Unplugged

The Search for a Purpose of Post-industrial Machine Architecture

TU Delft
Faculty of architecture
Daniel Behro
5389127

INSPIRATION

FASCINATION | I have always been so amazed by technology. Either technology we have today, like microchips, computers and smartphones or the first machines which were invented in the name of progress – the industrial revolution. Massive steel structures canter-leaving above the whole city, rusted by the rain, huge gear wheels rotating none-stop all over or complex piping system filled with fire and fresh steam to make power. What I admire is the beauty of a pure function. How can something so complex and engineered without the intention of beauty spark a moment of fascination? The objects were made for a certain function and that makes them so beautiful. Even more than the objects, the area where everything happens, creates an atmosphere that brings up feelings that I cannot explain. The whole atmosphere of an industrial area that expanses inevitably across the sky, the atmosphere of being so little compared to the steel monsters, the atmosphere of future and progress of humans.

WHAT IS MACHINE ARCHITECTURE?

While "Machine Architecture" can have a broad meaning and everyone can understand it differently, this would be the time that I explain my description. Machines can be understood as a product that is sold on a market, from a small computing machine to a steel excavator, but the machine architecture as I understand are the structures that accommodate the process behind the product. Although the process of machine architecture is highly dynamic, the structures sit still, allowing the goods to flow between their beams and pipes. They accommodate the whole change from rough material into a final object or liquid. With the process the structures become alive.

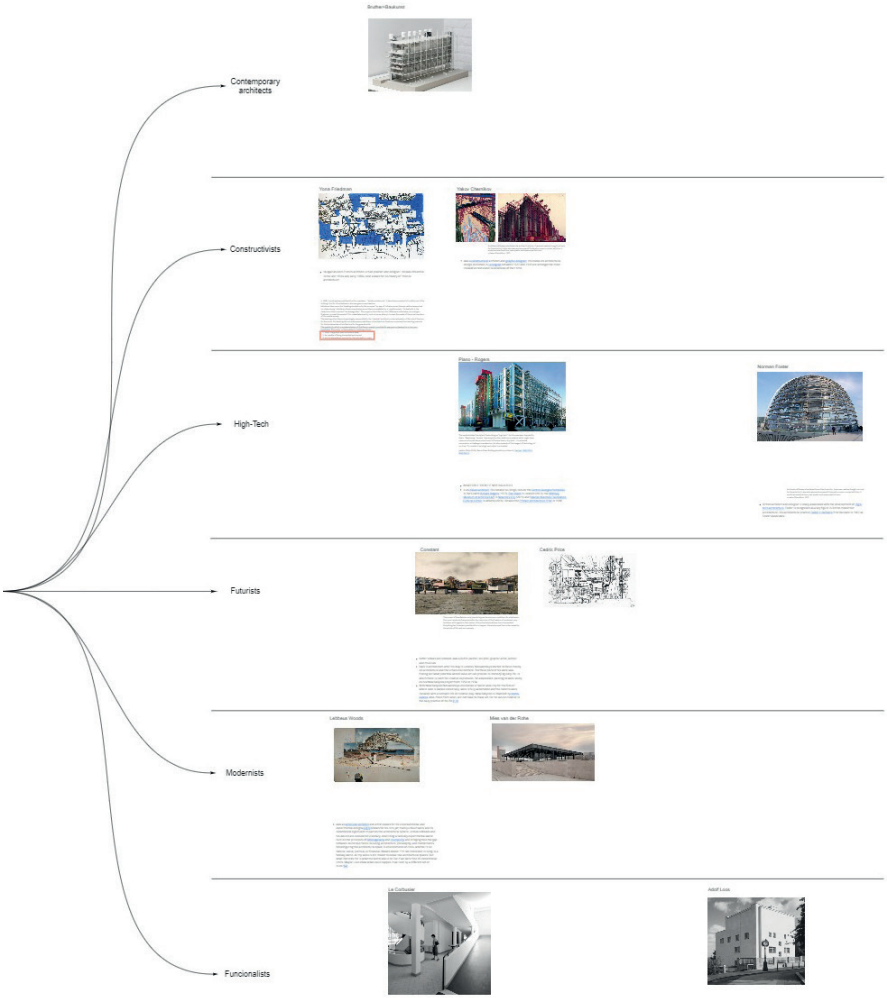
RESEARCH QUESTION

The idea of machines or industrial structures is widely used by many. From pragmatic use of technology in modern architecture to utopian sci-fi worlds. Architects from the 20th century developed many interesting radical concepts of the use of prefabricated industrial complex structures to highlight the progress of societies and set their path in the right direction. Despite the same background, these ideologies, sometimes almost sci-fi visions, often differ from each other but give us an idea how it could look like in a better or worse future.

But not only architects deal with the question of technology and progress. Machine architecture is pictured in artworks across the world and without the architectural technical background, they also show an example of future vision.

But this discourse of what will happen in the future does touch upon also the close reality. Of course, nothing can last forever. With the ever-changing progress of the world, some technology becomes obsolete, and that happens also to the sites of industry. Many industrial complexes have become obsolete due to an inactive mine-shaft, outdated technology or change of used resources for energy or goods.

Which brings me to the question: What is the future of machine architecture? How do people, in general, imagine the future of "machine architecture" and how do we deal with derelicts and obsolete structures and their heritage? Moreover, what role does "machine architecture" and derelicts plays in the far future, or visions of our society?

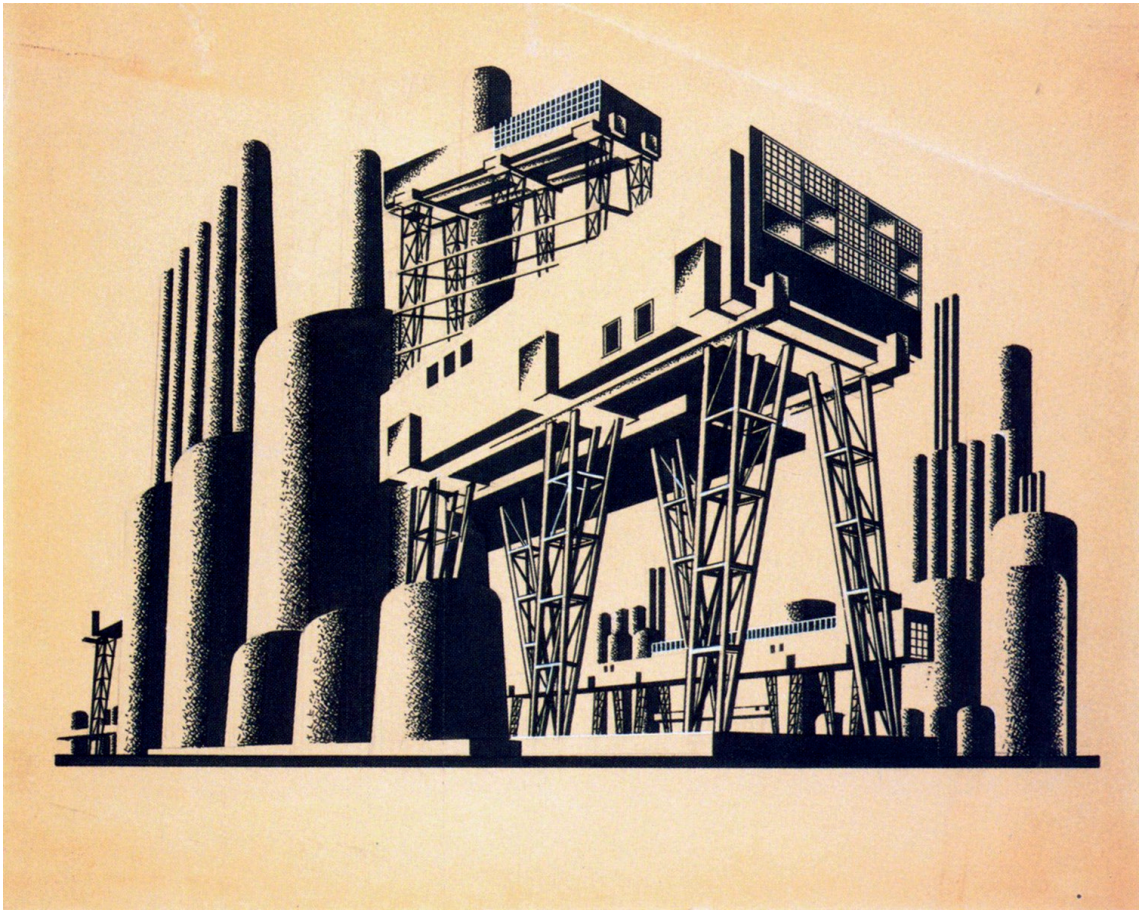


CASE STUDIES

CASE STUDIES | As I stressed before there are plenty of people whose work was influenced by the same topic I research and it goes across many different fields besides architecture, such as paintings, sculpture, comics, music or movies. The case studies are either technical or more artistic, real or utopian. For me and my research, it is important to examine a wider spectrum of works and find links back to the inspiration of "machine architecture". The wider the better, to see how different people in different periods of time tackled this topic. Either criticized the current age by exaggerating or transformed it into their idea of the future and the future people need. I came across many case studies which would be interesting, but decided to study some of them more thoroughly, such as graphic paintings of Yakov Chernikov, the collective ideology of Babylon project of Constant, technical building solutions of Piano and Rogers or contemporary architects Bruther+Baukunst

YAKOV CHERNIKHOV
1889 - 1951 **|** The machine architecture of Chernikhov´s work dates back to the end of the 19th century. It reflects the industrial revolution of the 19th century in Russia. He was a constructivist architect and a graphic designer that was inspired by the industrial complexes and structures and his work is considered timeless as it records the industrial and utopian images of modern society. His text and illustrations are amongst the most innovative works of their time. With his ideologies and opinions, he can be considered as the predecessor of the later utopian ideas of free and artistic society between alterable architectural structures.

"Architectural fantasy stimulates the architect's activity, it arouses creative thought not only for the artist but it also educates and arouses all those who come in contact with him; it produces new directions, new quests, and opens new horizons."
— Iakov Chernikhov, 1927

