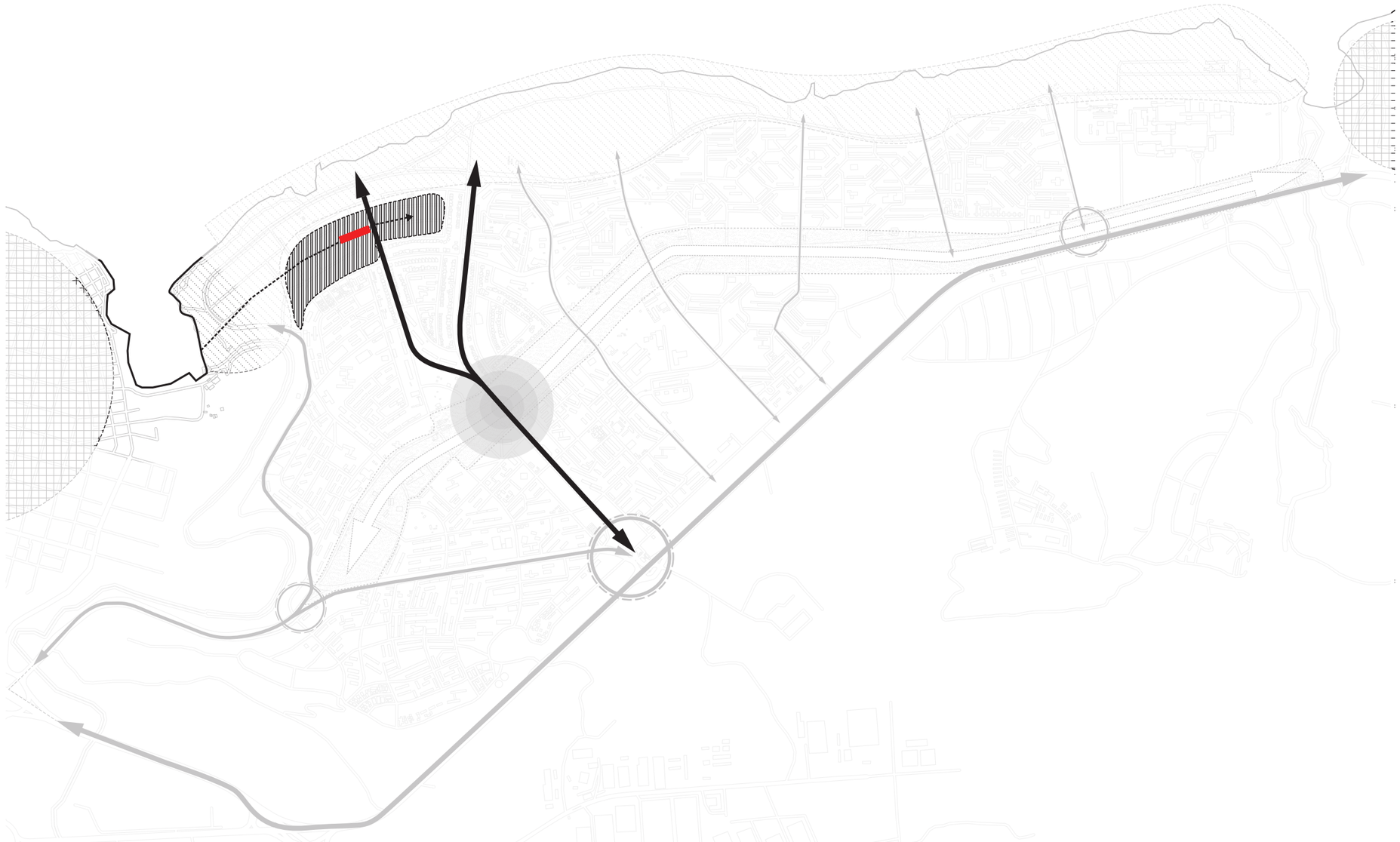
EXISTING STRUCTURE

MANIFESTO

GROUP STRATEGY

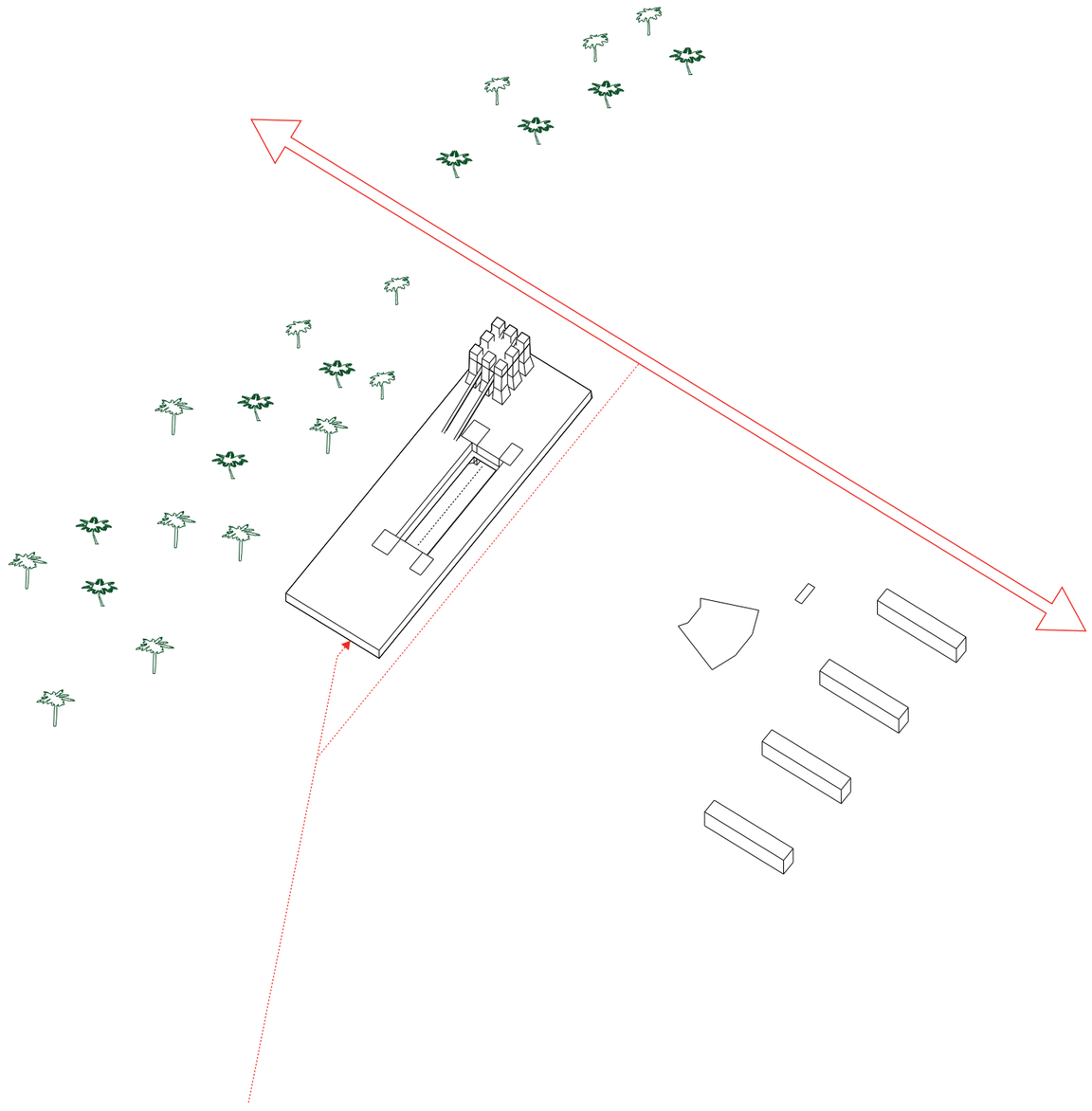
MANIFESTO

UNDEFINED AREA



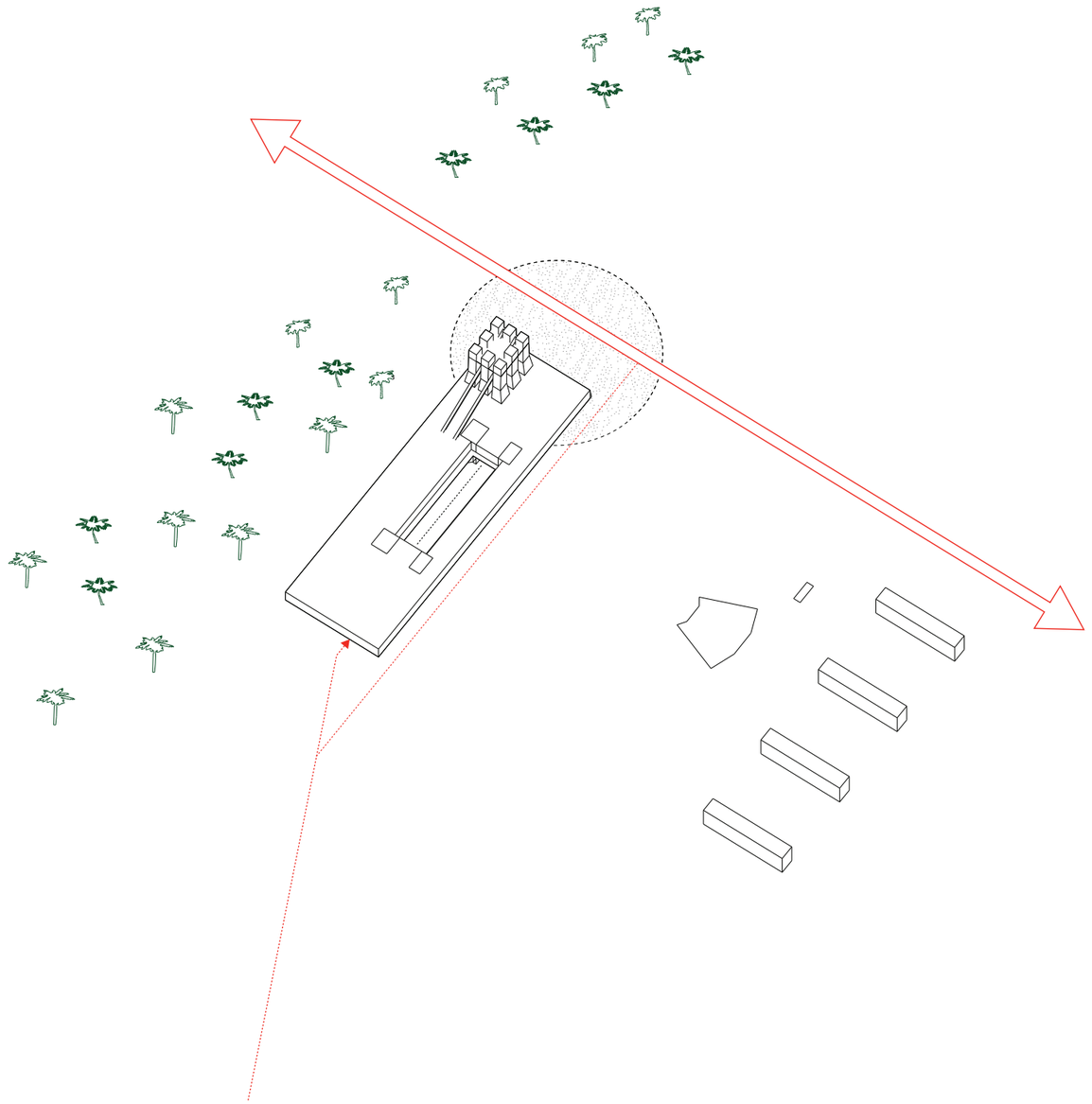
URBAN STRATEGY

URBAN LOGISTICS



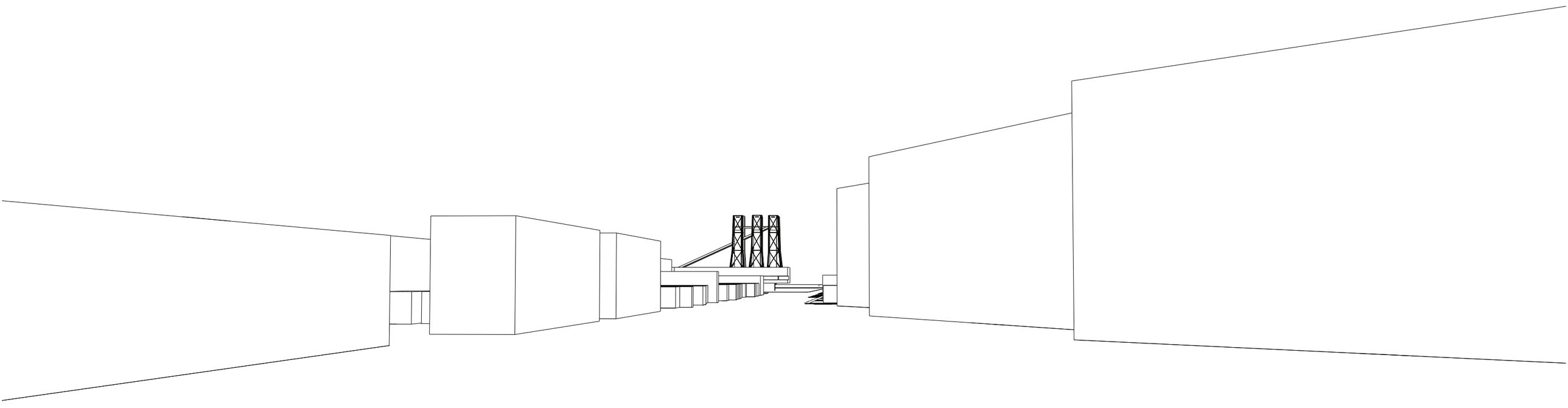
URBAN STRATEGY

EMPHASIZES NEW HIERARCHY



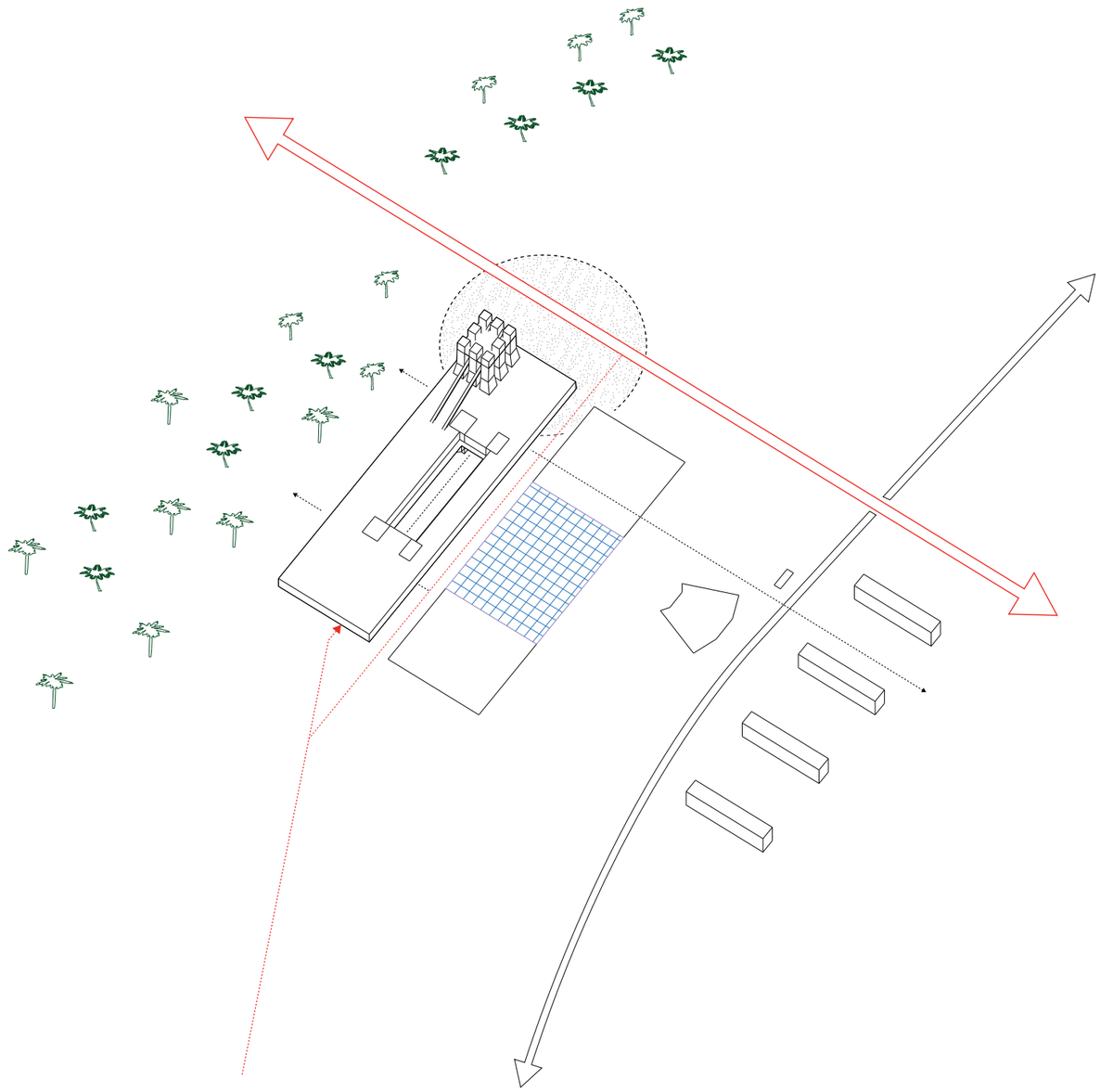
URBAN STRATEGY

VIEW FROM NEW CENTER



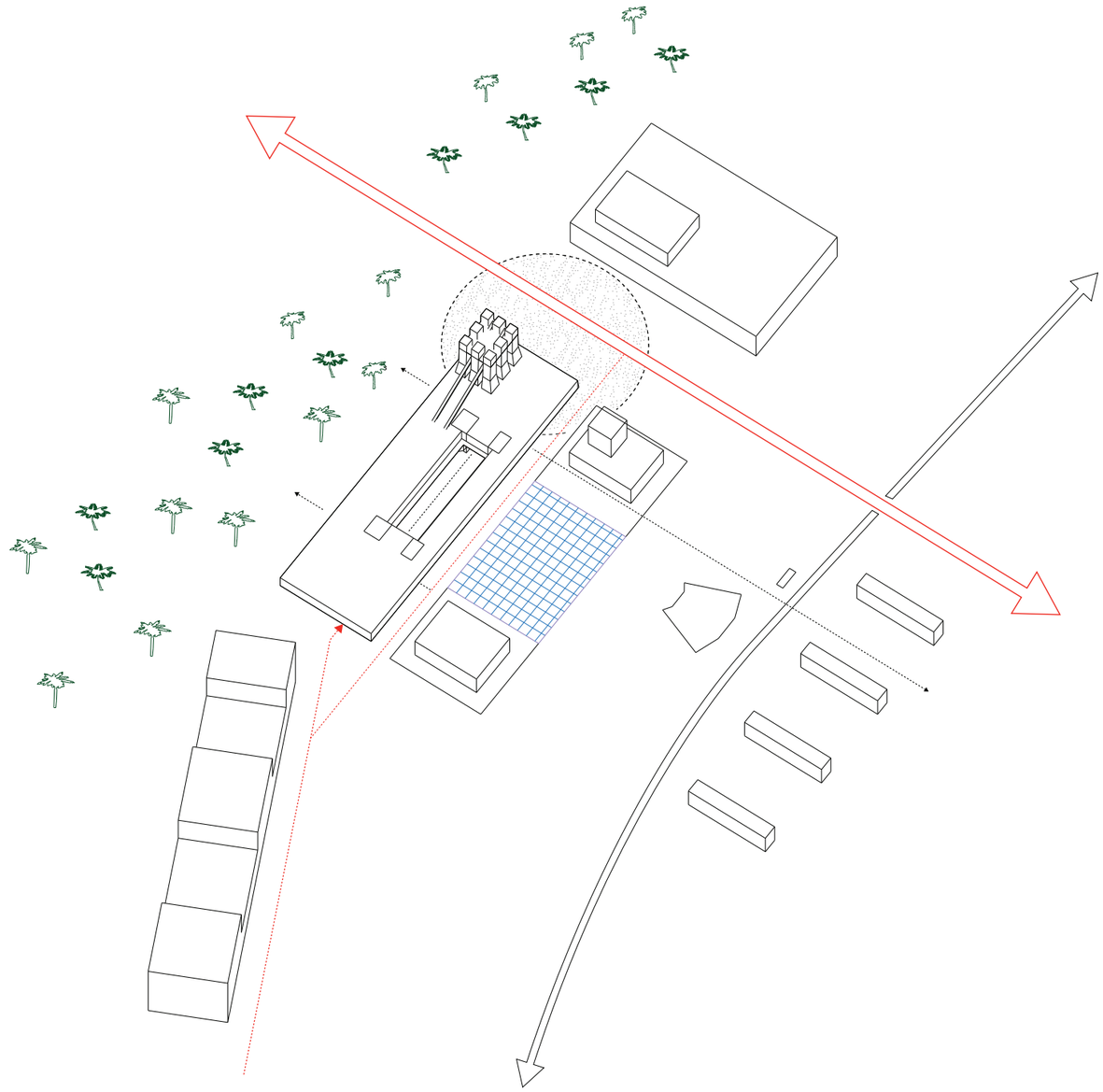
URBAN STRATEGY

BORDER CONDITION PARK - CITY



URBAN CATALYST

NEW FACTORIES, COMPOST, WTE

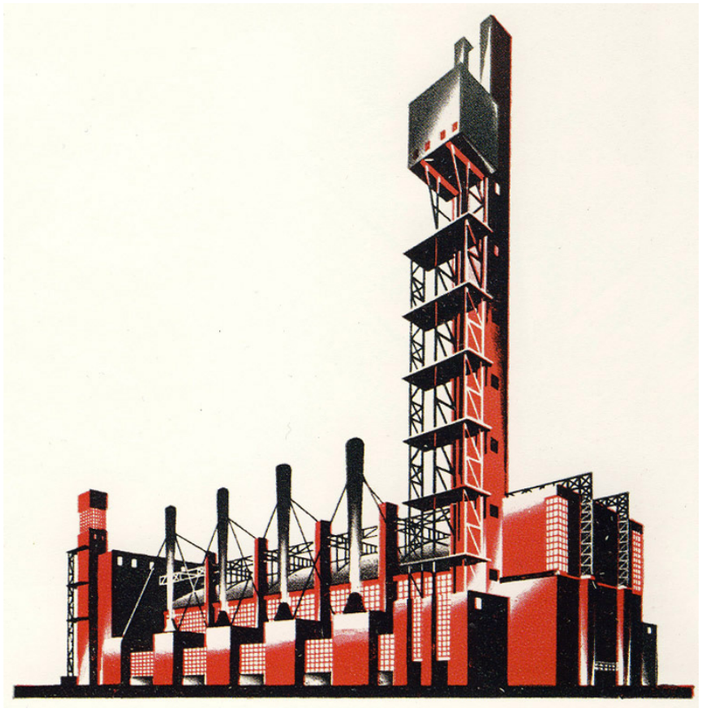


URBAN COLLAGE

COLLAGE FROM PARK

CONSTRUCTIVISM

SOVIET ARCHITECTURE

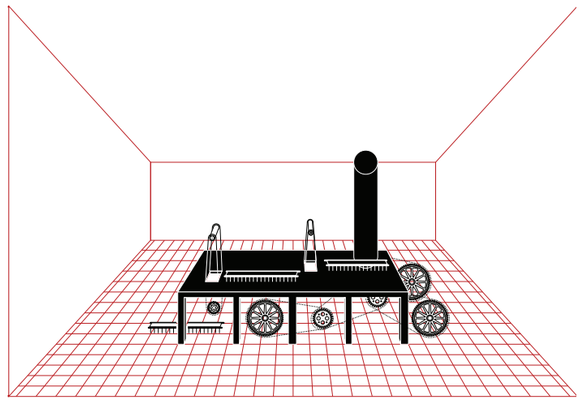


URBAN STRATEGY

MAKERS SQUARE

BUILDING AS A MACHINE