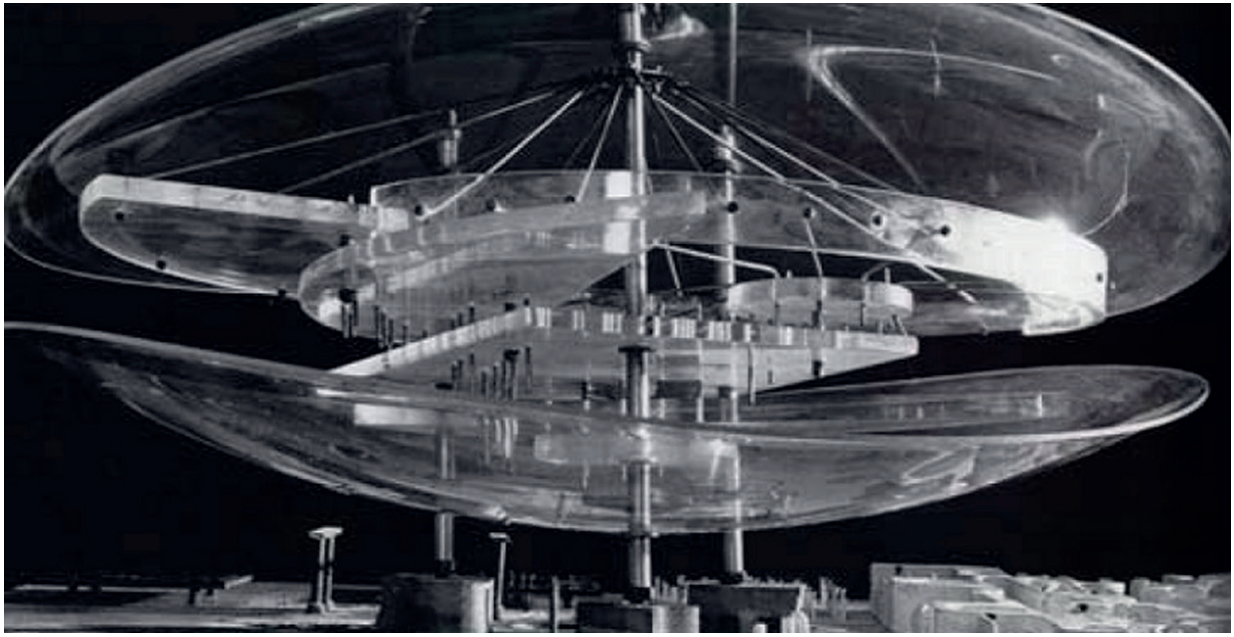


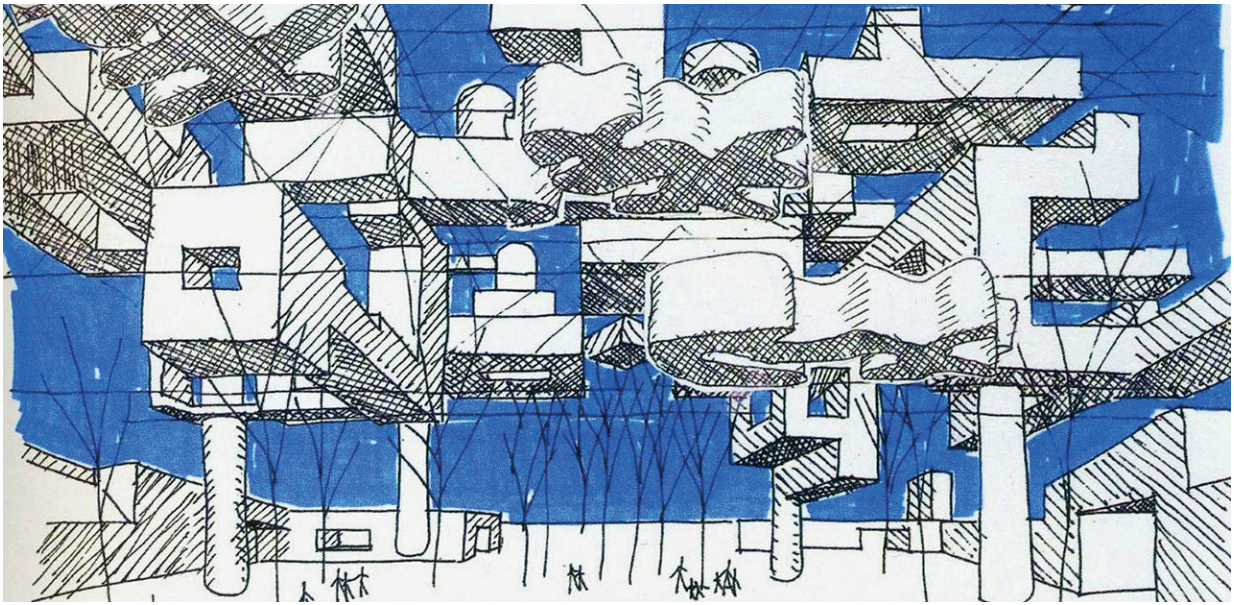
CONSTANT
1920 - 2005

Versatile Dutch artist known under the pseudonym Constant was an influential painter, sculptor, author and musician. after coming back to Amsterdam from his stay in London, he pointed his focus mainly towards architecture and the urban environment. He devoted his work´s focus on how art can intensify a daily life where art stimulates people to express themselves on daily basis. From the year 1956 to 1974 he worked on nothing else than his new utopian project called New Babylon. His ideology of New Babylon can be described as a "worldwide city of for the future" where everyone is happy and lives in peace with others. The New Babylon envisions a space or land that is owned collectively and art has replaced work, which has been fully automated. This nomadic life is an extreme version of the philosophy of Homo Ludens, which discusses the importance of a play in society.

YONA FRIEDMAN
1923 - 2020

French architect, urban planner and designer with Hungarian ancestors, was very influential between 1950 and 1960. One of his most famous major works is the theory of "mobile architecture" which he has published in 1958. This utopian theory explains very similar topics to one of Constant. New mobility and complete freedom between buildings for the residents. Compared to Constant New Babylon this theory is more structural than the other. Rather than focusing on the freedom of art and play in the society, Friedman focuses on the non-determined infrastructure where the inhabitant can decide and design his own dwelling. "Mobile architecture" was supposed to serve people with its structure rather than repressing and limiting them. The alterable infrastructure works as a functional machine that allows residents to live free. The demands on the Mobile city were written in three simple rules: "Touch the ground over a minimum area., be capable of being dismantled and moved and be alterable as required by the individual occupant.



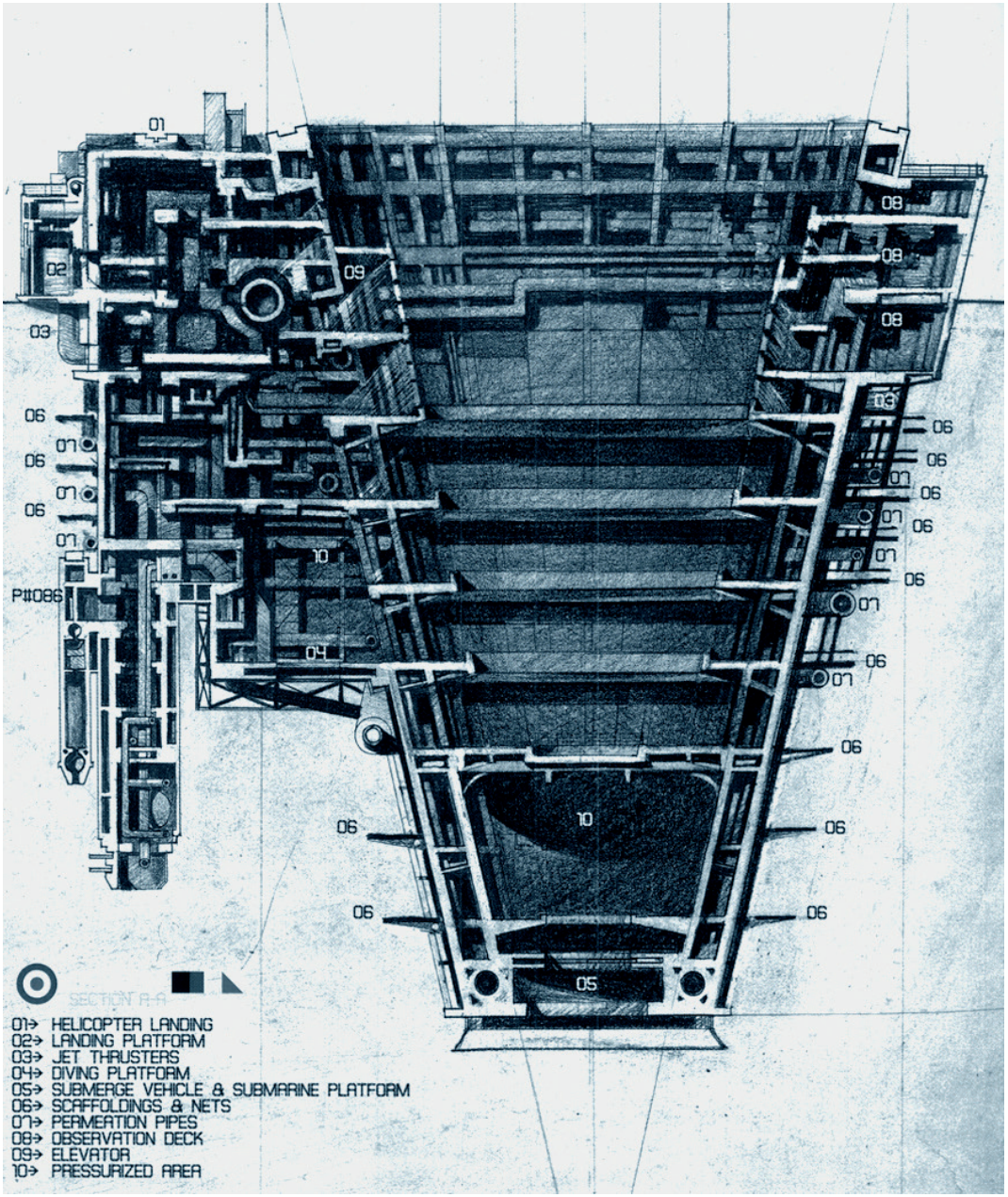


RENZO PIANO
1937

Piano´s work is more technical and exact compared to the utopian hypothesis of the two previous architects and artists. Italian architect Renzo Piano is described as one of the founders and pioneers of "High-tech" architecture. However Piano disputed this point of view on the example of the Centre Pompidou as he said: "Beaubourg, was a joyous urban machine, a creature which might have come out of a Jules Verne novel, a sort of bizarre boat in dry dock... It is a double provocation; a challenge to academism, but also a parody of the imagery of technology of our time. To consider it as a high-tech object is a mistake." Nevertheless, it does not counter the fact that his work is highly influenced by machines and his buildings are focused on modern technology and function to serve the purpose in the most effective way there is.

MAS YENDO
1957

Japanese architect Mas Yendo, born in Tokyo, is more like a comic anime utopian artist with a base in architecture. His biography is only an experimental project. The concepts of the projects touch upon the daily basis drama and social, political and scientific problematics, but all of the projects are connected with the expression and feeling of a machine. His drawings point out the modern lifestyle along with the machines, their influence, importance, neglection and its extinction. His work caught the attention of a great architectural blogger and theoretic Lebbeus Woods. And who can describe a topic more than he does: "Mas Yendo thinks of machines and the industrial age that spawned them not so much sceptically, as epically. Machines get old. They break down, are discarded, and usually end up in trash dumps. Epochs get old, too. They burn out and the ideas that drove them are pushed aside by new ideas and ideals. Still, the epic lives of things and ideas are more complicated, in that they never die but are merely transformed from one phase-state into another."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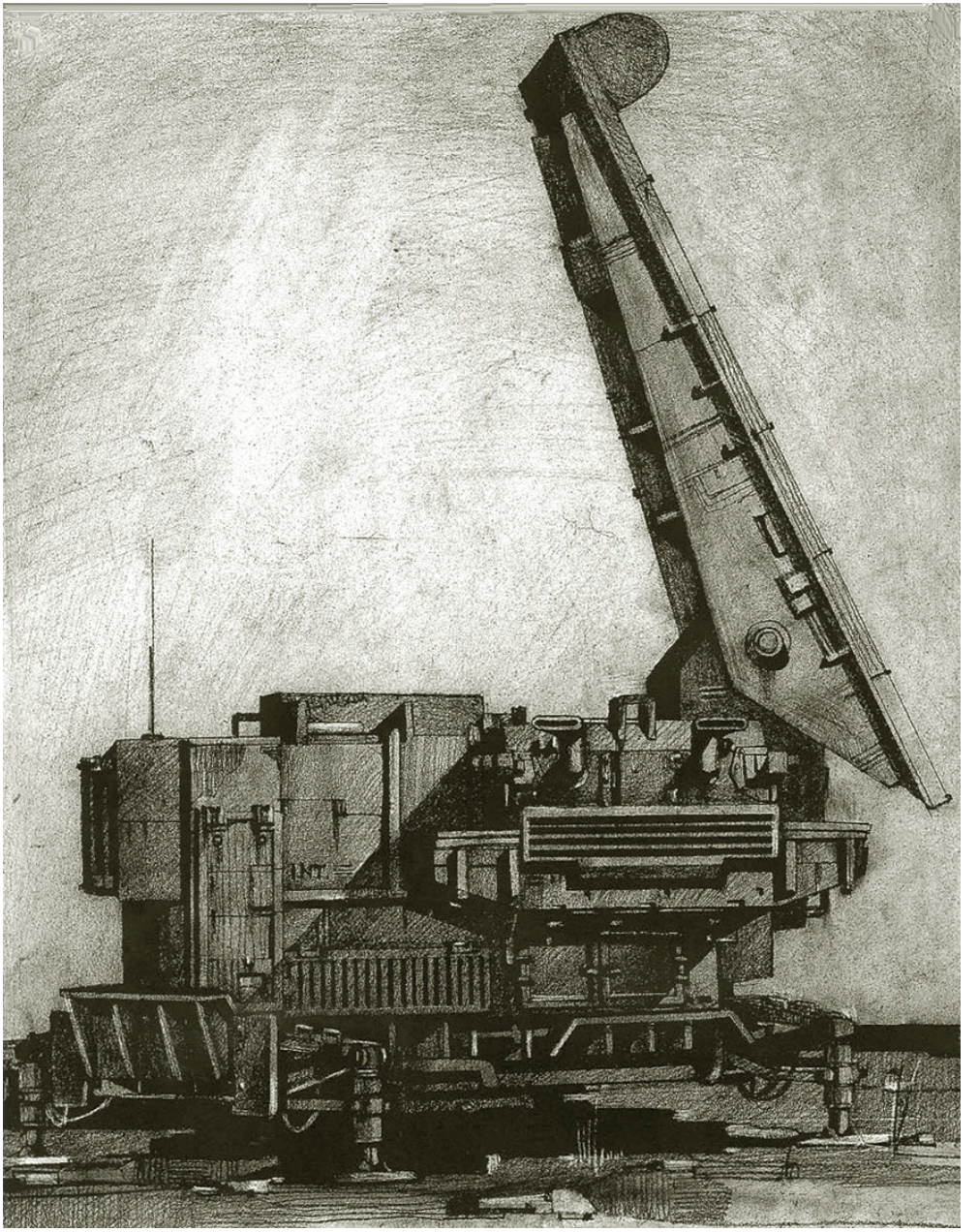
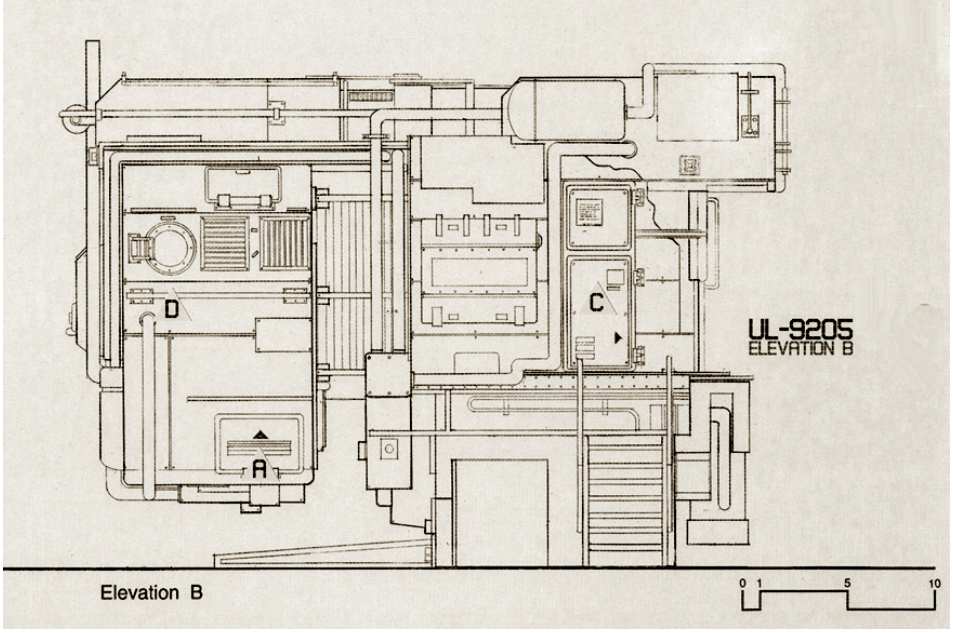
03→ JET THRUSTERS
04→ DIVING PLATFORM
05→ SUBMERGE VEHICLE & SUBMARINE PLATFORM
06→ SCAFFOLDINGS & NETS
07→ PERMEATION PIPES
08→ OBSERVATION DECK
09→ ELEVATOR
10→ PRESSURIZED AREA

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BRUTHER
2007

Bruther is France based contemporary architectural studio that collaborates with the Belgian studio BAU-KUNST. Their mysterious websites bring my interest above the surface. Perhaps they do not need to write and advertise their work as it gets extensive applause. The ideology of their architecture is very clear. The clean, seemingly lightweight, steel frame facades with a touch of delicacy and hard industry at the same time. They are not trying to hide the fact that technology should be hidden, therefore they speak about the importance of technology as something that should be praised. The technology is often very well shown and its presence is everywhere in both interior and exterior.

MACHINE ARCHITECTURE IN COMICS

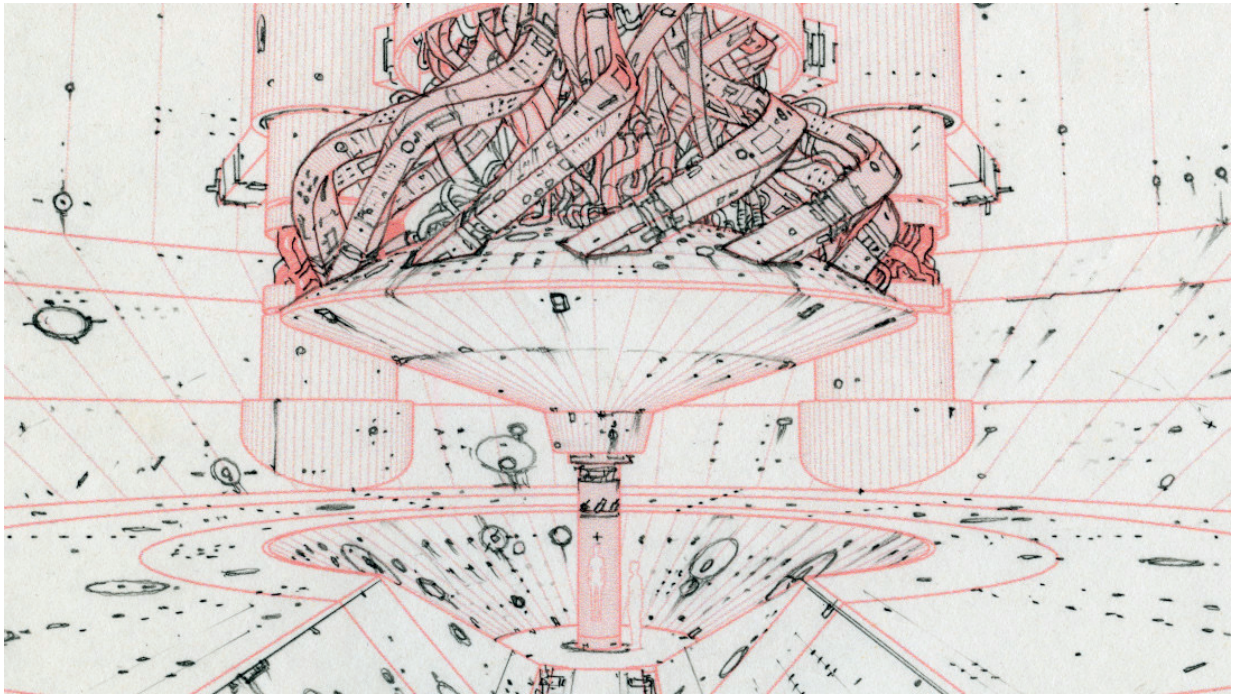
Very special case studies are anime and comic artworks. Because it is the current medium of representation of the period and the current utopian sci-fi visions. Especially in comics, it is very usual for the setting to be placed in the megacities of the future where the influence of industry and machine architecture is clearly visible. Technology, therefore, plays a very important role in the comic stories of anime. There is a reason I talk mostly about anime. There is a clear link to the architecture which the visons are made of and because of the drawings of purely imaginative architecture, the machine comic architecture is without limits and can be presented as a pure vision. Moreover, the comic artwork captures the atmosphere of the machine architecture by the storytelling witch brings up more feelings and therefore explains the idea more intuitively.

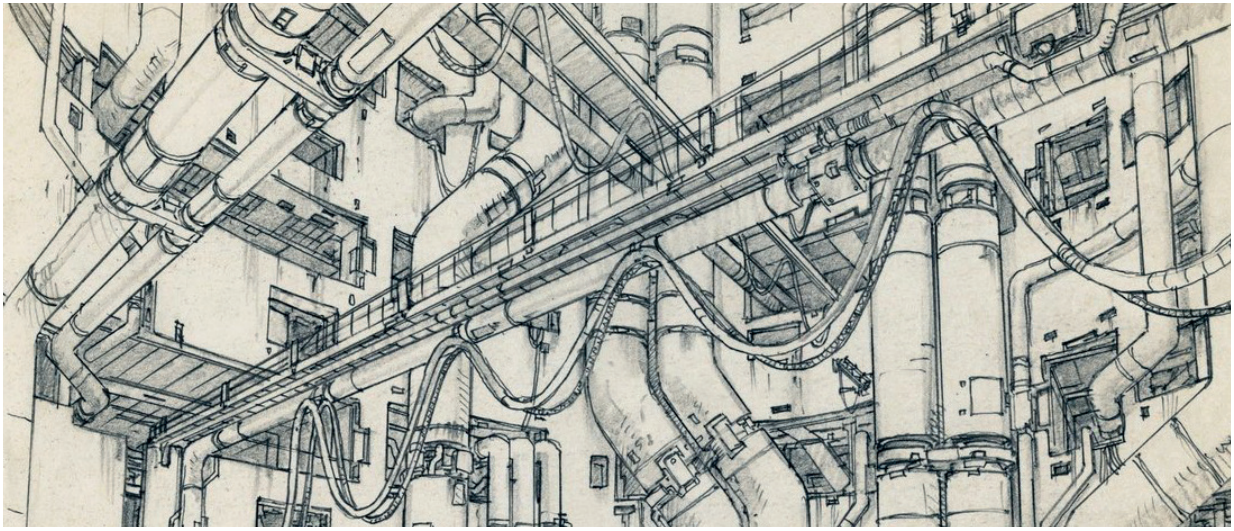

FROM SUICIDE ALLEY, IT IS A NON-STOP PLUNGE INTO A HUGE LAKE OF ACID, WHICH HAS BEEN KNOWN TO DISSOLVE ANYTHING AND EVERYTHING.
JEEZ! OTHERS ARE BOUND TO FOLLOW!
LOOK! A SUICIDE!
HOW HORRIBLE!
AARGHHH
KOKICH! GO GET MY WEAPON! THIS TIME, I SHALL USE IT!
GET OUT THE GUNS!

COMICS AS A RESEARCH METHOD

Because of the reasons listed above, the outcome of the research will be presented with comics as a perfect medium for this research. Where I will put together all learned data from the whole research, from the inspiration of case studies, sketches, site-analysis to vision of machine architecture in the future. All broad together with the story, to fully and clearly explain the vision not only by words but also by feelings and atmosphere.

As an example, I made one sketch comic about the Landschaftpark I have visited as a case study, with the context and sketches based on the method of Yakov Chernikhov. This comic tells a dystopian story of one man scavenging for metal pipes in a post-industrial world where the structures lost their initial purpose. While he explains a bit of the uncertainty, he creates his own machine that plays tones thanks to the wind coming through the pipes. The meaning is about changing the purpose of industrial brownfields such as the Landschaftpark into different purposes but beautiful.