BUILDING SCALE



LOGISTICS OF MACHINE

ORGANIZATION

?

LOGISTICS OF MACHINE

LINEARITY

DISREGARDED (OLD)

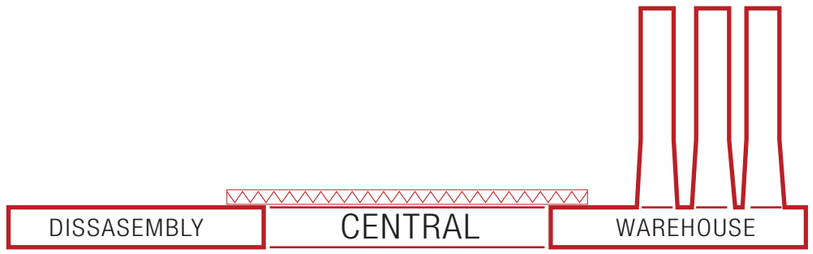
RECLAIMED (NEW)

LOGISTICS OF MACHINE

IMPORTANCE OF LOGISTICS

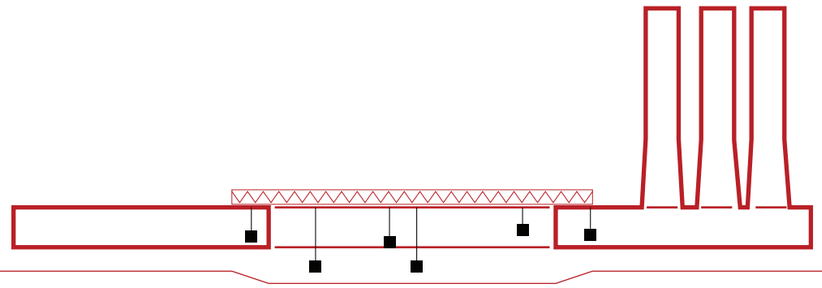
LOGISTICS OF MACHINE

CENTRAL SPACE



LOGISTICS OF MACHINE

FLOWS OF MATERIALS

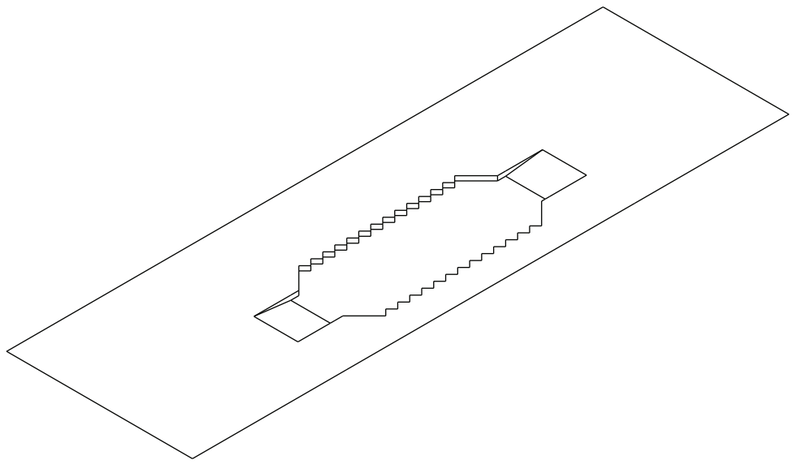


VISIBLE FLOW OF MATERIALS AND OBJECTS

SPATIAL QUALITIES

GROUND FLOOR

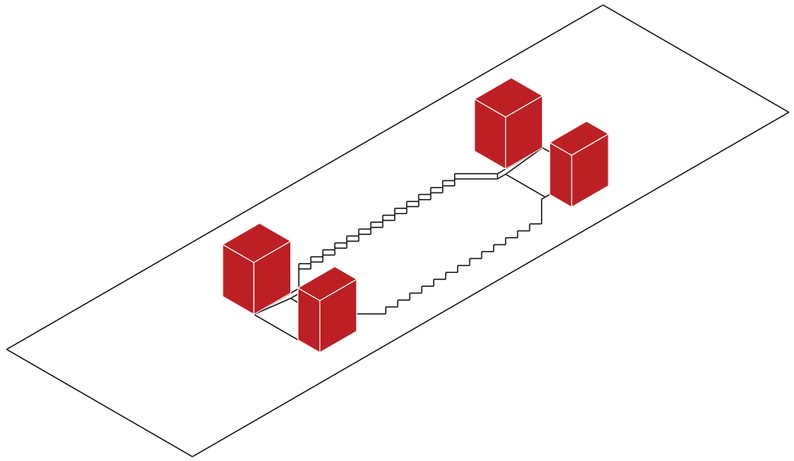
DEEPENED LOGISTICS



lowered central space for logistics of containers

CORES

NECESSARY FUNCTIONS



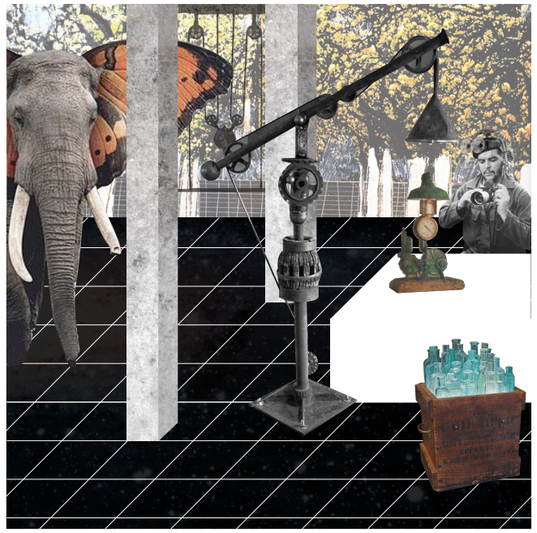
cores facilitate workers between different areas.
Every core includes cleaning facilities and lockers