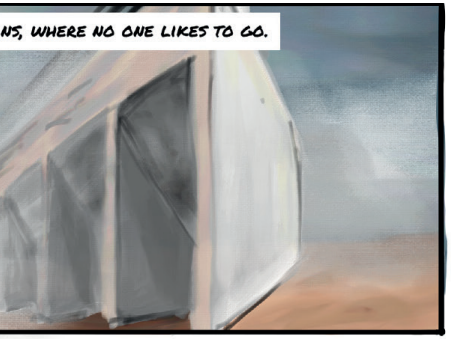





These places are scattered across the land. Ru

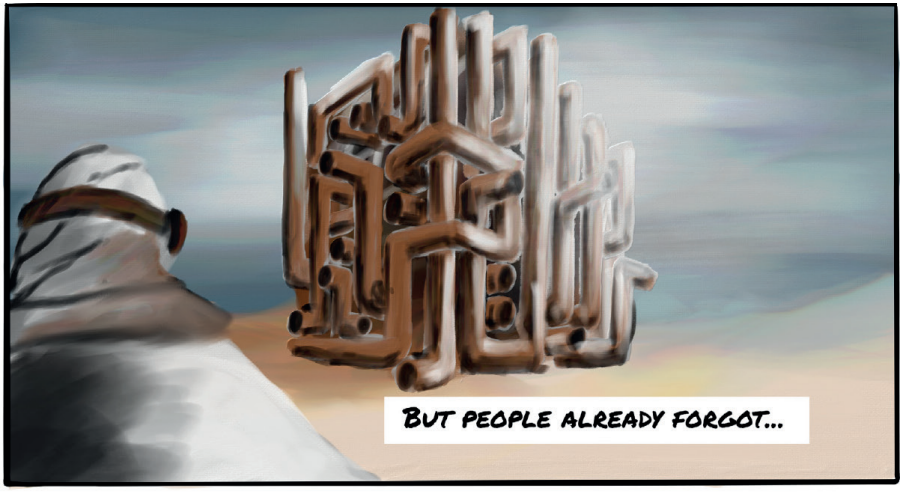

I scavenge the pipes which were left here to rust.

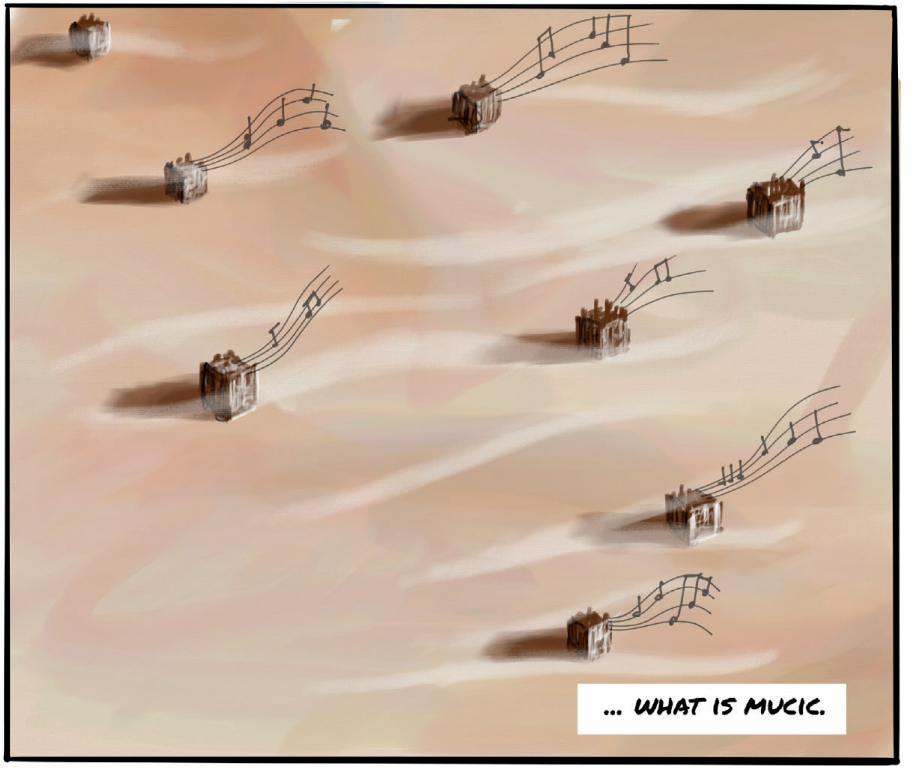

Nevertheless, I give it the life back. Different from the one before for sure... maybe not.


NS, WHERE NO ONE LIKES TO GO.


AND WHEN I HIDE FROM THE SUN I WONDER ABOUT THE PURPOSE OF THESE THINGS.


I HAVE BUILT MYSELF SIMILAR ONE WHEN I WAS A CHILD, ALTOUGH MUCH SMALLER. IT GAVE US SO MUCH JOY.

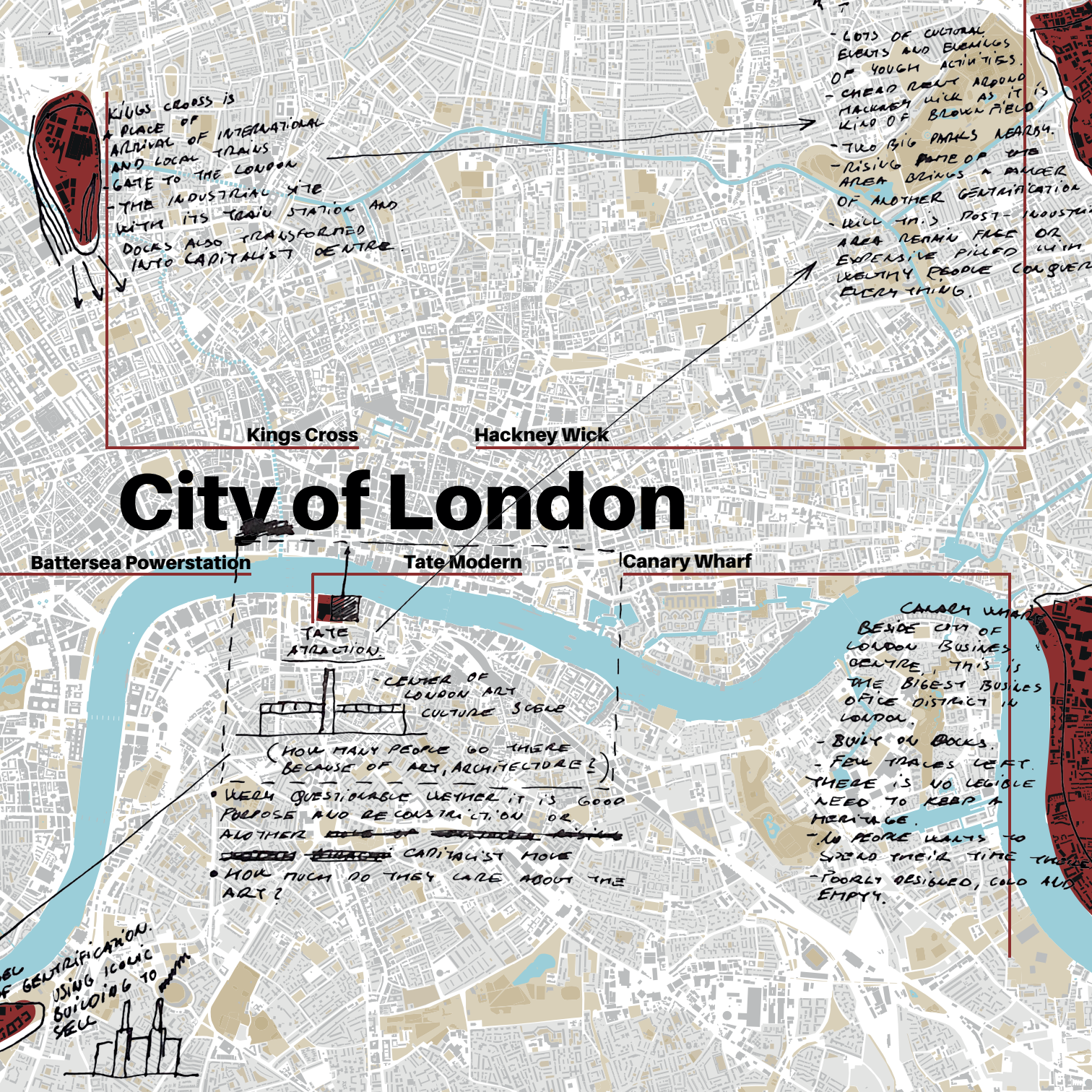

BUT PEOPLE ALREADY FORGOT...


... WHAT IS MUCIC.

SITE ANALYSIS

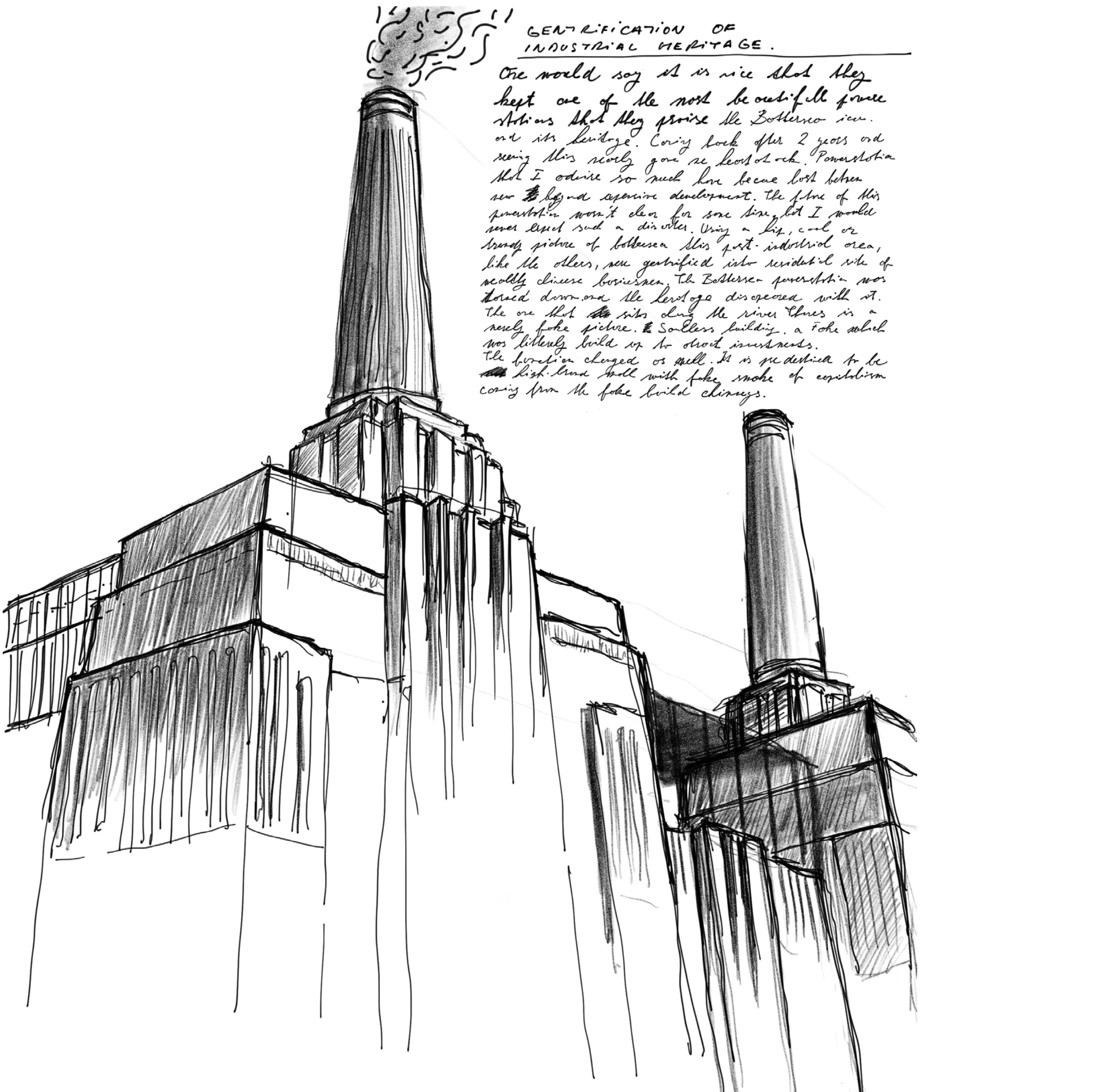
GENTRIFICATION OF LONDON POST-INDUSTRIAL COMPLEXES

London as a centre of culture and economy in Europe is one of the good examples of modern re-use as a post-industrial city. The discourse between bank economy, social events, culture and many more get together the same as many districts came together and formed the city of London. With the power of money and coming citizens from abroad, the developers took a chance of investing in neglected districts. The transformation happens in many places in London. This selection of five districts are places that left marks the most. These places are different in many aspects but connected by post-industrial heritage with has either remained or was erased. The places of late-capitalism. The places of life. The places of culture. We can see and only imagine the power pose between the districts. Only time will tell what is inevitable but at least we can help to retain what deserves to be retained.


Kings Cross
Hackney Wick
City of London
Battersea Powerstation
Tate Modern
Canary Wharf
KINGS CROSS IS A PLACE OF ARRIVAL OF INTERNATIONAL AND LOCAL TRAINS
- GATE TO THE LONDON
- THE INDUSTRIAL SITE WITH ITS TRAIN STATION AND DOCKS ALSO TRANSFORMED INTO CAPITALIST CENTRE.
- LOTS OF CULTURAL EVENTS AND EVENINGS OF YOUGH ACTIVITIES.
- CHEAP RENT AROUND HACKNEY WICK AS IT IS KIND OF BROWN FIELD
- TWO BIG PARKS NEARBY.
- RISING PART OF THE AREA BRINGS A DANGER OF ANOTHER GENTRIFICATION
- WILL THIS POST-INDUSTRIAL AREA REMAIN FREE OR EXPENSIVE PILLED WITH WEALTHY PEOPLE CONQUER EVERYTHING.
TATE ATTRACTION
- CENTER OF LONDON ART CULTURE SCENE
(HOW MANY PEOPLE GO THERE BECAUSE OF ART, ARCHITECTURE?)
• WERK QUESTIONABLE WEATHER IT IS GOOD PURPOSE AND RECONSTRUCTION OR ANOTHER [redacted] CAPITALIST MOVE
• HOW MUCH DO THEY CARE ABOUT THE ART?
CANARY WHARF
BESIDE CITY OF LONDON BUSINESS CENTRE, THIS IS THE BIGEST BUSINESS OFFICE DISTRICT IN LONDON.
- BUILT ON DOCKS.
- FEW TRACES LEFT. THERE IS NO LEGIBLE NEED TO KEEP A HERITAGE.
- NO PEOPLE WANTS TO SPEND THEIR TIME THERE
- POORLY DESIGNED, COLD AND EMPTY.
OF GENTRIFICATION.
USING ICONIC BUILDING TO SELL

TRANS-FORMATION OF BATTERSEA POWER STATION

One would say it is nice that they kept one of the most beautiful power stations - the Battersea icon and its heritage. Thinking about my love of Pink Floyd the further opinion might be very subjective but coming back after two years and seeing this nearly gave me a heart attack. The power station that I admire so much, have become lost between new development which is beyond expensive. The future of this power station was not clear for some time, but I would never expect such a disaster. Using a hip, a cool or trendy picturesque icon of Battersea Power Station. These post-industrial areas, like the others, were a victim of high gentrification and became residential sites of wealthy businessmen. The Battersea was torn down due to a lack of care for a long time and the heritage nearly disappeared with it. The station which sits along the river Themes is a merely fake picture. Soulless gutted corpse literally built up to attract money. The function changed as well but as Pink Floyd album pointed out the power of money above human interests. The ironic icon of late capitalism got only amplified.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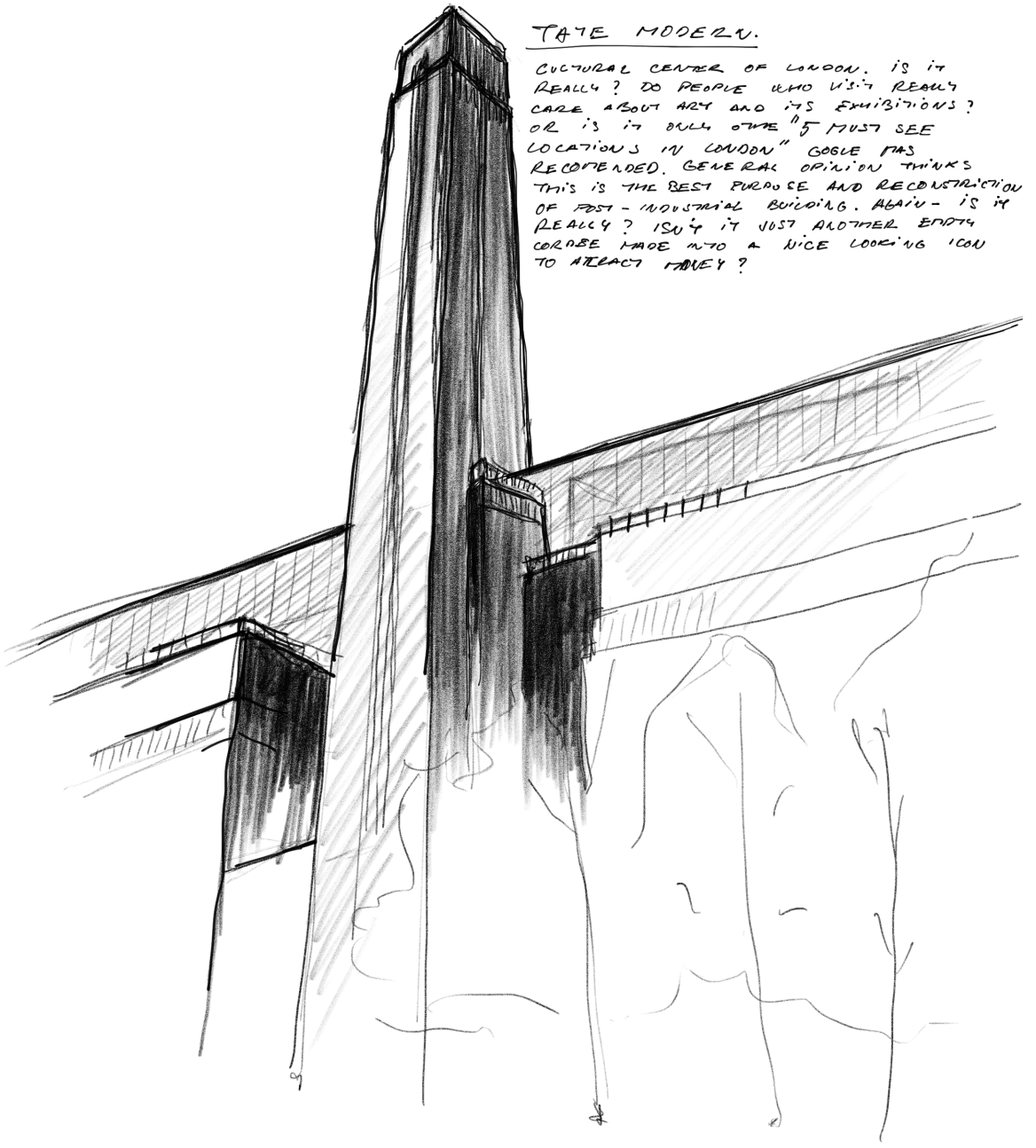
trendy picture of battersea this post-industrial area,
like the others, were gentrified into residential site of
wealthy chinese businessmen. The Battersea powerstation was
teared down and the heritage disappeared with it.
The one that sits along the river Thames is a
nearly fake picture. Soulless building. a Fake which
was literally build up to attract investments.
The function changed as well. It is predestined to be
high-brand mall with fake smoke of capitalism
coming from the fake build chimneys.

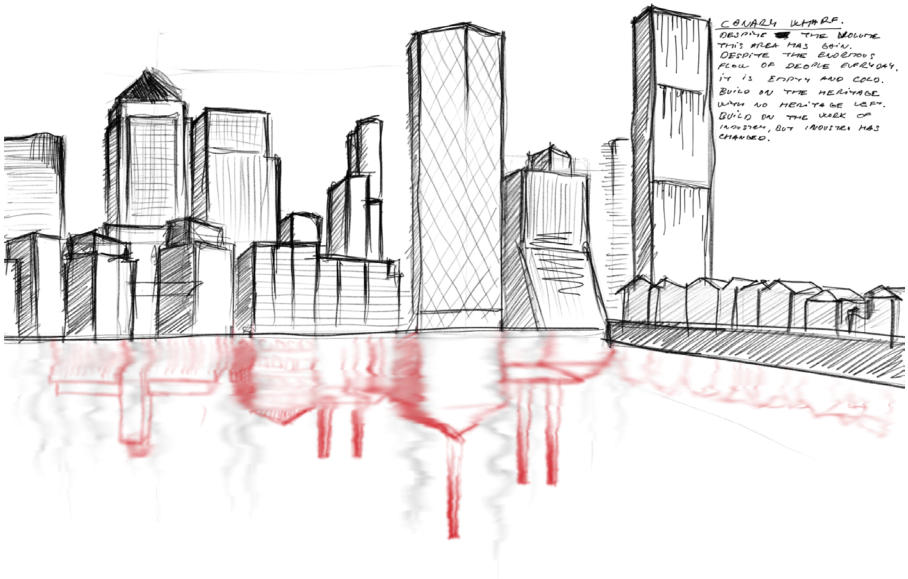
(TATE) MODERN REUSE OF INDUSTRIAL HERITAGE

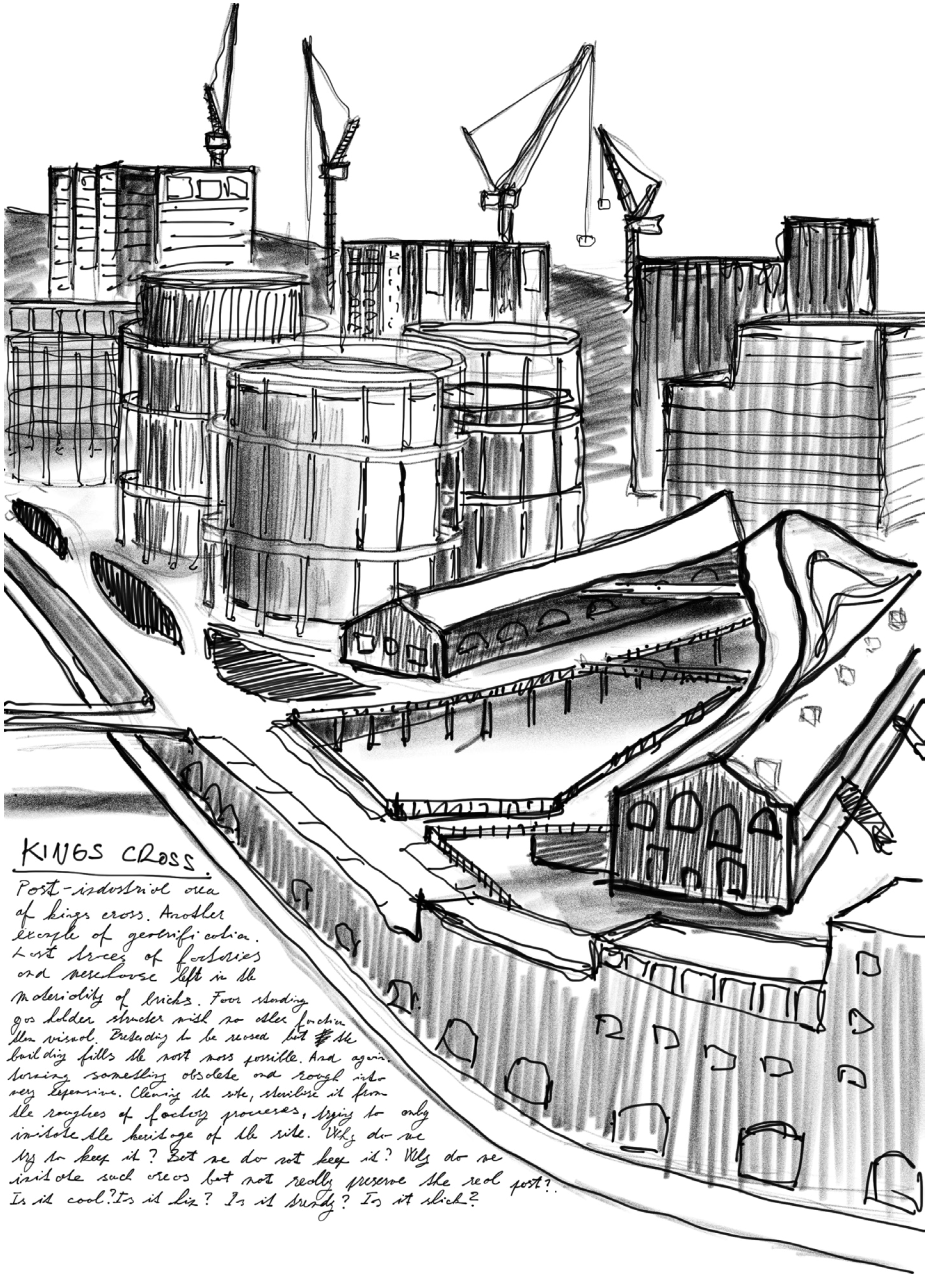
People come to the Tate Modern as it is the cultural centre of London, but is it really? Apart from famous names at the exhibitions inside of another power station beside the Themes, why do people come there? Do most of the visitors care about the exhibitions or is it the only other "must-see location in London" google has recommended? The general opinion is this is the best purpose for the reconstruction of the post-industrial building. And I ask again - Is that really the case? Isn´t it just another empty corpse made into a nice-looking icon to attract money and sell souvenirs to the followers?