EL NUEVO BUZO

UNDERSTANDING PRODUCT FROM MINING TO UPCYCLING

recycling factory

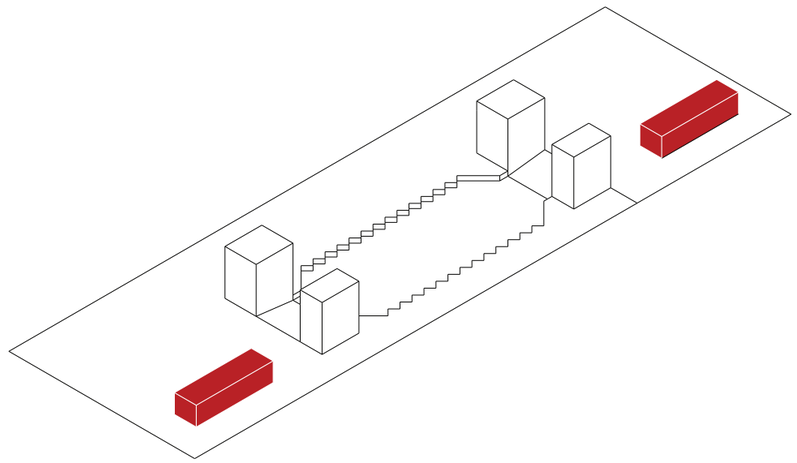
warehouse



workshop and dissasembly

SERVICE AREAS

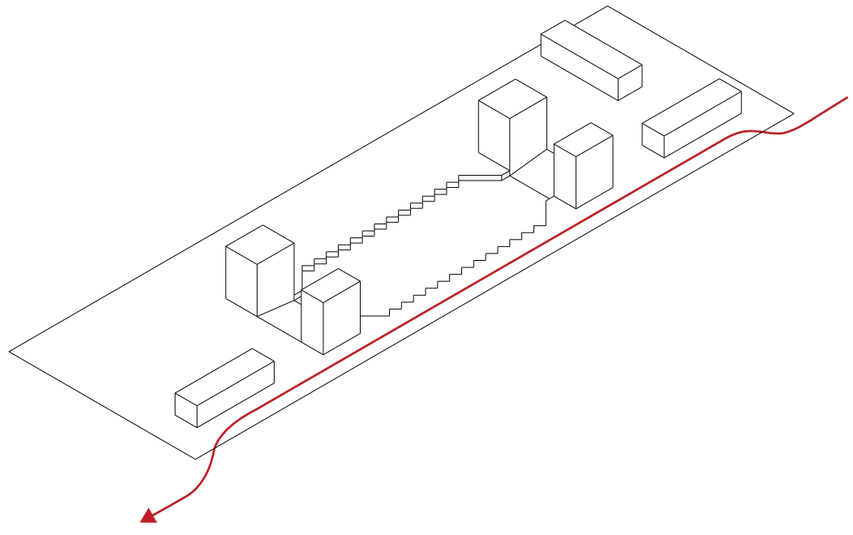
CHECK IN AND CHECK OUT



service areas provide drop-off or pick up

SERVICE AREAS

DRIVE BY AND DROP OFF



Tools

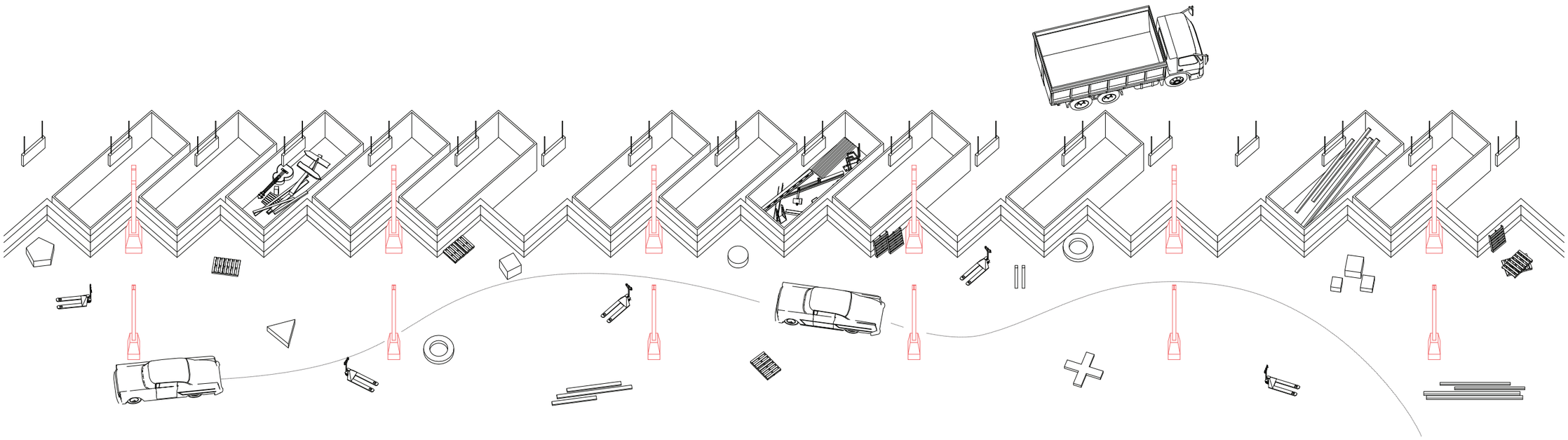
Scrap

Broken

Objects

DROP OFF AREA

LOGISTICS



DROP OFF AREA

DRIVE BY AND DROP OFF

SPATIAL QUALITIES

CHARACTERISTICS OF SPACE

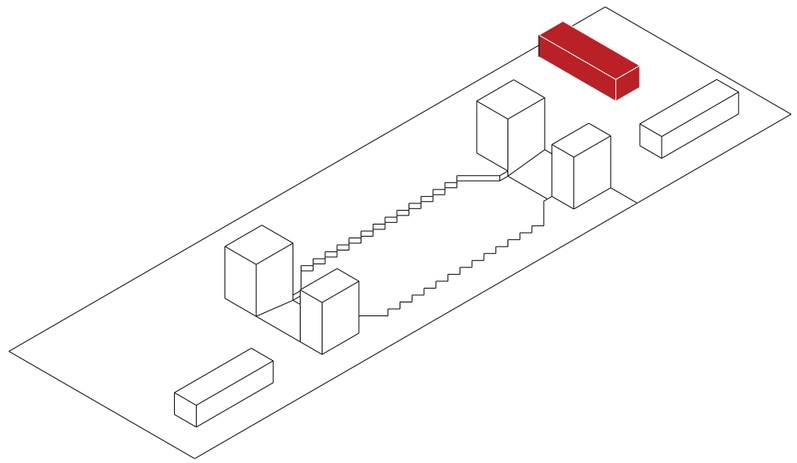
shadow underneath

framing containers

strong concrete base

SERVICE AREA

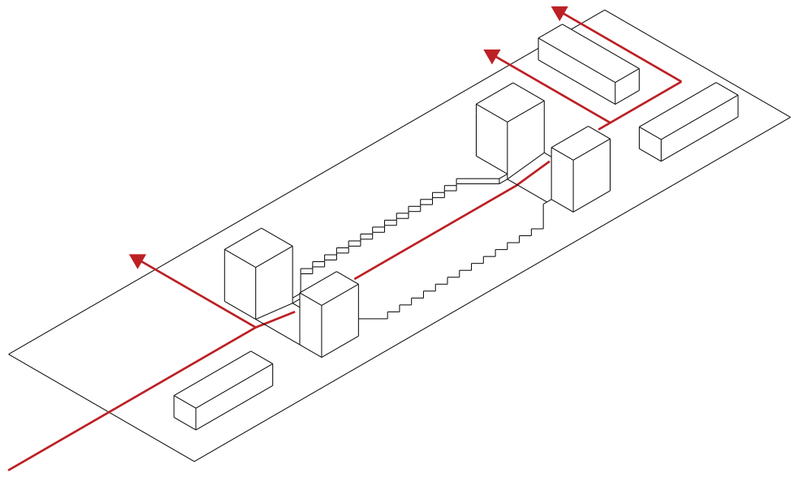
BIG LOGISTICS



service area for big logistics to check out for trucks

LOGISTICS

TRUCKS

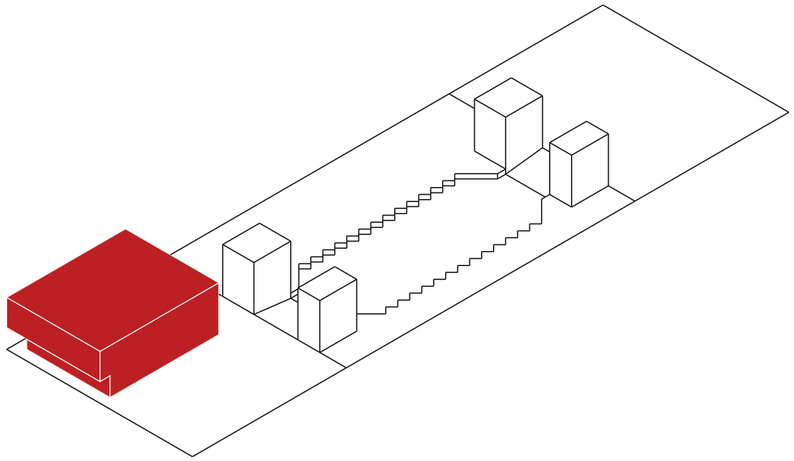


Trash

Raw materials

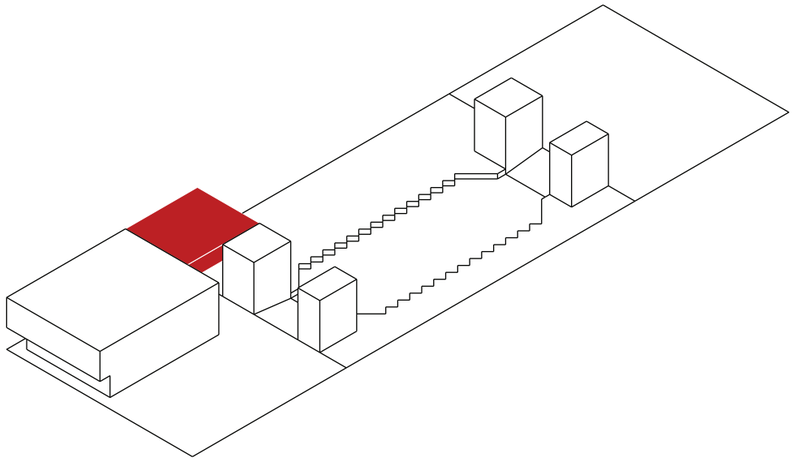
RECYCLING FACTORY

TIPPING FLOOR



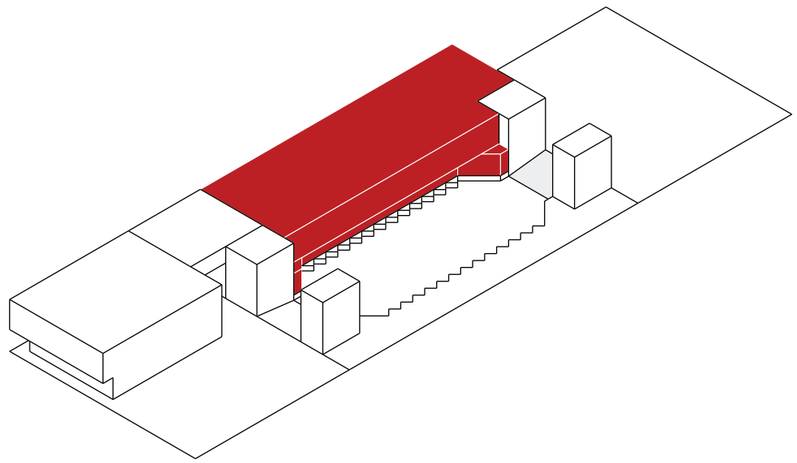
RECYCLING FACTORY

PRE-SORTING AREA



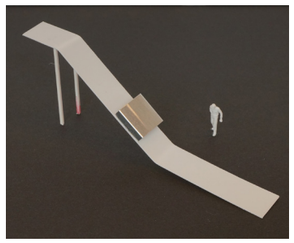
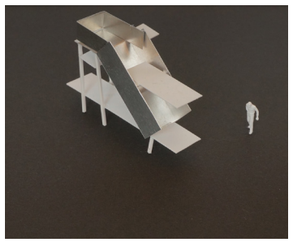
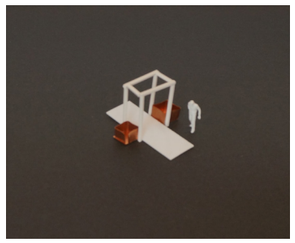
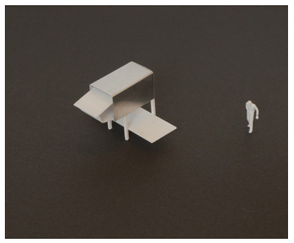
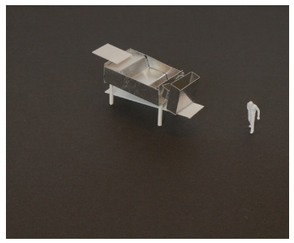
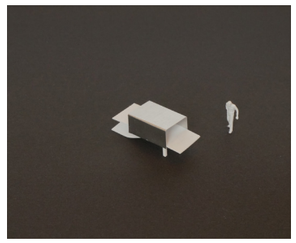
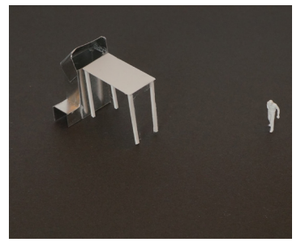
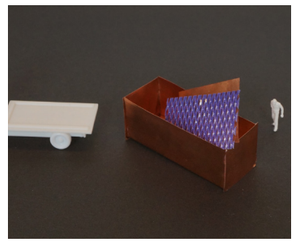
RECYCLING FACTORY

MATERIAL RECOVERY FACILITY



RECYCLING FACTORY

LINEARITY, EFFICIENCY & SCALE

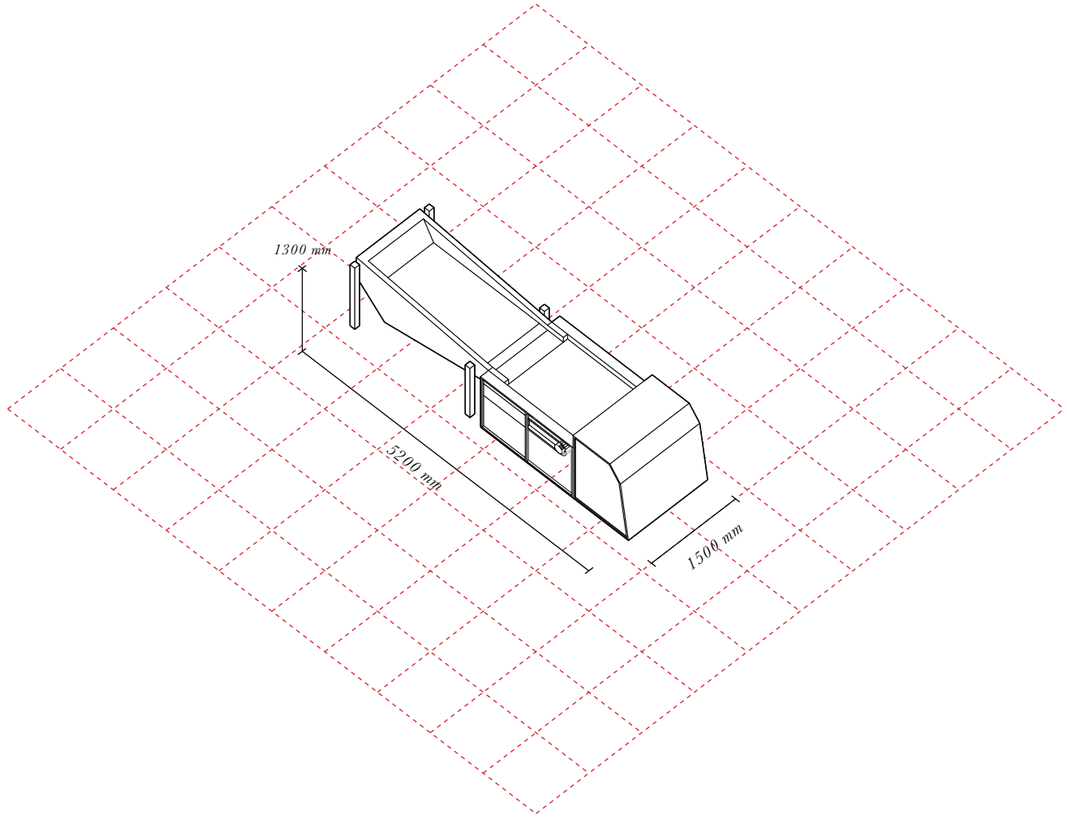









MACHINERY

EDDY CURRENT SEPERATOR

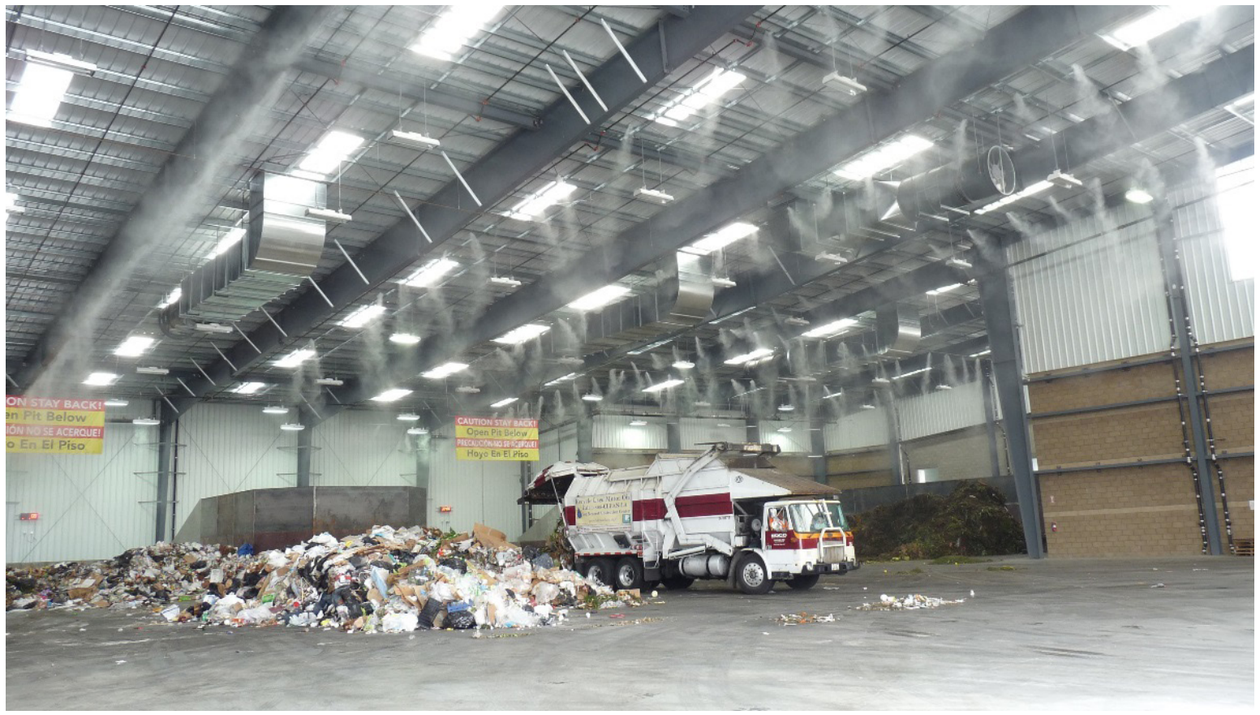
Price : start around $ 200.000
(could be 5 million, incl everything)