TATE MODERN.
CULTURAL CENTER OF LONDON. IS IT REALLY? DO PEOPLE WHO VISIT REALLY CARE ABOUT ART AND ITS EXHIBITIONS? OR IS IT JUST ONE "5 MUST SEE LOCATIONS IN LONDON" GOGLE HAS RECOMENDED. GENERAL OPINION THINKS THIS IS THE BEST PURPOSE AND RECONSTRUCTION OF POST-INDUSTRIAL BUILDING. AGAIN- IS IT REALLY? ISN'T IT JUST ANOTHER EMPTY CORPSE MADE INTO A NICE LOOKING ICON TO ATTRACT MONEY?

GENTRIFICATION AT IT´S BEST - CANARY WHARF/ KINGS CROSS

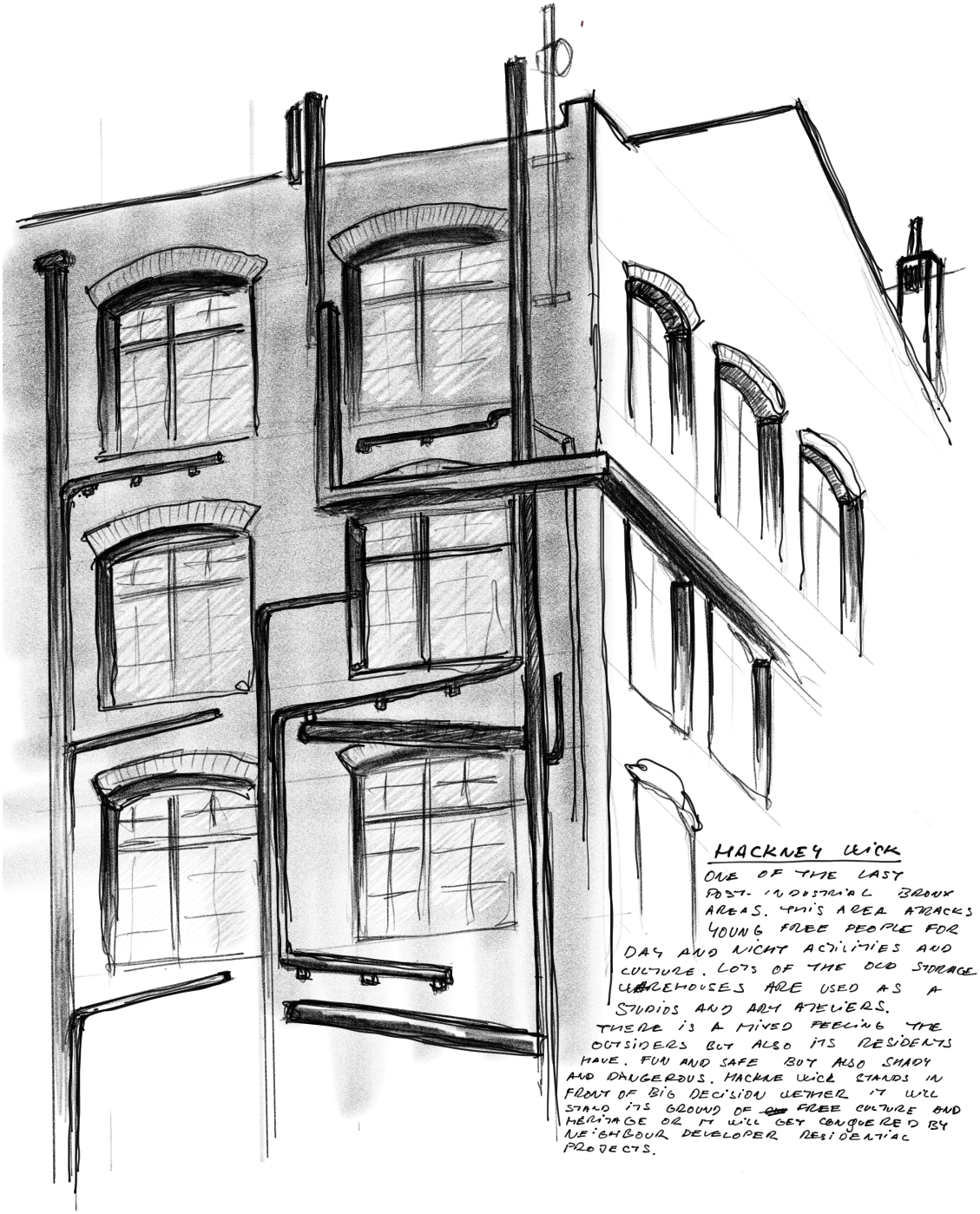
Post-industrial area of Kings Cross is another example of gentrification. Lost traces of factories and werehouses left only in mere materiality of the fake brick facades. Four standing gas holder structures with no other function than visual, pretending to be re-used. The building only fills the most mass possible and again turning something absolete into very expensive picture. Cleaning the site, sterilized from the roughness of factory procces, trying only to imitate the heritage of the site. Why do we try to keep it if we erase all of it? Why do we imitate such scenes but not really preserve the real past? Is it only cool? Is it trendy? Is this the new identity of London? Across the city of London, there was a werehouse and docks area called Canary Wharf. Depspite the volume this area has gain. Despite the enourmous flow of people everyday, it is cold and empty as never. Buit on heritage with no heritage left. Built on the work of industry, but industra has changed.




KINGS CROSS.
Post-industrial area of kings cross. Another example of gentrification. Last traces of factories and warehouse left in the materiality of bricks. Poor standing gas holder structure with no other function than visual. Pretending to be reused but the building fills the rest mass possible. And again burning something obsolete and rough into very expensive. Cleaning the site, sterilize it from the roughes of factory processes, trying to only maintain the heritage of the site. Why do we try to keep it? But we do not keep it? Why do we maintain such traces but not really preserve the real past? Is it cool? Is it fix? Is it trendy? Is it slick?

GROWING POPULARITY OF HACKNEY WICK AND ITS RE-USE AND FUTURE

Hackney Wick is one of the last true post-industrial areas that has kept the image and trace of the historical building. Some lives there, some go there for nightlife and some people call it the Bronx and keep their feet away. The old warehouses are reused and made into studios, art exhibitions, cheap apartments and gastro places. Despite the mixed feeling, this place is filled with life and buildings did not suffer much. But also Hackney stands against big decision whether it will stand its ground of free-mind culture among the heritage or it will get conquered by neighbour residential developments.



HACKNEY WICK

ONE OF THE LAST POST-INDUSTRIAL BROWN AREAS. THIS AREA ATTRACTS YOUNG FREE PEOPLE FOR DAY AND NIGHT ACTIVITIES AND CULTURE. LOTS OF THE OLD STORAGE WAREHOUSES ARE USED AS A STUDIOS AND ART ATELIERS.

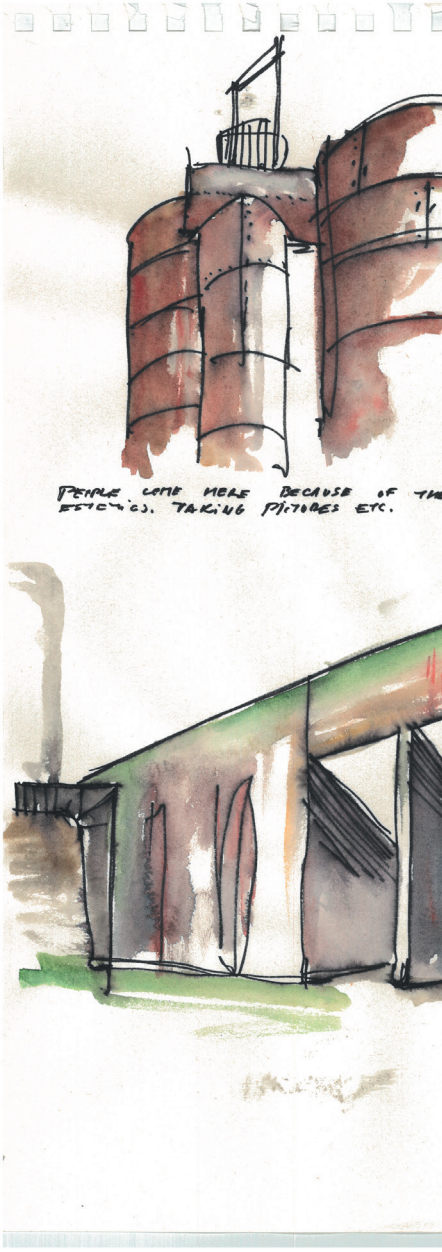
THERE IS A MIXED FEELING THE OUTSIDERS BUT ALSO ITS RESIDENTS HAVE. FUN AND SAFE BUT ALSO SHADY AND DANGEROUS. HACKNE WICK STANDS IN FRONT OF BIG DECISION WETHER IT WILL STAND ITS GROUND OF ~~the~~ FREE CULTURE AND HERITAGE OR IT WILL GET CONQUERED BY NEIGHBOUR DEVELOPER RESIDENTIAL PROJECTS.