Weights : around 3000kg



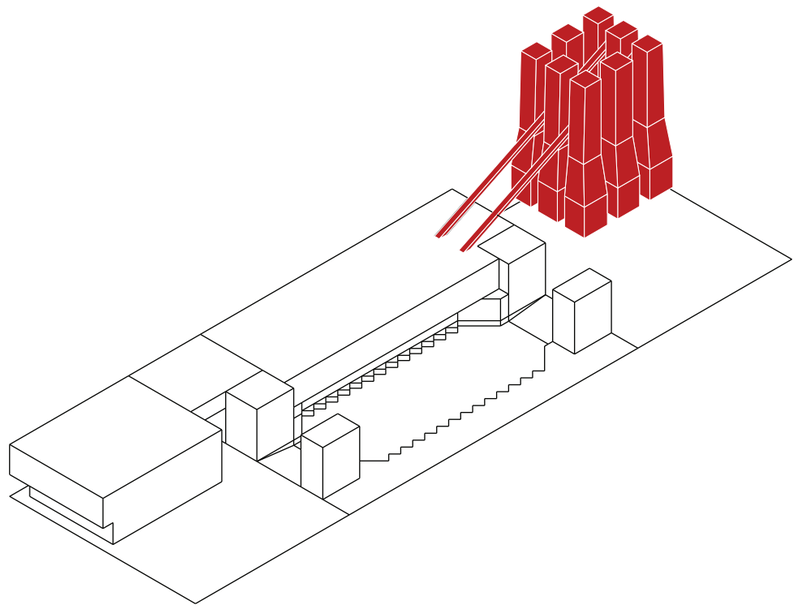
CLIMATE

MISTING AND ON NORTH SIDE



RECYCLING FACTORY

SILO STORAGE RAW MATERIALS

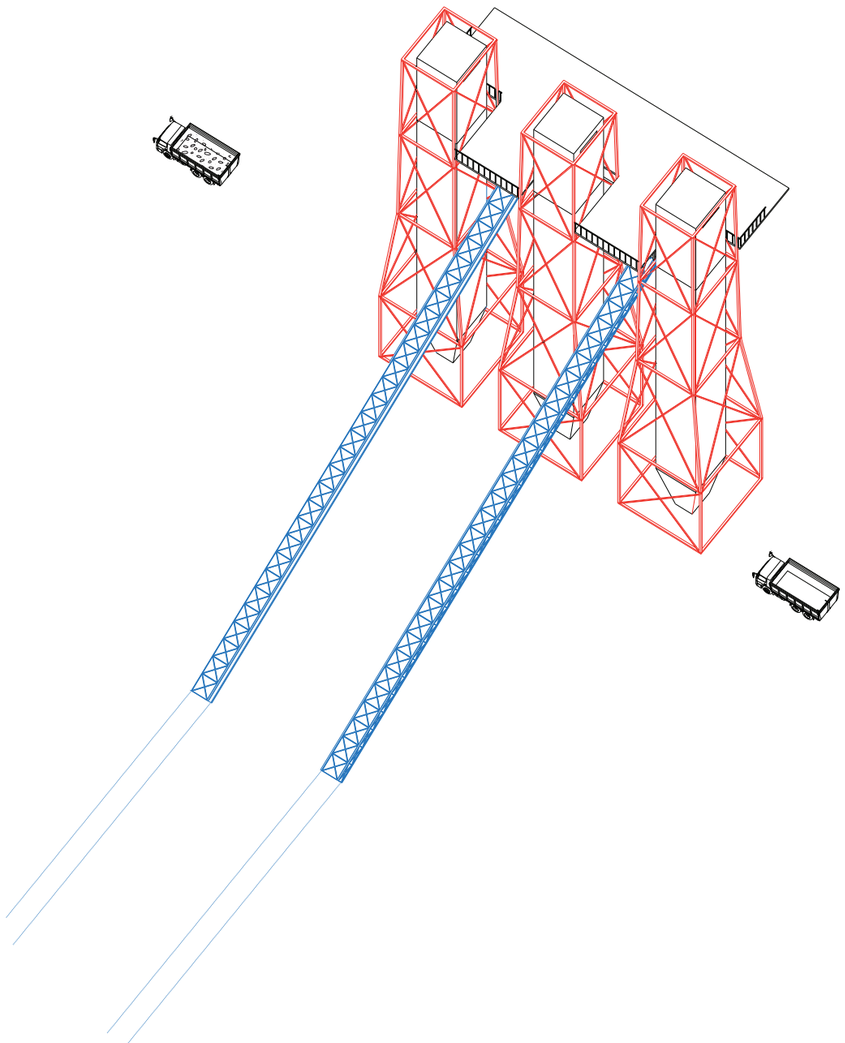


SILOS

COAL MINE LOADERS

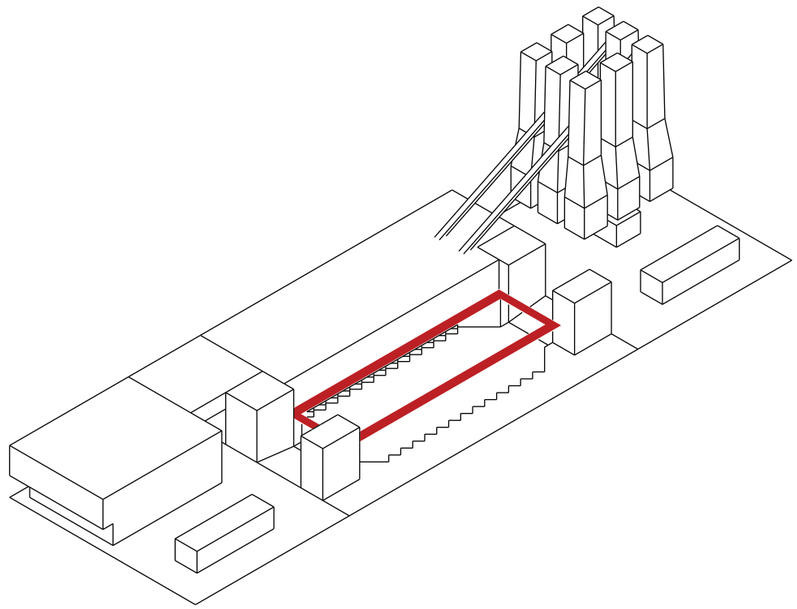
SILOS

LOADING TRUCKS



CENTRAL SPACE

OPEN SPACE

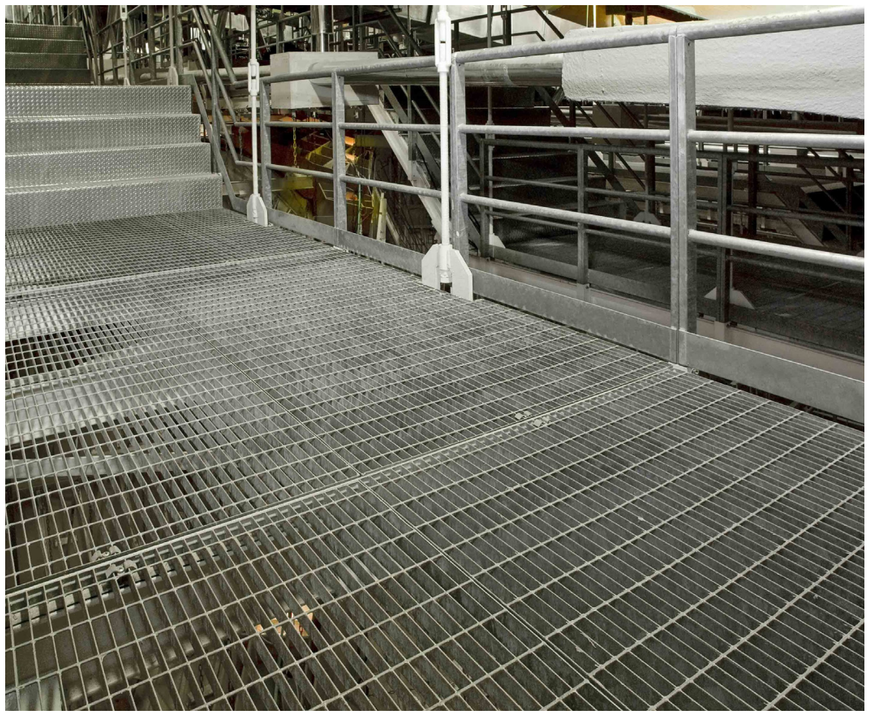


CENTRAL SPACE

REGISTERING INCOMING MATERIALS

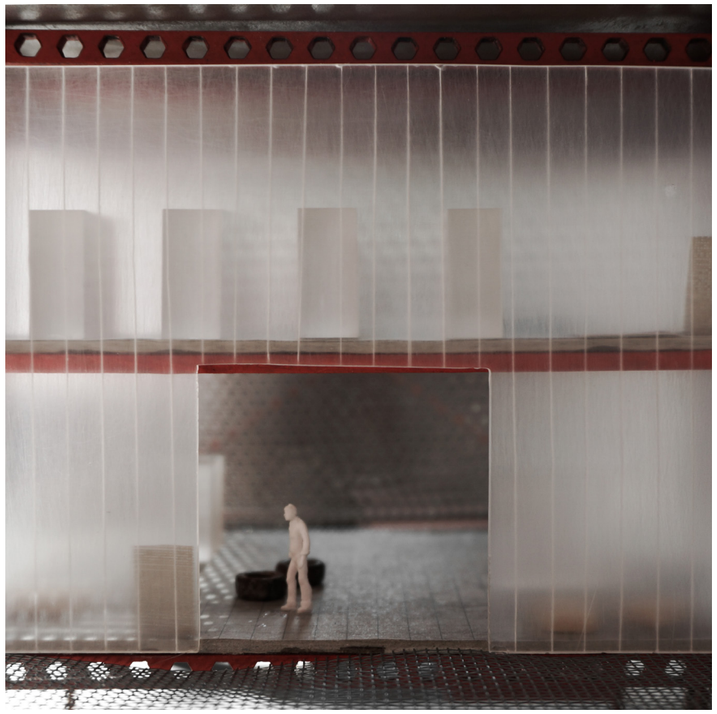
LOW TECH

LACATON VASSAL

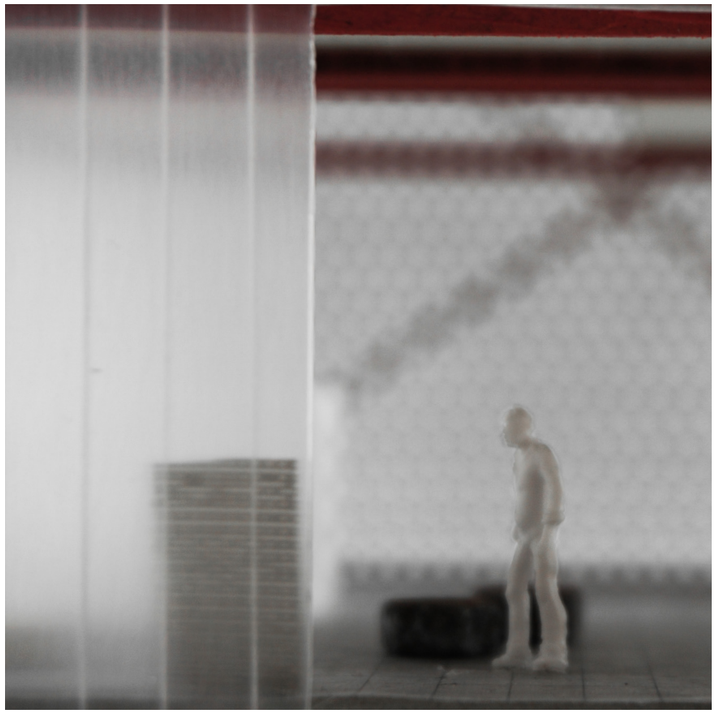


TRANSLUCENT MATERIAL

VISIIBILITY ACTIVITY WORKSHOPS



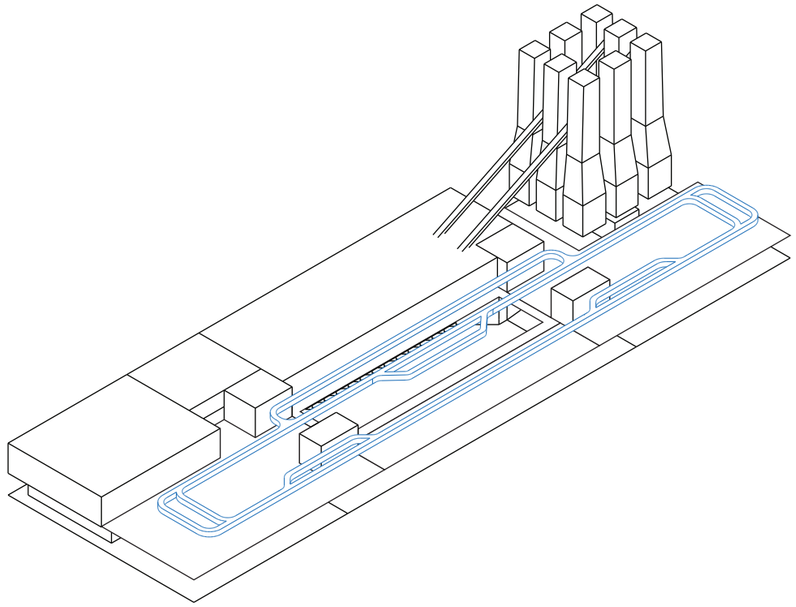
MATERIAL LAYERS

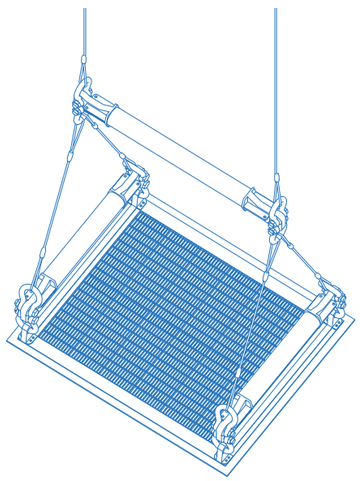


BLUR BETWEEN INSIDE AND OUTSIDE

OVERHEAD CONVEYOR

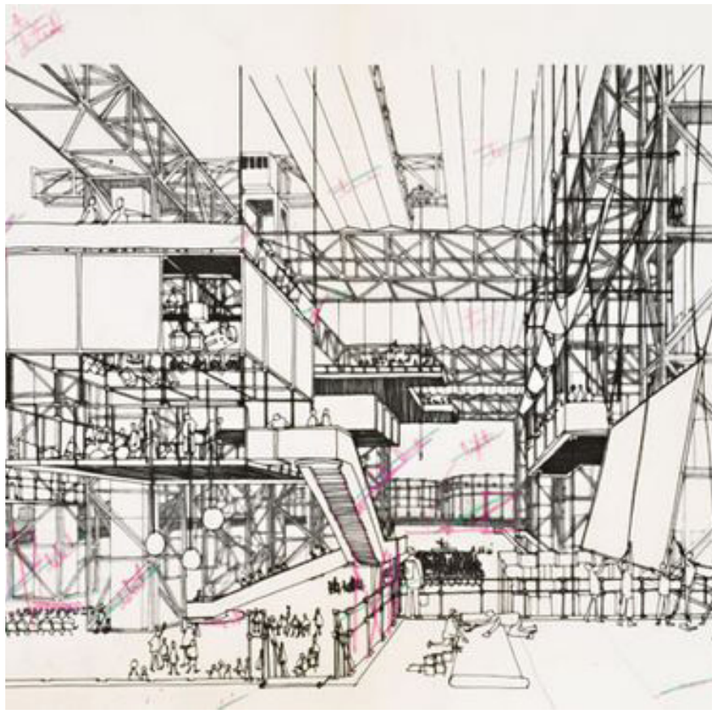
MATERIAL FLOWS THROUGH BUILDING





INSPIRATION

MOVING AND INTERACTION

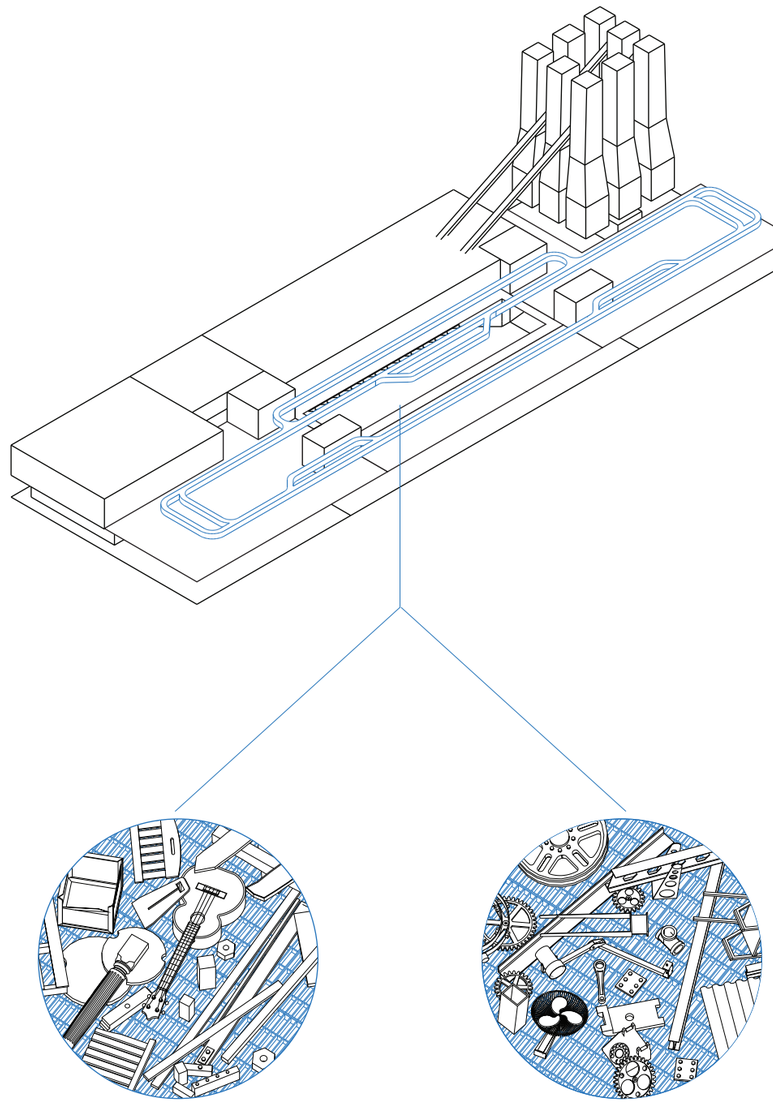


Cedric Price - Fun Palace

Mengel furniture workshop

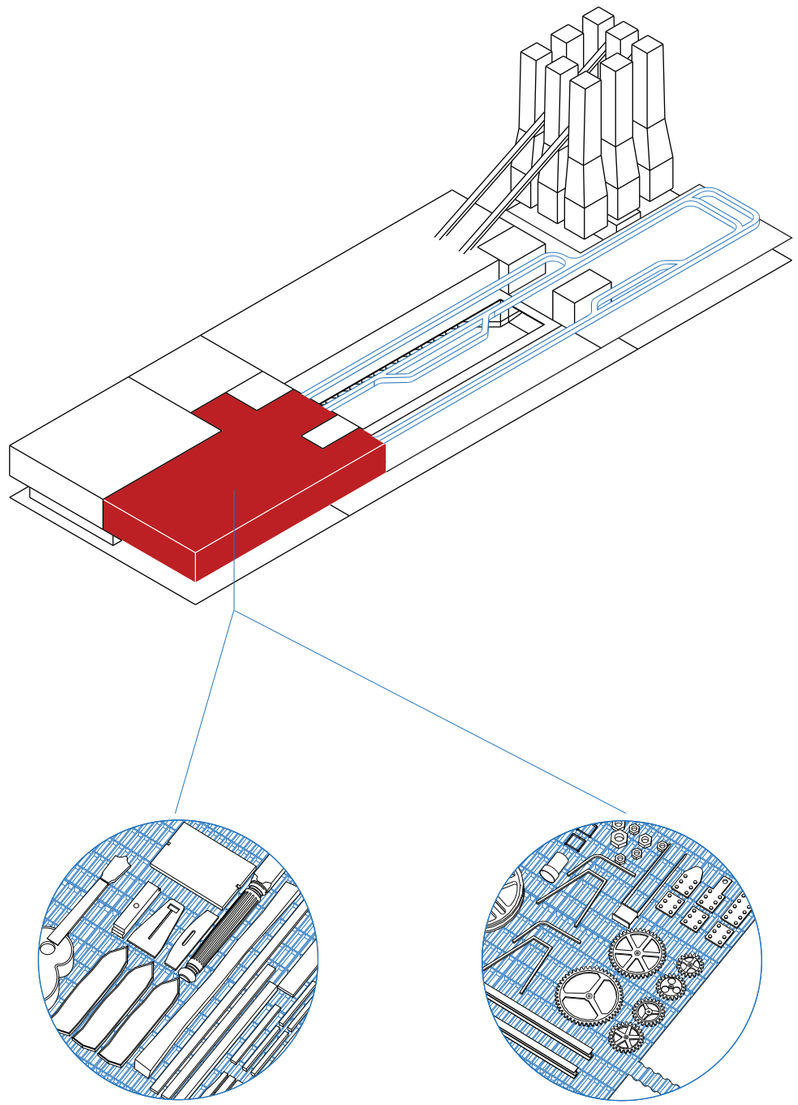
OVERHEAD CONVEYOR

SCRAP MATERIALS AND OBJECTS



DISSASEMBLY & REPAIR

MATERIALS ARE DISSASEMBLED AND CATEGORIZED

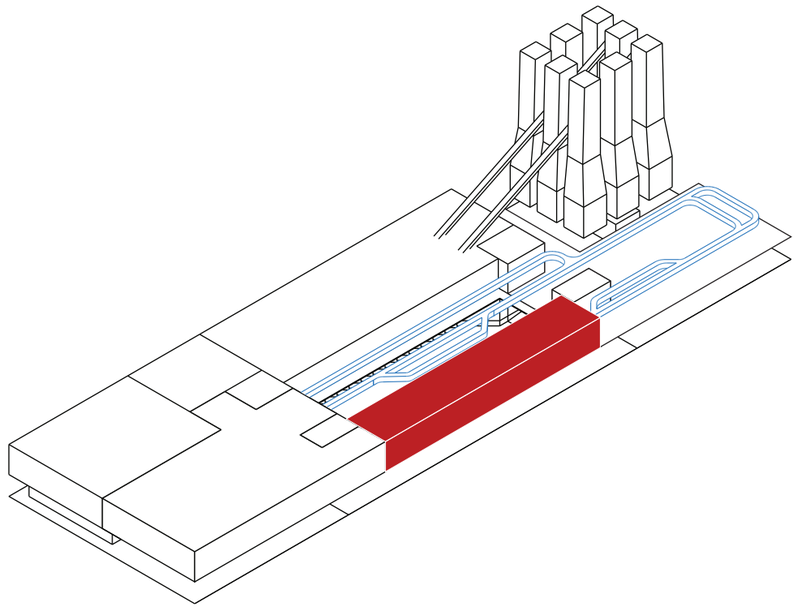


DISSASEMBLY & REPAIR

MOVABLE SHELVES FOR STORAGE

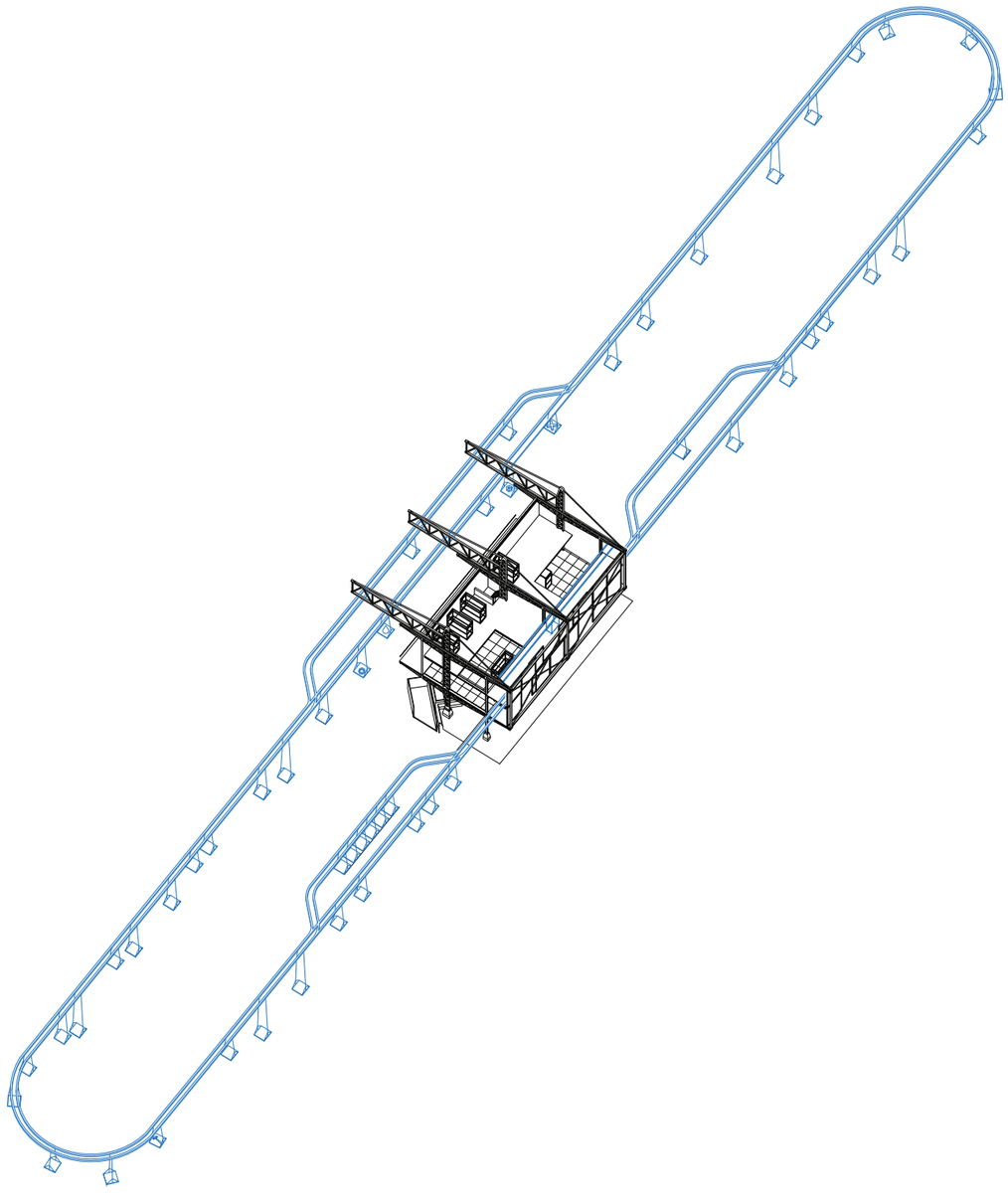
WORKSHOP AREA

UPCYCLING OLD MATERIALS AND OBJECTS



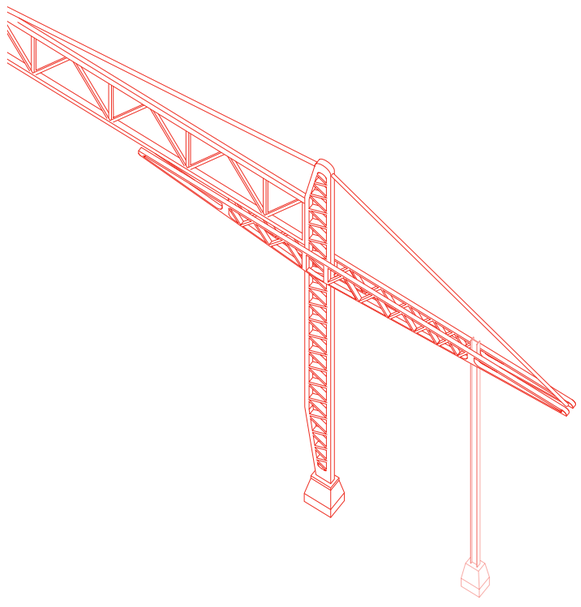
WORKSHOP AREA

OVERHEAD CONVEYOR BRINGS MATERIALS



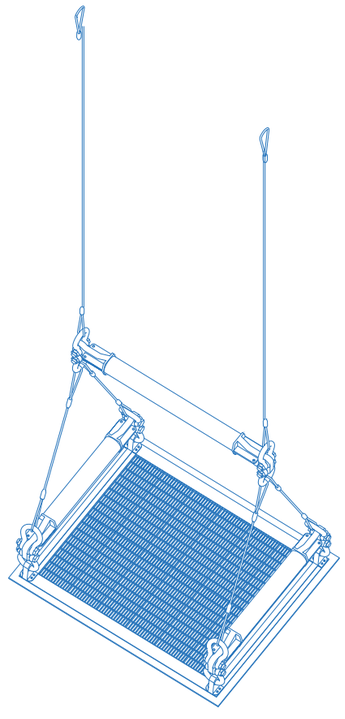
HIERARCHY

STRUCTURE, MACHINE AND CORES



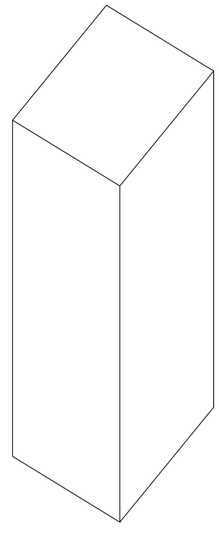
steel structure

colour : red



machinery

colour : blue

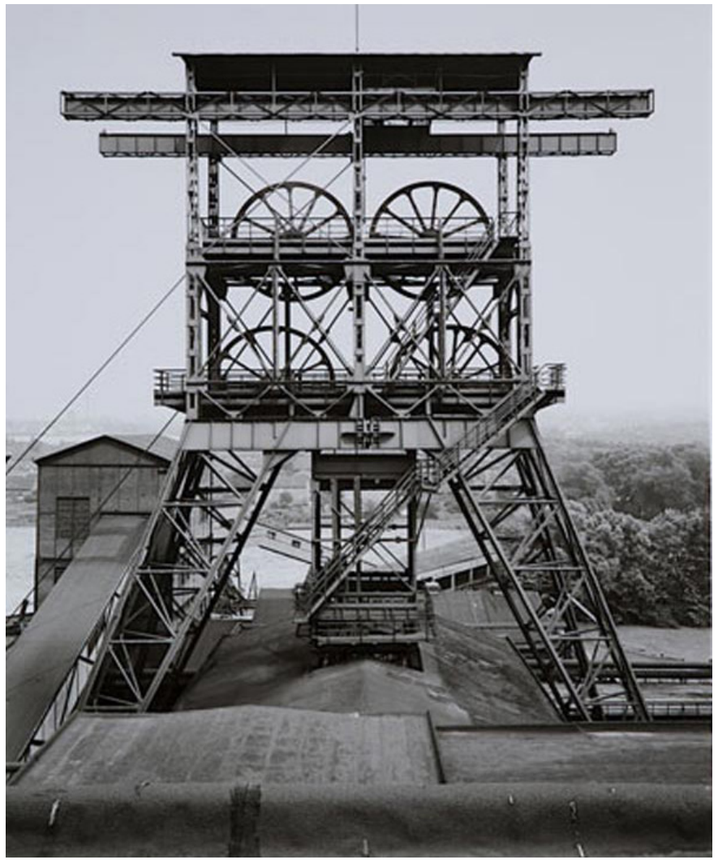


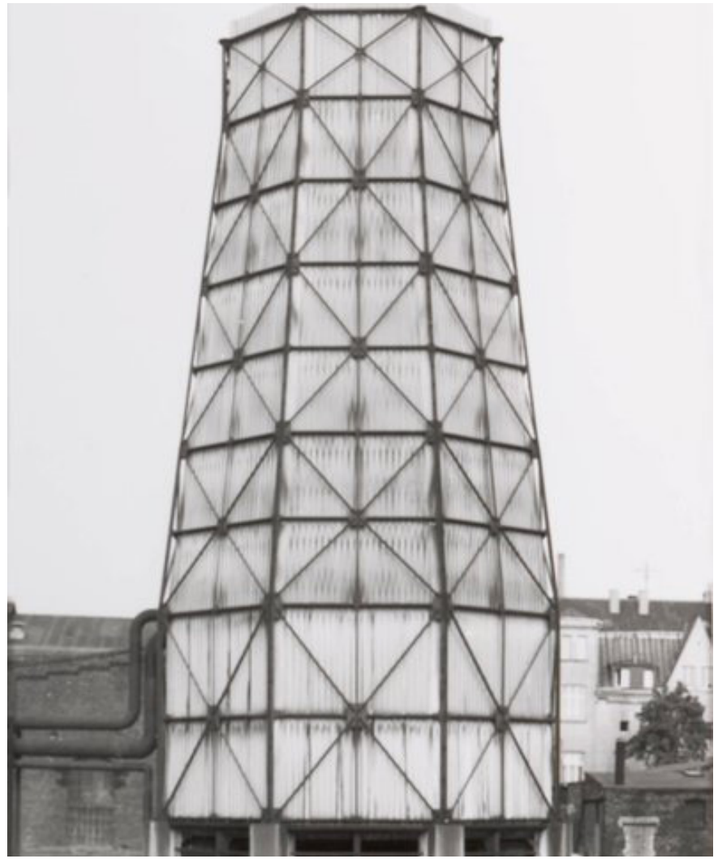
main cores

material : grey concrete

REFERENCES

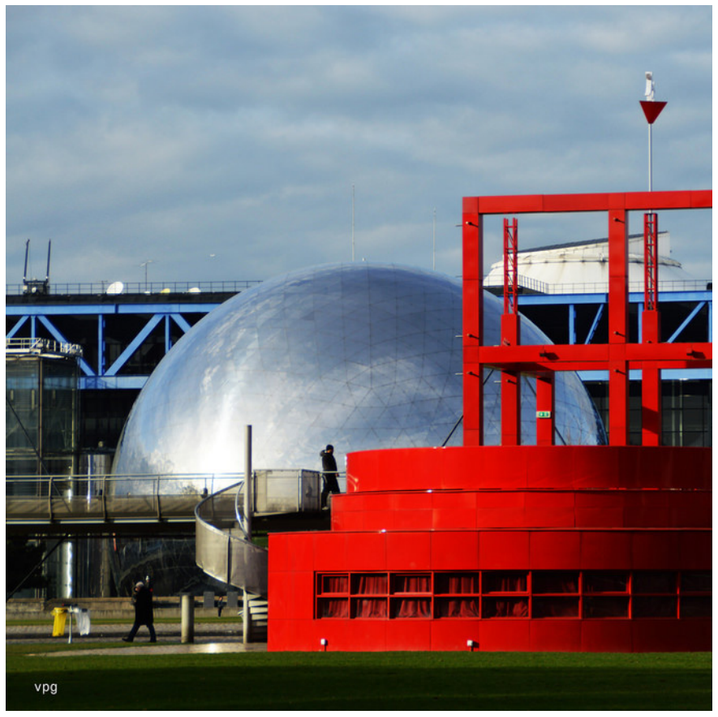
CUBA SKIPPED INDUSTRIAL PERIOD

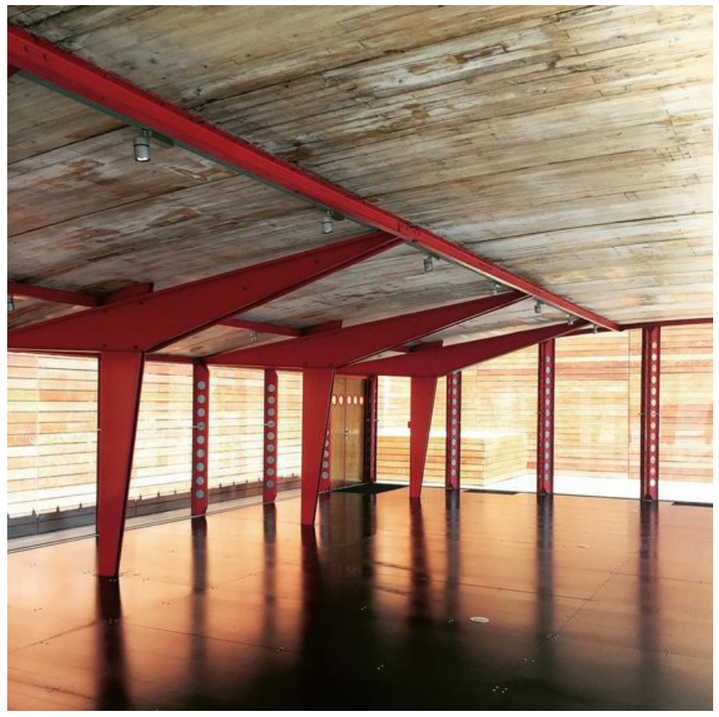




COLOUR SCHEME

CHARACTER AND EMPHASIZE CONCEPT

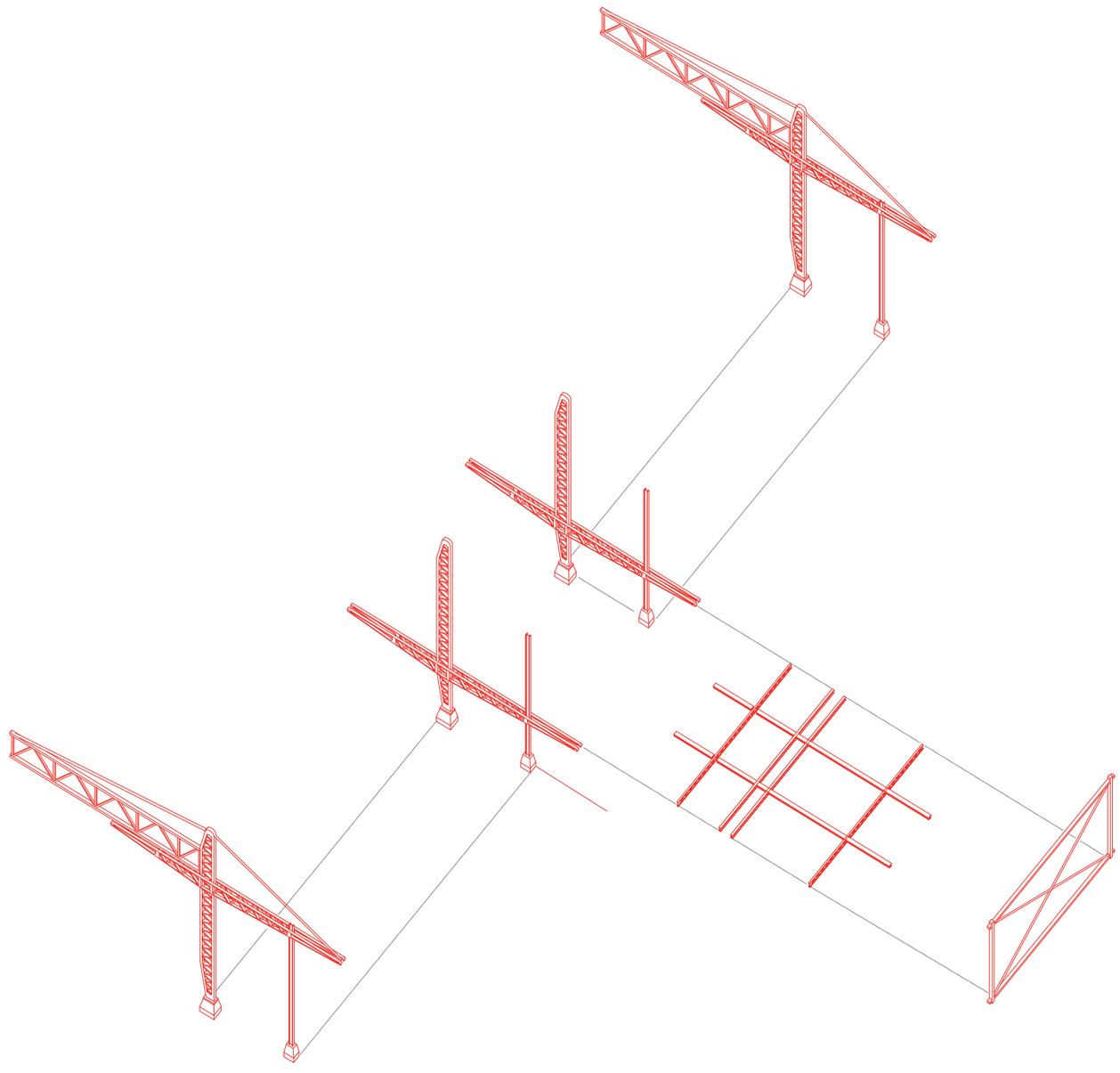




character and identity

STRUCTURE PRINCIPLE

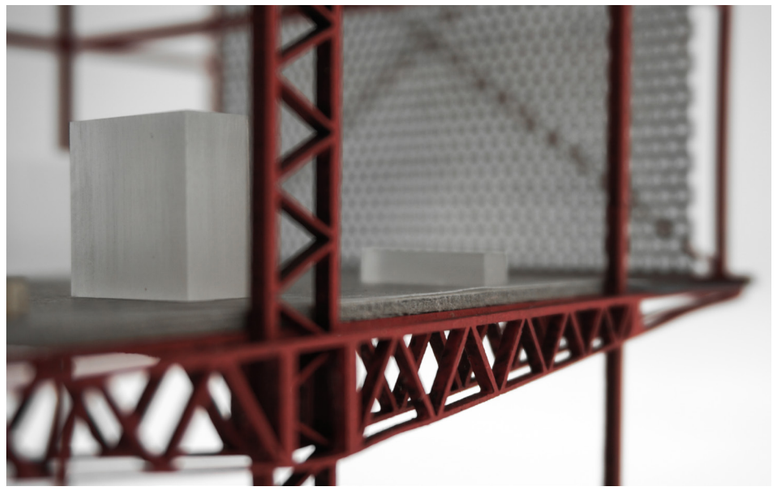
CRANE LIKE STRUCTURE



STRUCTURE

CRANE LIKE STRUCTURE

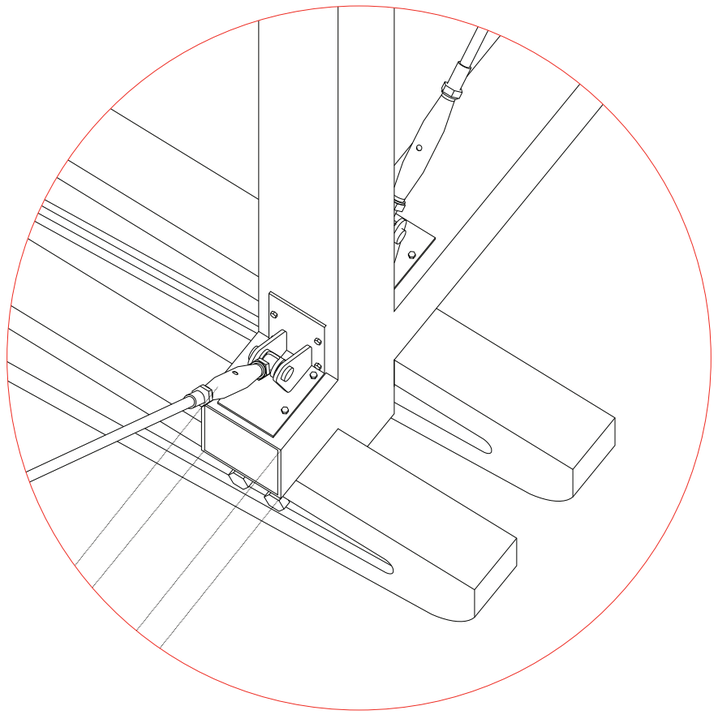
emphasizing elevated mass



tension and balance in structure

DETAIL

FRAMING UNITS

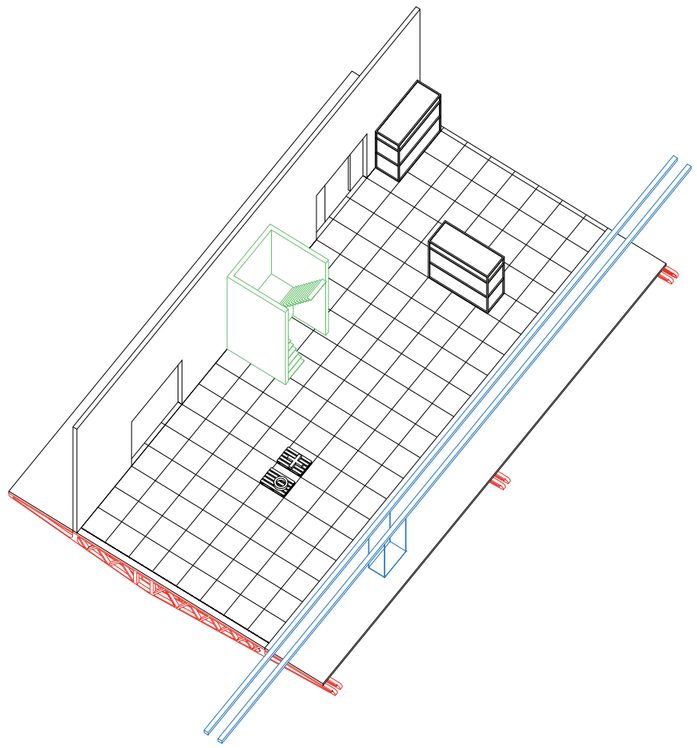


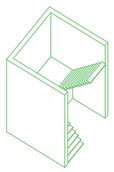
WORKSHOP UNITS

TALLER JUAN & RAMOS

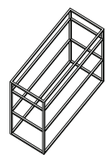
WORKSHOP UNITS

ELEMENTS DEFINING SPACE