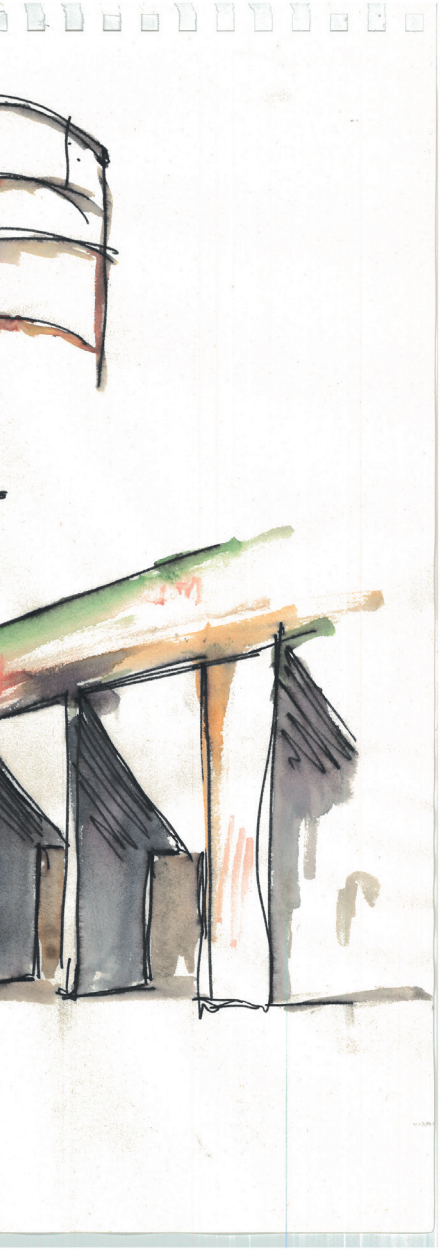
DUISBURG - LANDSCHAFT PARK

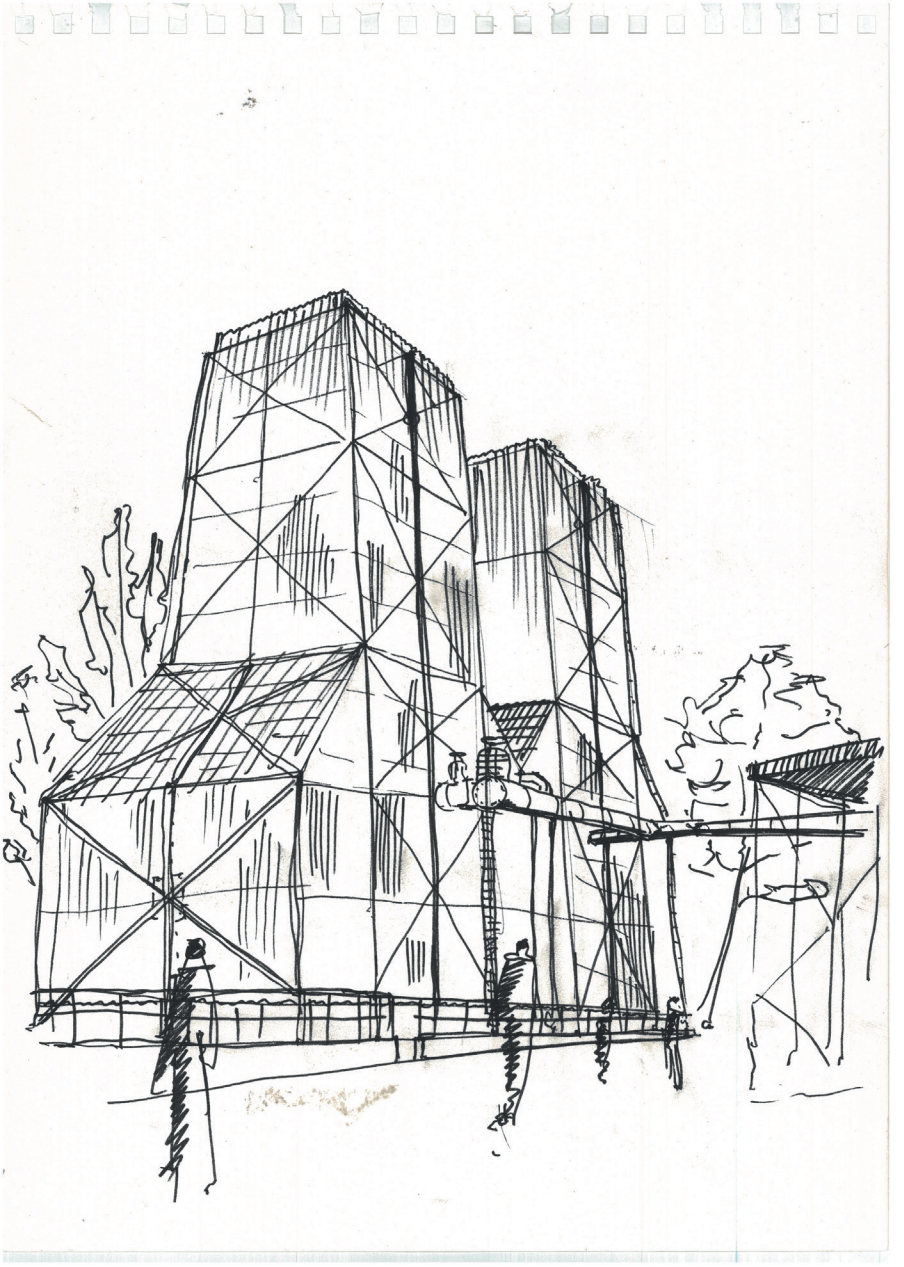
Close to the Netherlands lies industry so massive that it spreads over hundreds of squared kilometres around the area of Duisburg. Still increasing the industry of steel. The production in this area exceeds any other city in Europe. Despite ever-increasing production, when the technology lacks updates the whole area gets old and becomes obsolete and then abandoned. This area and history of Duisburg steel production extend to the past and the future so much, that terms such as heritage rose over past decades. The area of Landschaft park went through big change since it closed its gates. The high contamination prevented further re-use. In order to decontaminate the area, the city planted vegetation with strong abilities to extract the leftover pollution from the soil and air. The Landschaft park then became a natural park with iconic machinery. The machines left to disintegrate are now being overgrown by plants across the area. The park has become an example of how to deal with places such as this. And in spite of the metal non-human structures associated with filth and pollution is crowded with families every weekend.

The question which this area rises is what will happen to the machines? How can we transform something purely made functional into a different purpose? Something which has been created for the production into structures that serves the humans? Plants growing through the pipes only reminds us that everything came from dust and the dust will be again. That nature is superior to everything humans do and everything can be brought back to stage zero.


ABANDONED, NO FUNCTION. WALKING THROUGH.


PEOPLE COME HERE BECAUSE OF TH
ESTHETICS. TAKING PICTURES ETC.