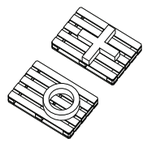




workshop core



movable shelves



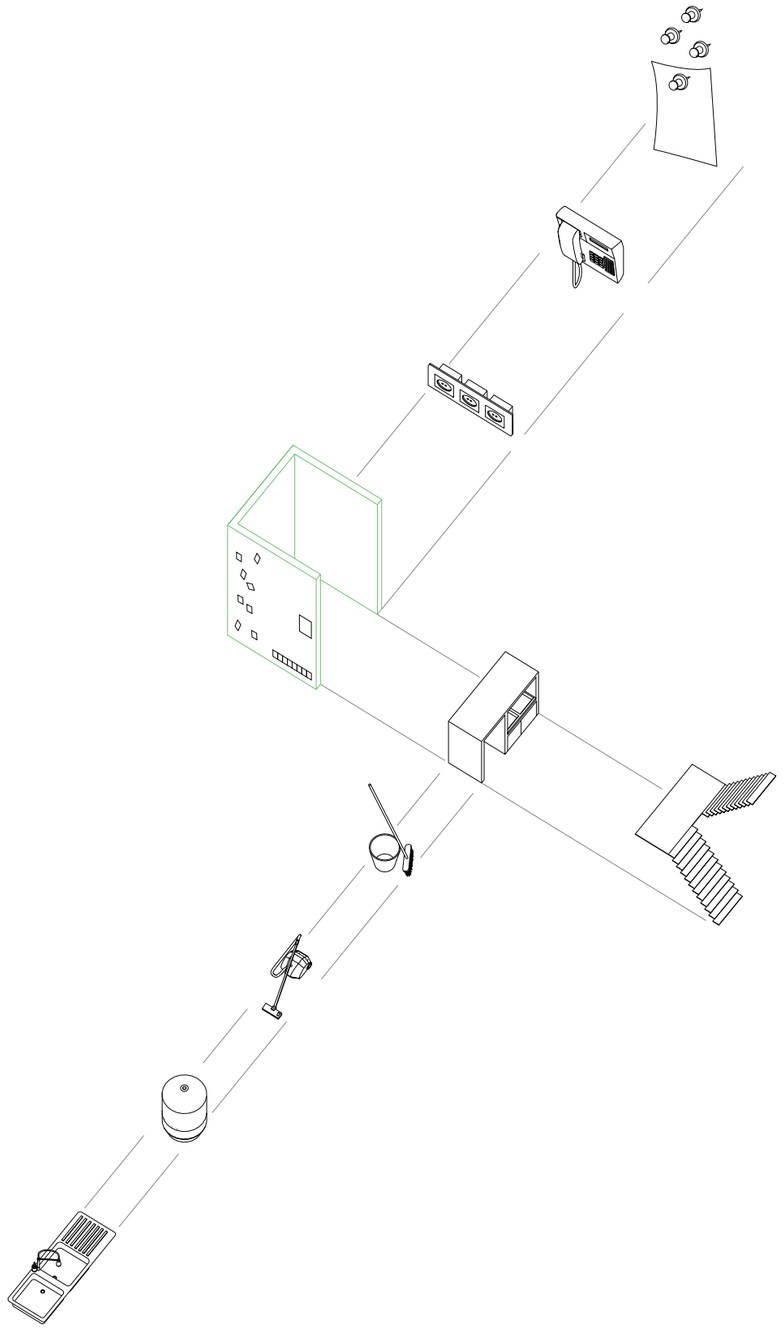
materials & objects

REFERENCE

ANDY WARHOL - SILVER FACTORY

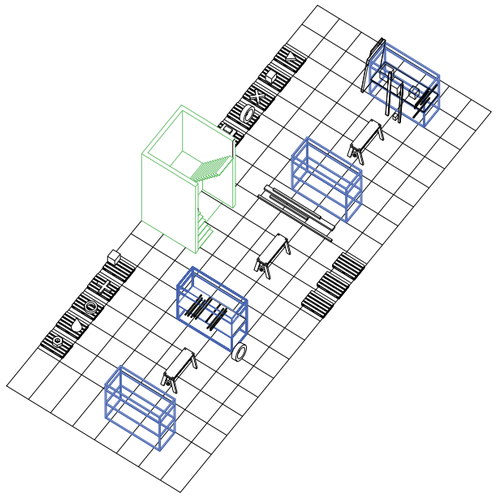
WORKSHOP CORE

NECESSARY FUNCTIONS

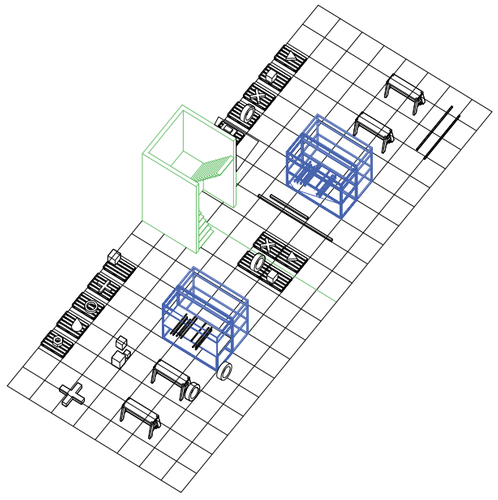


WORKSHOP UNITS

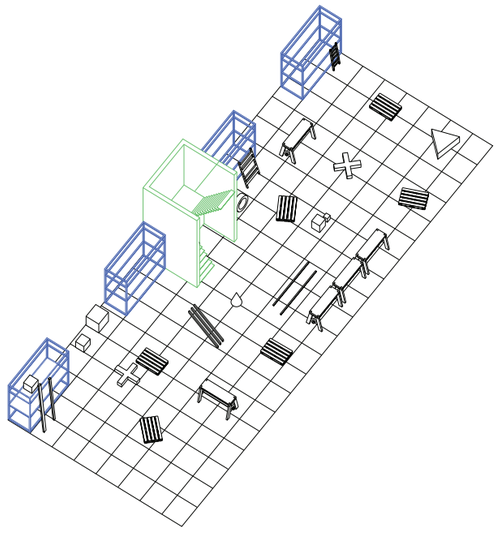
FLEXIBILITY OF SPACE



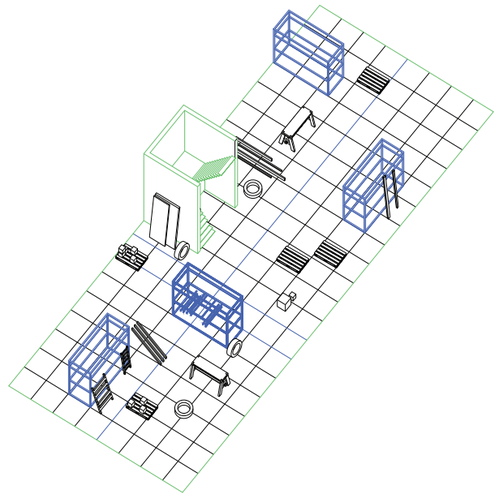
smaller equal spaces



larger equal spaces



open spaces



random spaces

WORKSHOP UNITS

STORAGE & VISITORS

RELATION BETWEEN SPACES

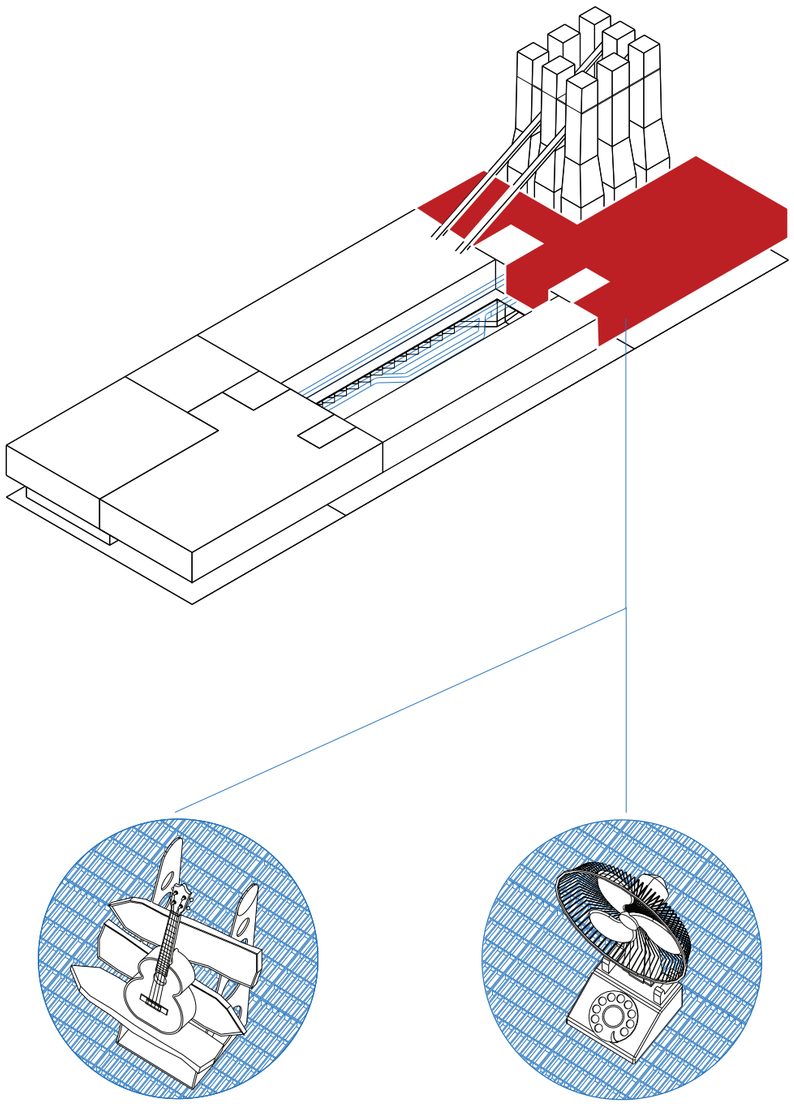
SECOND FLOOR

STORAGE & VISITORS

VISUAL CONNECTION TO WORK FLOOR

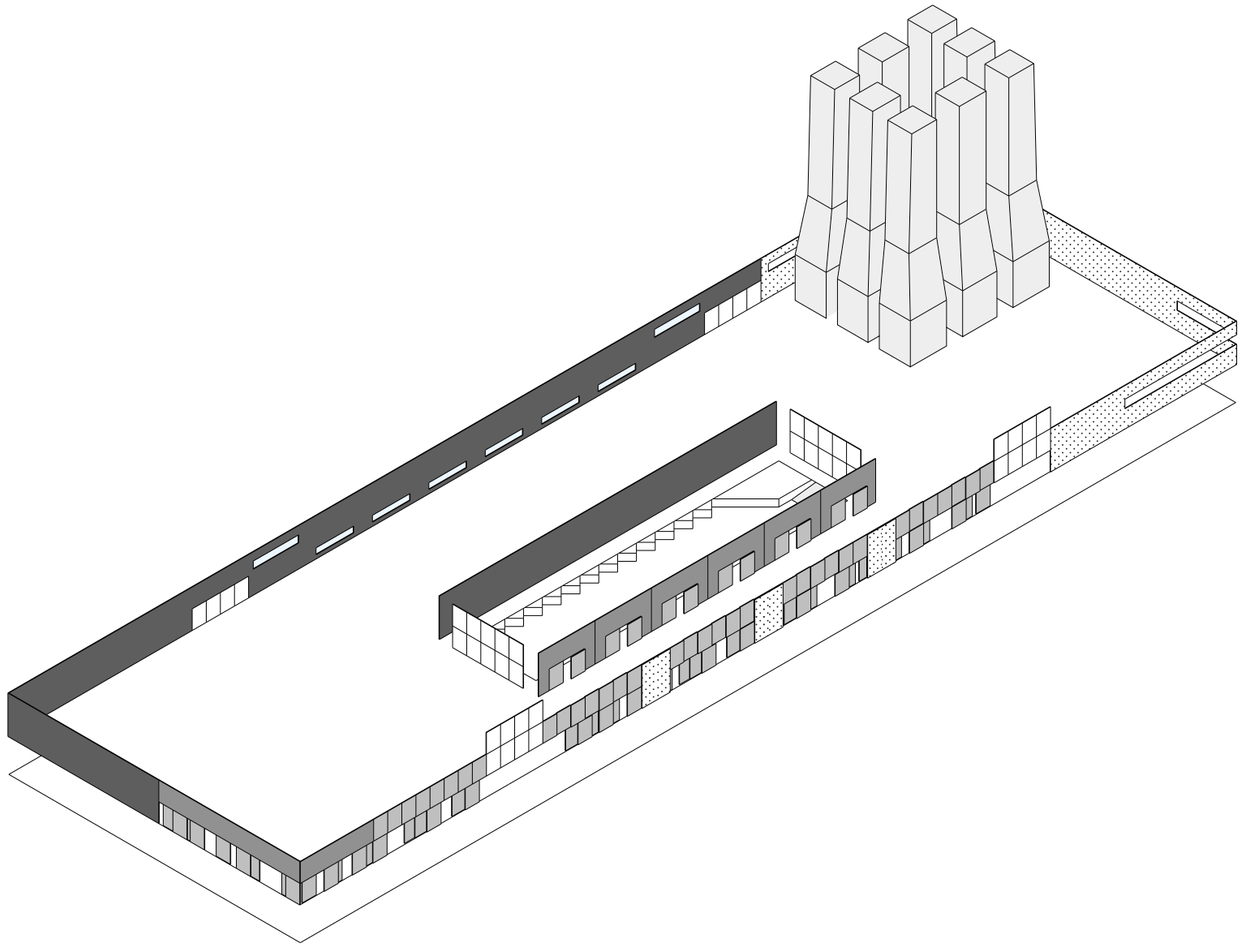
ORGANIZATION

WAREHOUSE



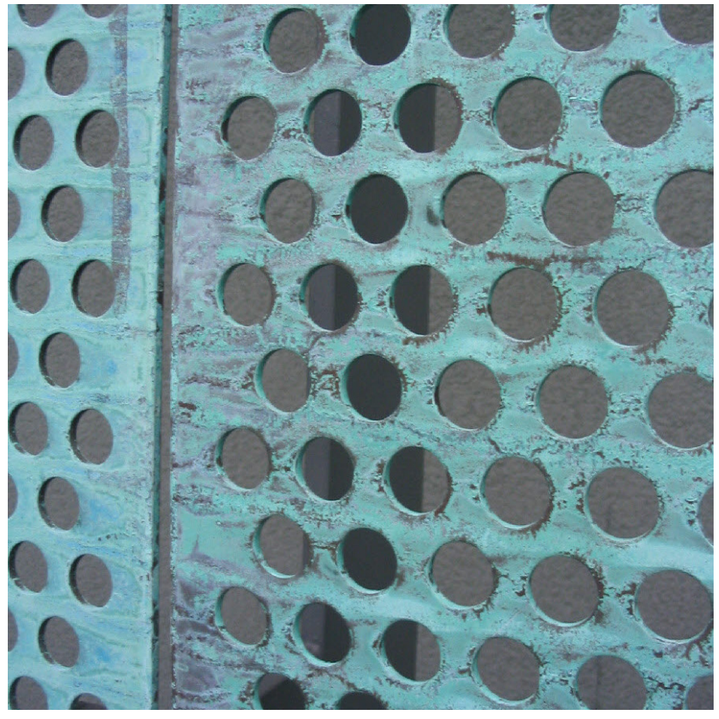
FACADE LAYOUT

DIFFERENT FACADE TYPOLOGIES



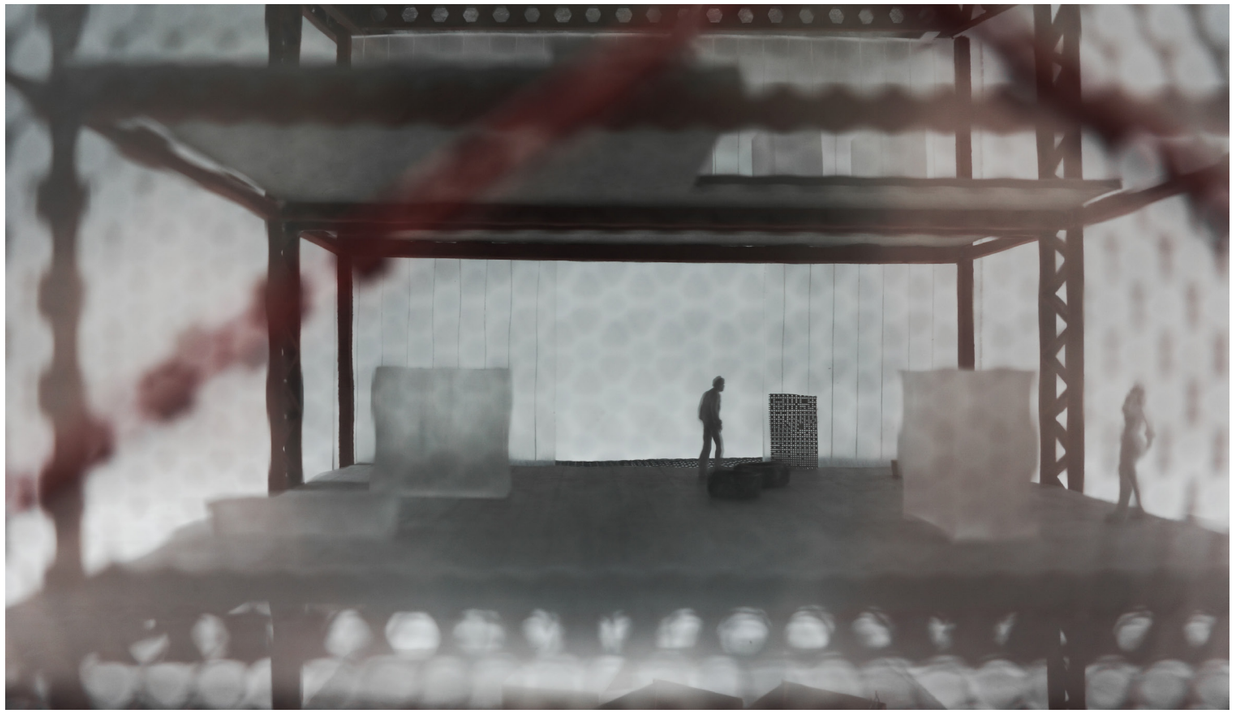
PERFORATED MATERIALS

SIMPLE MATERIALS

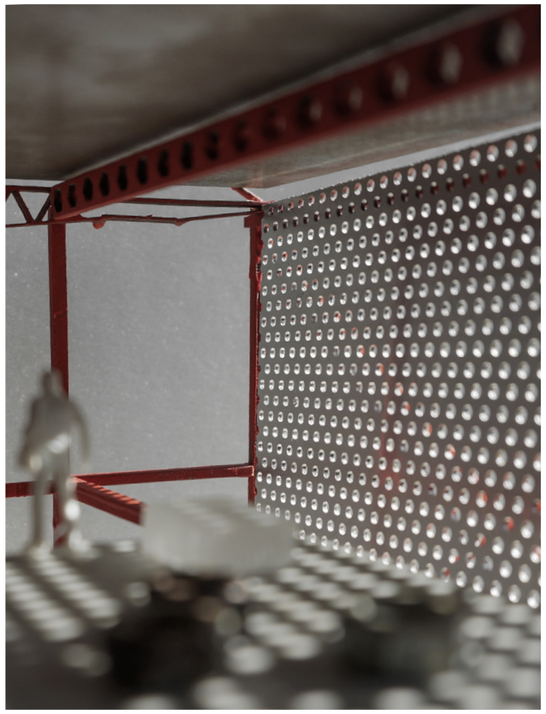


PERFORATED MATERIAL

PUBLIC WAREHOUSE



CLOSE BY : TRANSPARENCY



DISTANCE : MASS

HOW TO ASSEMBLE

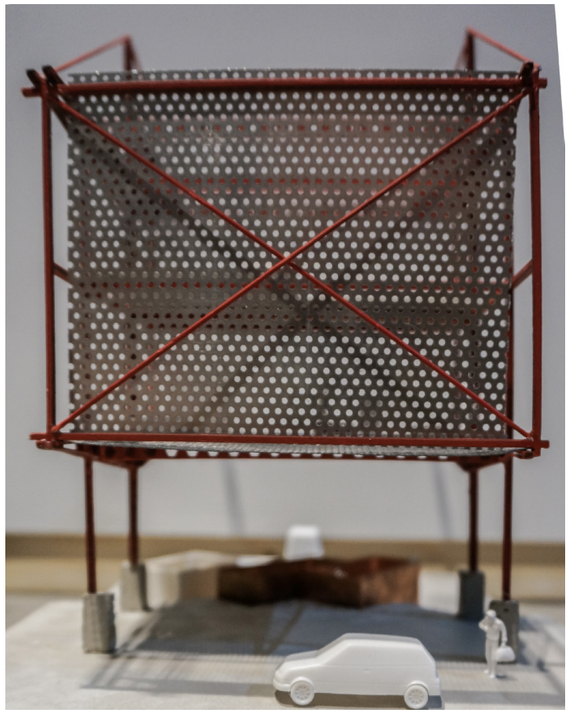
REUSING, EASY TO ASSEMBLE, LOW TECH

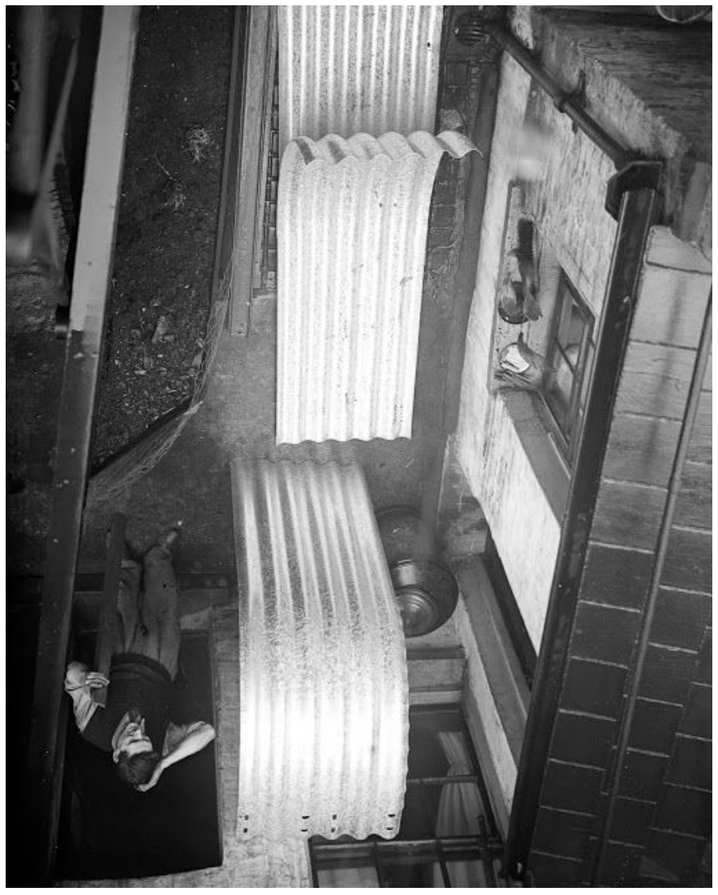
ALAMAR GARAJES

REUSING EXISTING SHEETS

FACADE

DIFFERENT TYPES



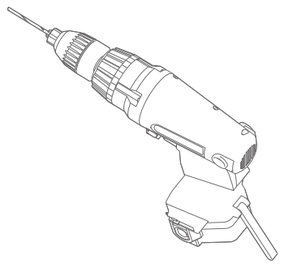


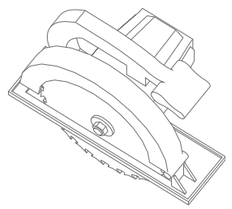
DO IT YOURSELF

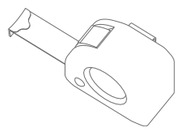
EASY TO ASSEMBLE

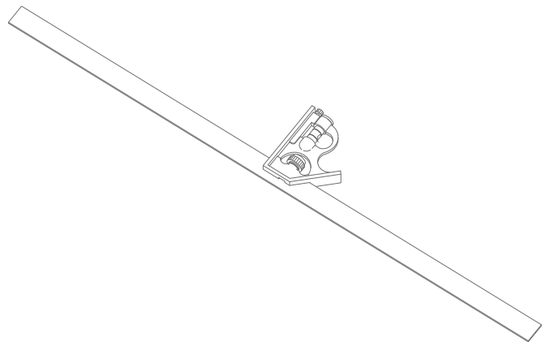
TOOLS

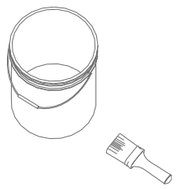
NECESSARY TOOLS FOR ASSEMBLING FACADE





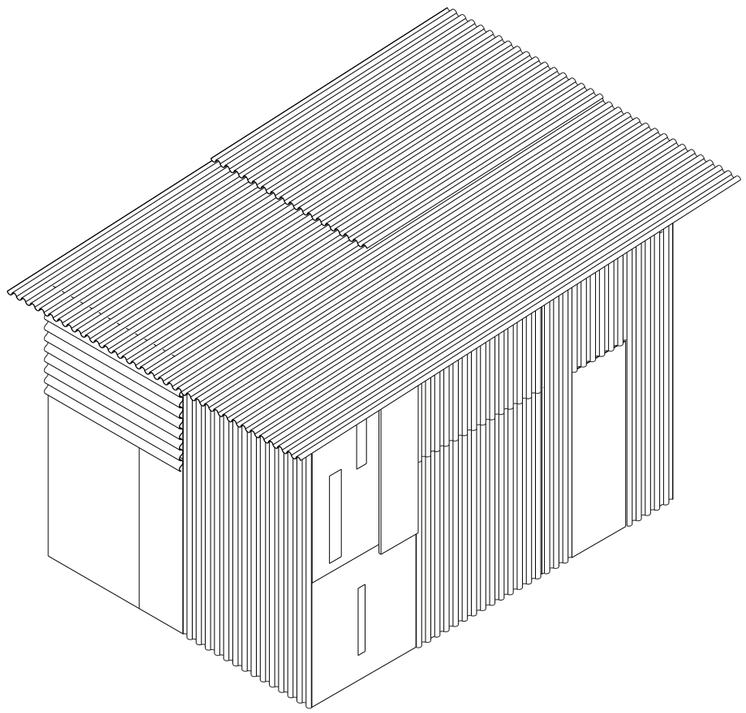






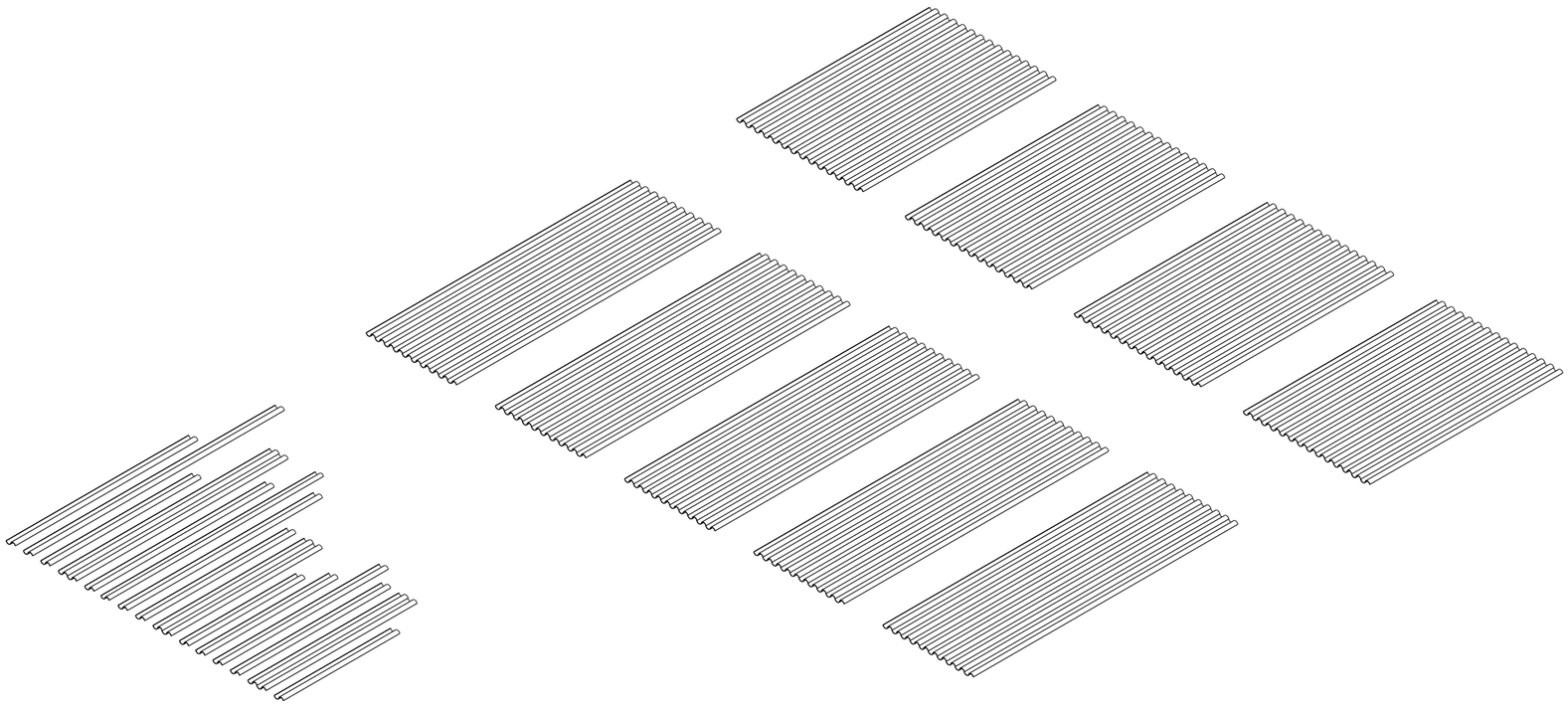
GARAJE

EXISTING GARAJE



CORRUGATED SHEETS

SORTED AND CUTTED PER FORMAT

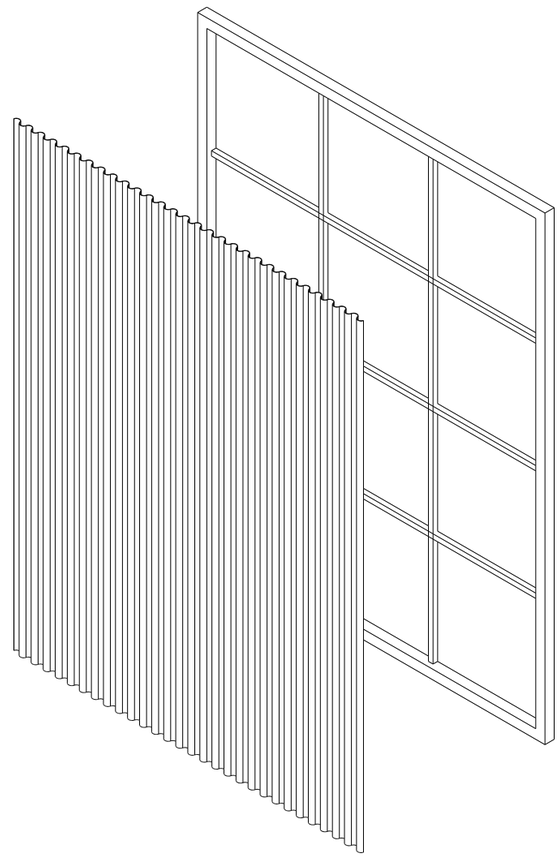


LEFT OVERS USED FOR SILO'S

USABLE SHEETS

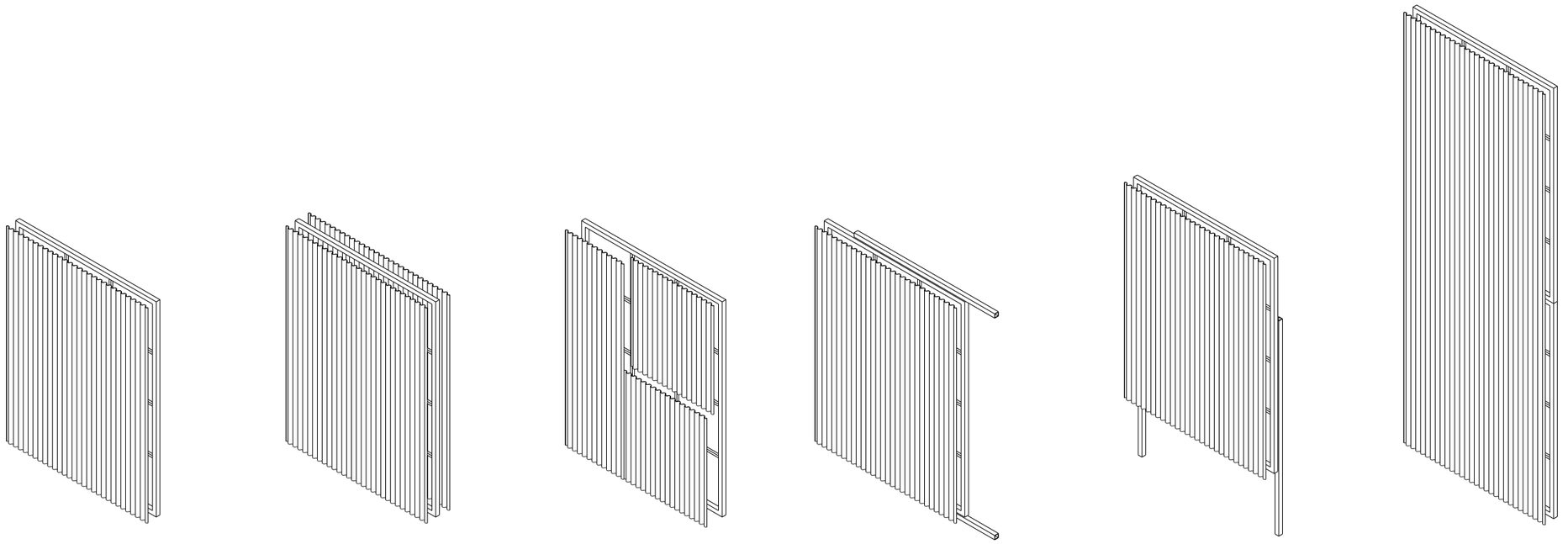
FACADE ELEMENT

CORRUGATED SHEET ON FRAME



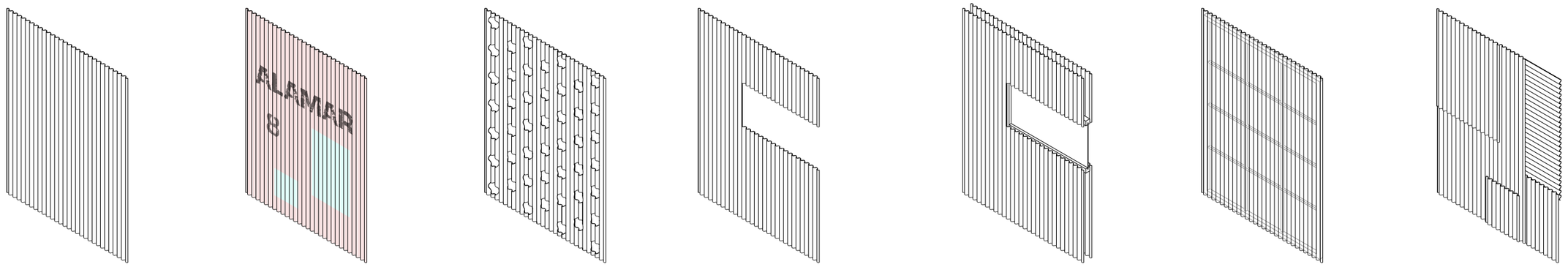
FACADE ELEMENT

TYPES OF FACADE ELEMENTS



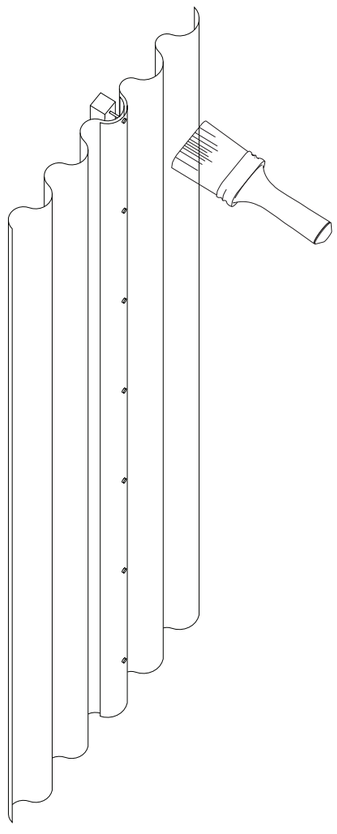
FACADE ELEMENT

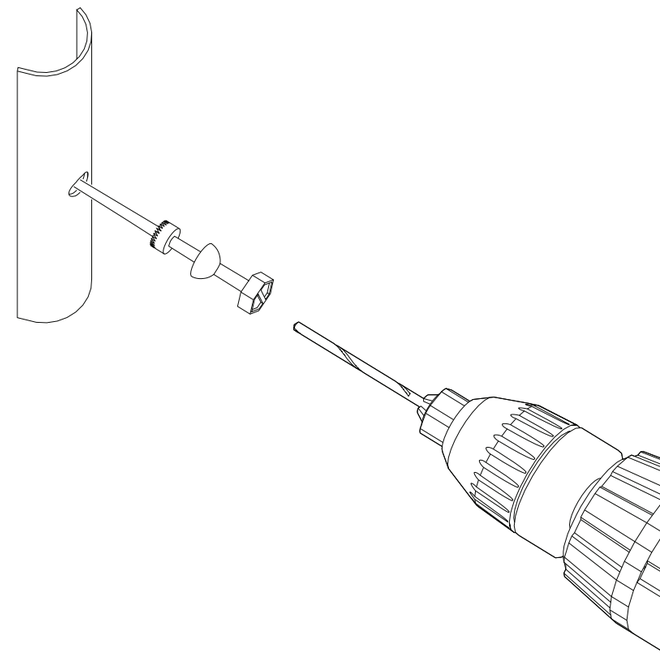
CONFIGURATIONS OF ELEMENTS



RESTORE AND ASSEMBLE

GUIDE OF ASSEMBLING SHEET



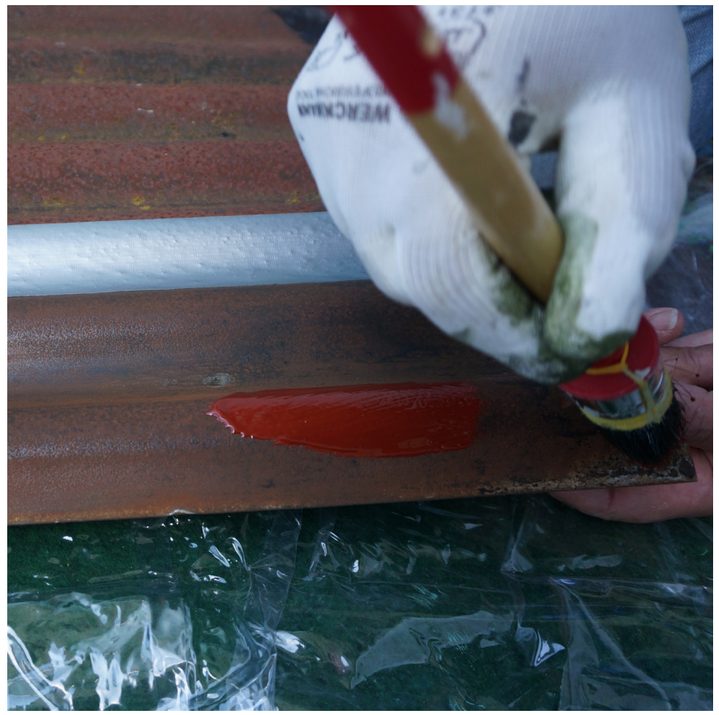


REUSING OLD MATERIALS

MOCKUP OF POSSIBLE FACADE

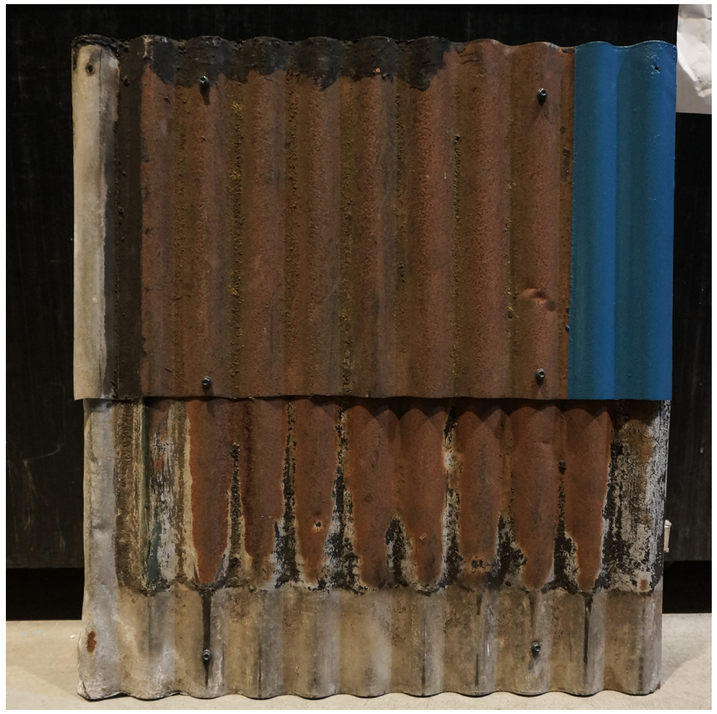
RESTORING SHEETS

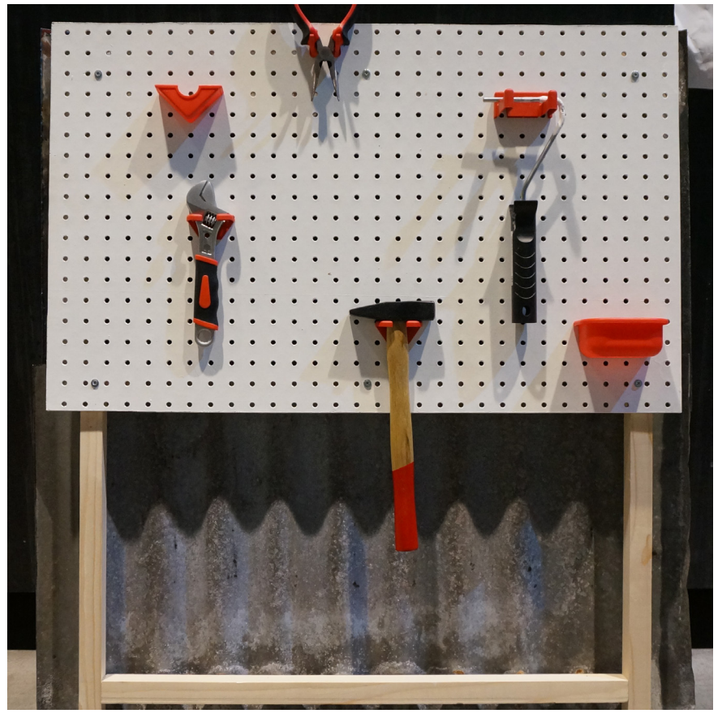
SANDING, CLEANING AND PAINTING



RESTORING SHEETS

UPCYCLING THE OLD

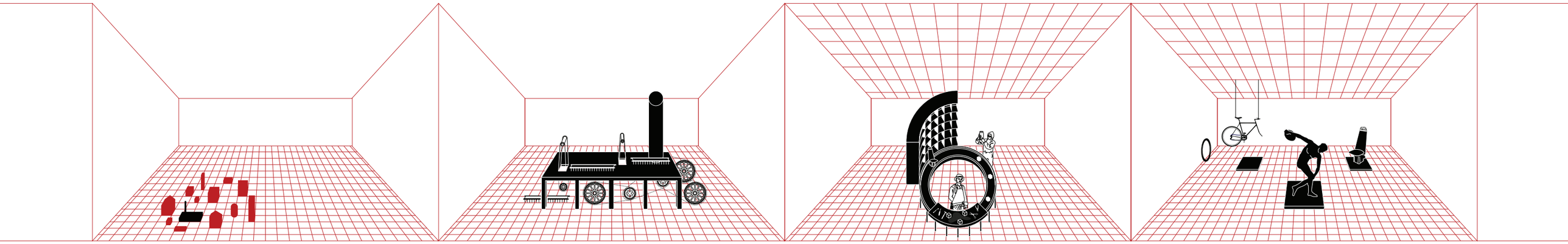




ALAMAR'S
MATERIAL WAREHOUSE

A COMMUNITY LANDMARK

WAREHOUSE OF RECLAIMED MATERIALS



A beacon of local pride

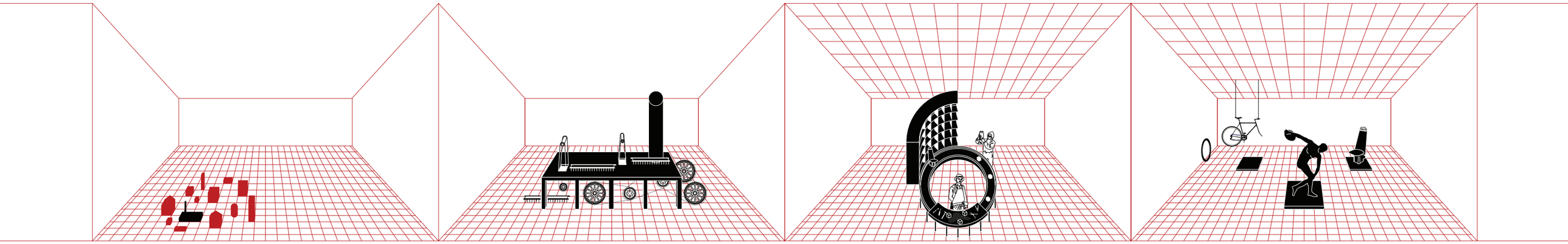
Transparent machine

Preventing alienation of labor

Encourage local craftsmanship

MATERIAL WAREHOUSE ALAMAR

DISREGARDED AS A RESOURCE



A beacon of local pride

Transparent machine

Preventing alienation of labor

Encourage local craftsmanship

URBAN CATALYST

EMBEDDING THE ISSUE OF TRASH WITHIN COMMUNITIES

CIRCULAR ECONOMY

DISREGARDED MATERIALS AS A RESOURCE

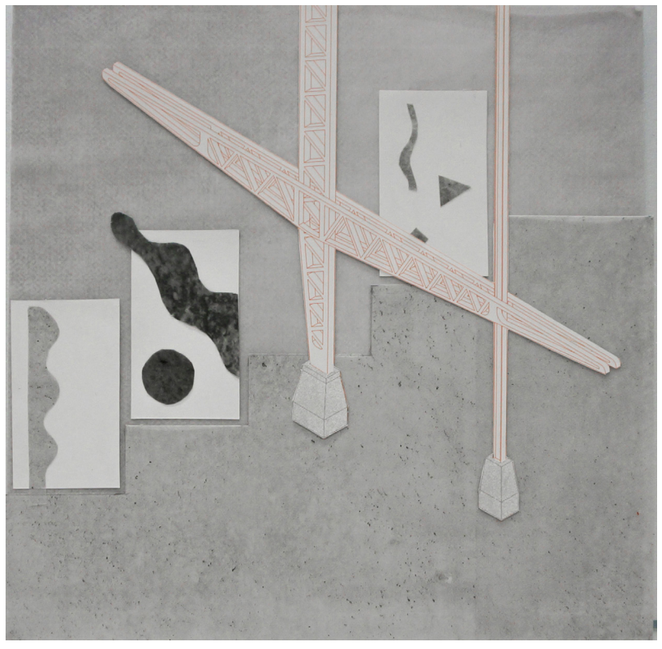
JOBS

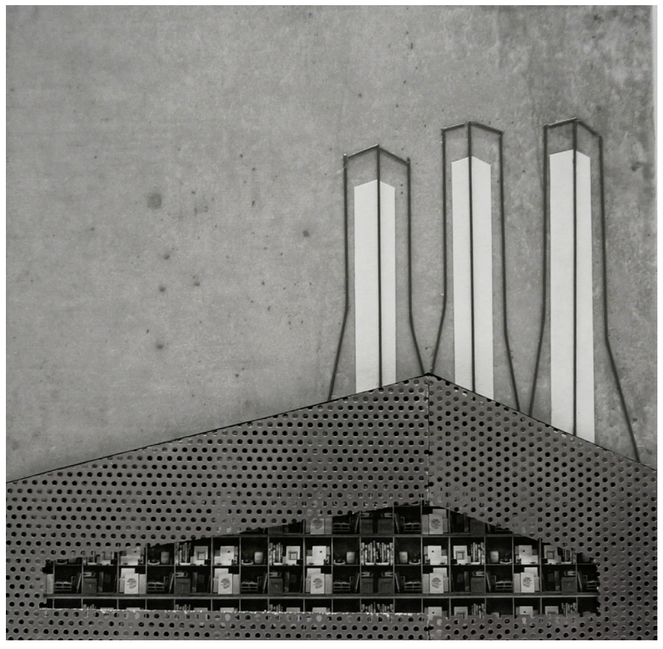
SELF-SUFFICIENT PUBLIC ENGAGEMENT

LOCAL CRAFTMANSHIP

TECHNOLOGICAL DISOBEDIENCE 2.0

FINAL WORDS





Rather than positivist solutions to ' garbage crises ' that continue to insist that garbage must be kept out of sight as a factually repugnant entity, (ASSEMBLE) argues for accepting the the fact that trash creates issues that we must adress, and seek creative, alternative, and magical solutions through the grounding of research and design in political, economic, and geographic specifities.

(Geographies of Trash - Rania Ghosn and El hadi Jazairy)