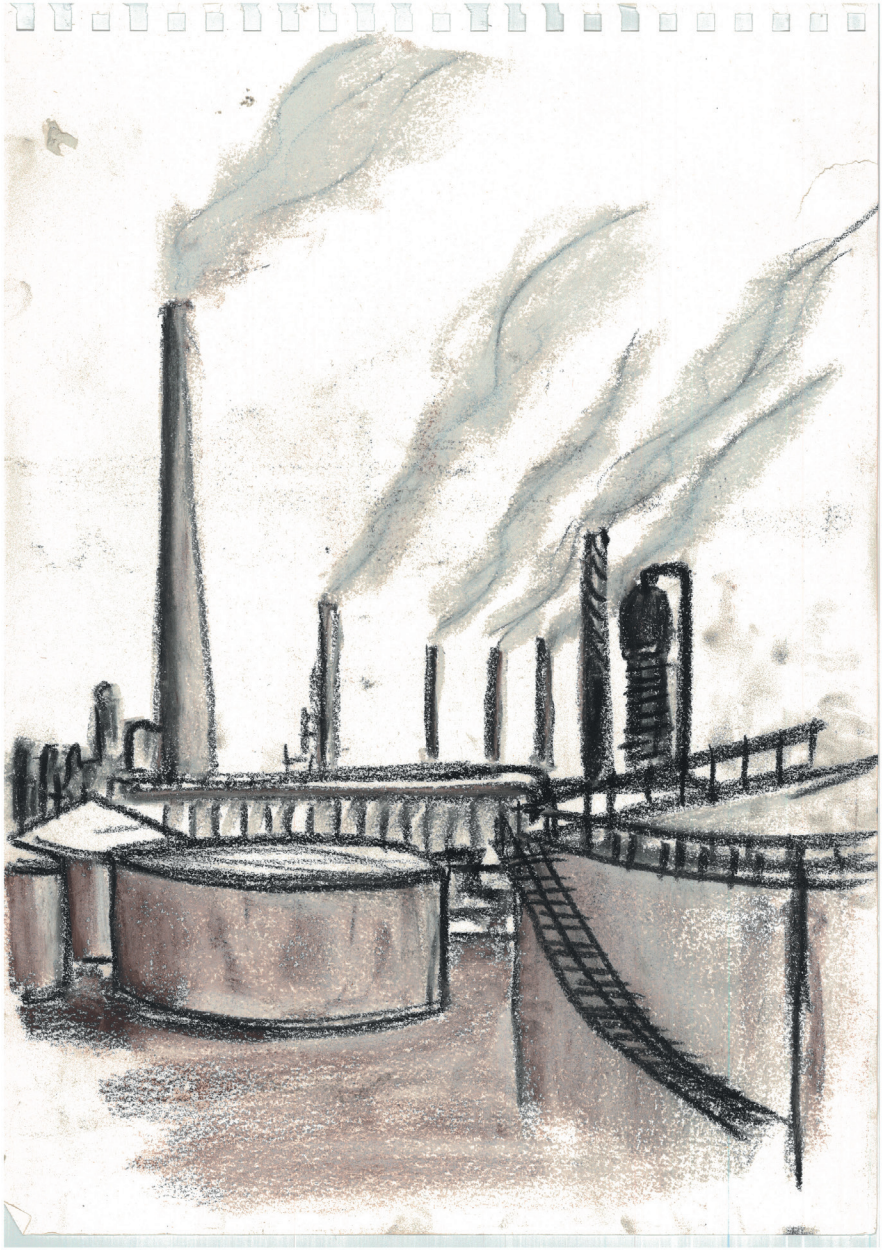


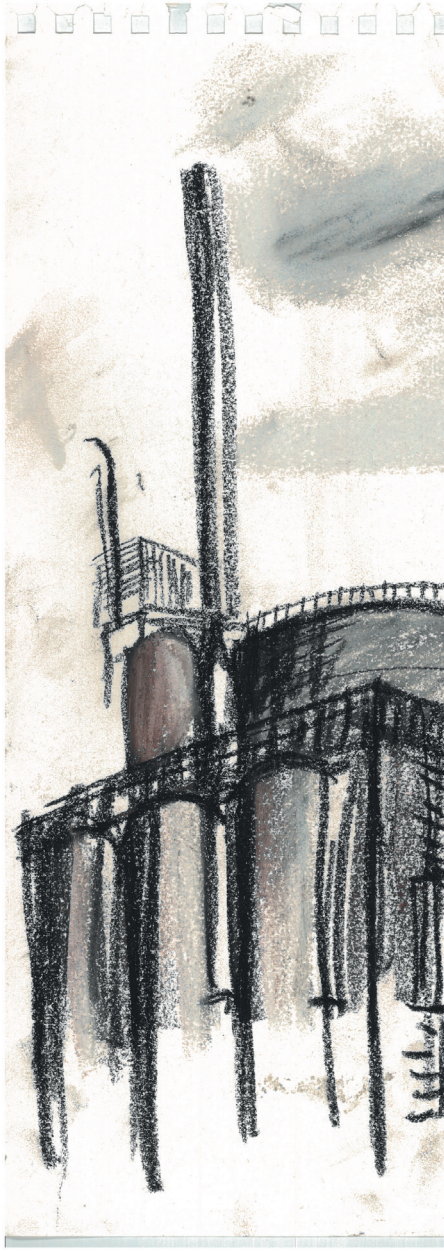
DUISBURG - ZOLLVEREIN

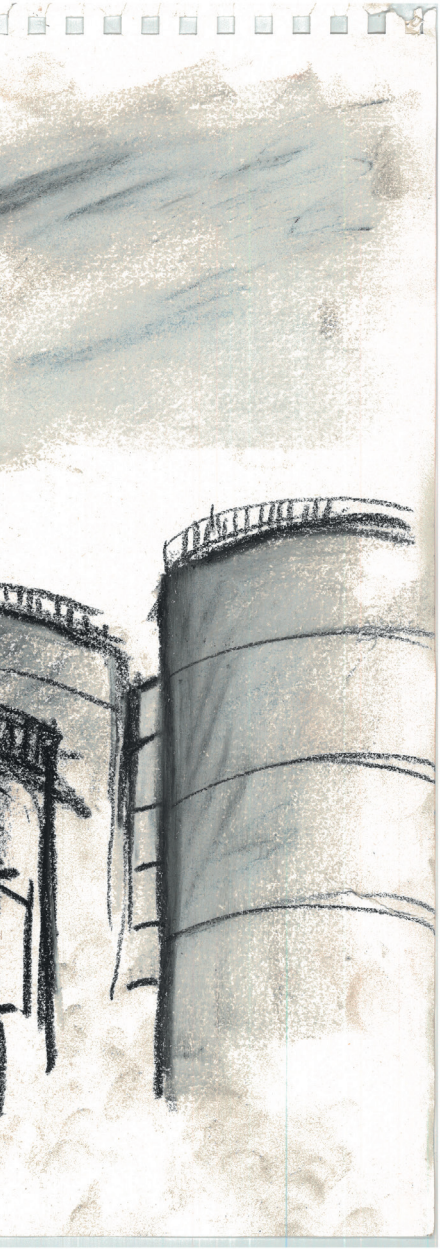
Zollverein is another very similar example. It is pure luck these two areas, which have stopped the production were re-used. But both in a different way. Landschaft park took advantage of the natural elements and was let to grow independently. Although nature was planted it is left to do its thing. On the other side of Duisburg, Zollverein took another turn. Zollverein was pronounced a UNESCO heritage. Again I might be a little bit affected by past memories of UNESCO sites, but Zollverein is not an exception. It is very lucky of us that sites like these remain in our culture and that we should be thankful. But it is questionable whether the UNESCO sites indeed kept the history and its heritage. The reconstructed facades lack the touch of history, the pavements do not mirror the process which runs through complex and one could say the history and the heritage was washed up with the dust from every corner possible. It is clear the UNESCO complex was made for a mass of people coming in, but the brick walls became only walls of mere boxes to entertain people from outside. One can argue that it found a reliably and maybe sustainable re-use of the post-industrial buildings. In my opinion, making a design museum or gallery, such as the one in London, in every obsolete post-industrial structure is not the right way. It only shows that we do not know what can be done and how to for real preserve the stage that the metal structures can be.

THE LIFE OF EUROPOORT

Europort is one of the biggest harbours in Europe. It is located in Rotterdam along the river Maas and nowadays it takes up the entire coast from Rotterdam up to the sea. With Hamburg and Antwerpen, it creates the most important harbour located on the north coast of Europe. Europoort, as it is called nowadays, has a very historical and long-term tradition in Dutch history. Even before it was a centre for the running of society in Europe and that has not changed ever since. One part of Europoort is reserved for the Shell oil refinery. Fuel, oil, lubricants, and other chemical substances are made here in thousands of litres and transported then to the other parts of the world. When I have visited this place I did a lot of photos and documentation of the area. I was stopped several times by the security guards and police. This act points out the importance and possible danger of the place at the same time. The whole industrial area is a complex structure of machines and storage containers that work in symbiosis as one. Despite the enormous chaos of pipes and beams and wires, one would think it is not in order, it is not random at all. Even the smallest thing has an important purpose and the design and placement were very well thought about.







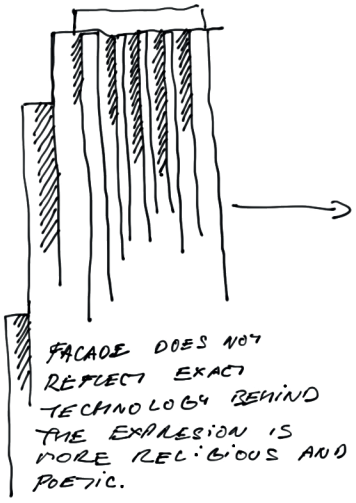
FRAGMENT ABSTRACTIONS

The sightseeing gave me some incoming thoughts and ideas about how we deal with the post-industrial sites. After examination of the areas, I took a few fragments that would express my shattered feelings the most. Three different approaches, three different fragments, three different models. Each model explains its own nature of existence. It serves as a medium that records how it was designed, transformed or kept. It records the past and with the abstraction, it highlights what is important to highlight and what should be noticed.

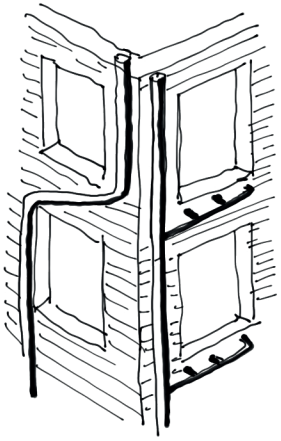
These three models sit on the line of expression and function. It is questionable what is the expression when even the pre-function can be the expression of the industry. In my words, the expression is the decor that holds the meaning and abstraction of what is behind. Therefore it is the secondary meaning after the function of the facade. On the opposite side, there is the function. The function is not covered by the secondary cover because it is not needed. All of this comes together in the selected fragment of Hackney Wick where the function is added on the facade of the warehouse. The expression is based on what was going on inside before the reconstriction and it is a good example of how these two sides can work together in a symbiotic relationship.

EXPRESSION

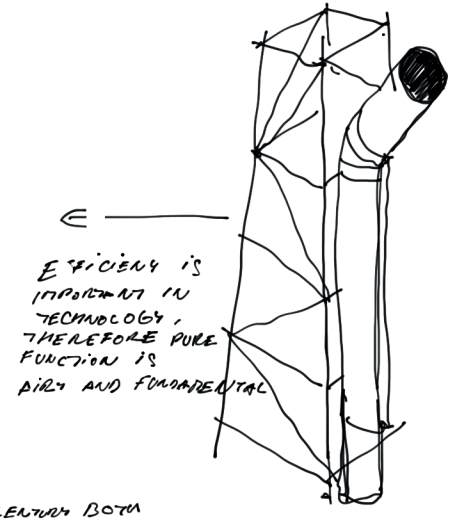
FUNCTION



FACADE DOES NOT REFLECT EXACT TECHNOLOGY BEHIND THE EXPRESSION IS MORE RELIGIOUS AND POETIC.



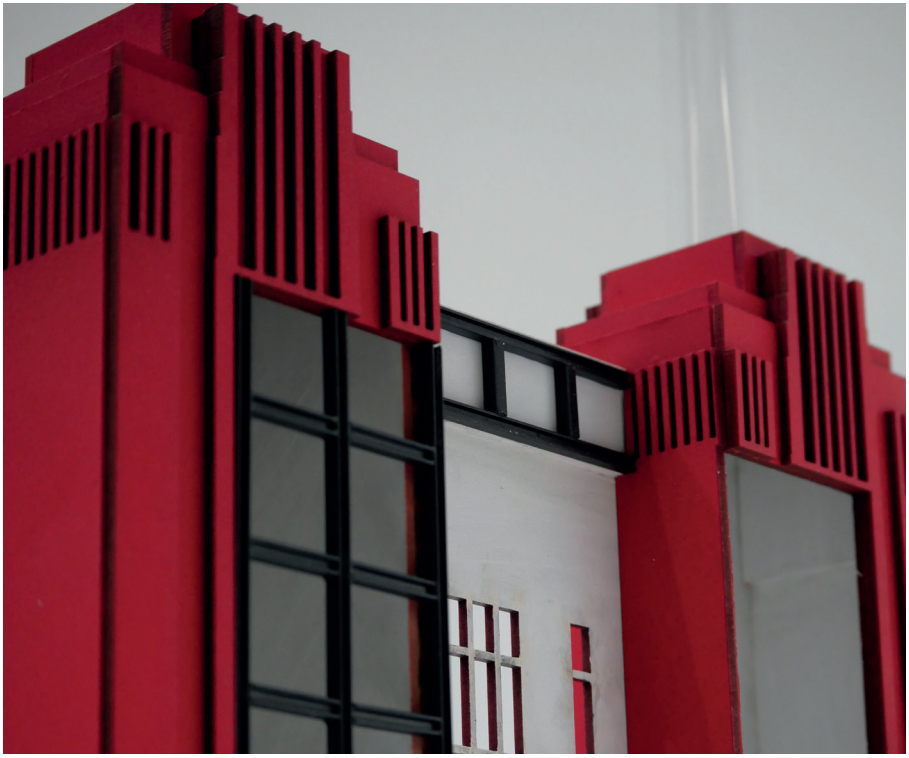
EFFICIENCY IS IMPORTANT IN TECHNOLOGY, THEREFORE PURE FUNCTION IS AIRY AND FUNDAMENTAL



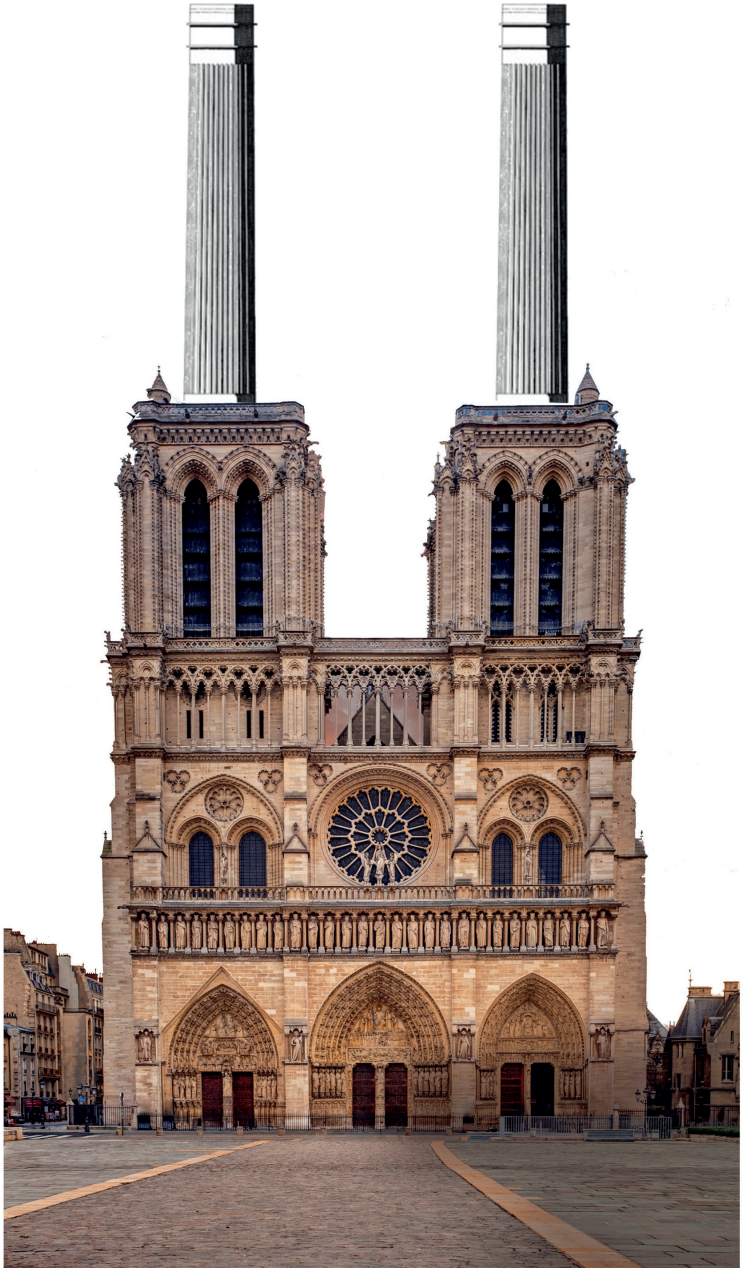
IN HOUSING OF 21TH CENTURY BOTH EXPRESSION AND FUNCTION OR TECHNOLOGY PLAYS IMPORTANT ROLE AND IN ALL CASES TOGETHE IN THE ARCHITECTURE. SOMETIMES THERE IS EMPHASIS ON ONE MORE THAN THE OTHER BUT IT IS SIGNIFICANT TO MAINTAIN A BALANCE

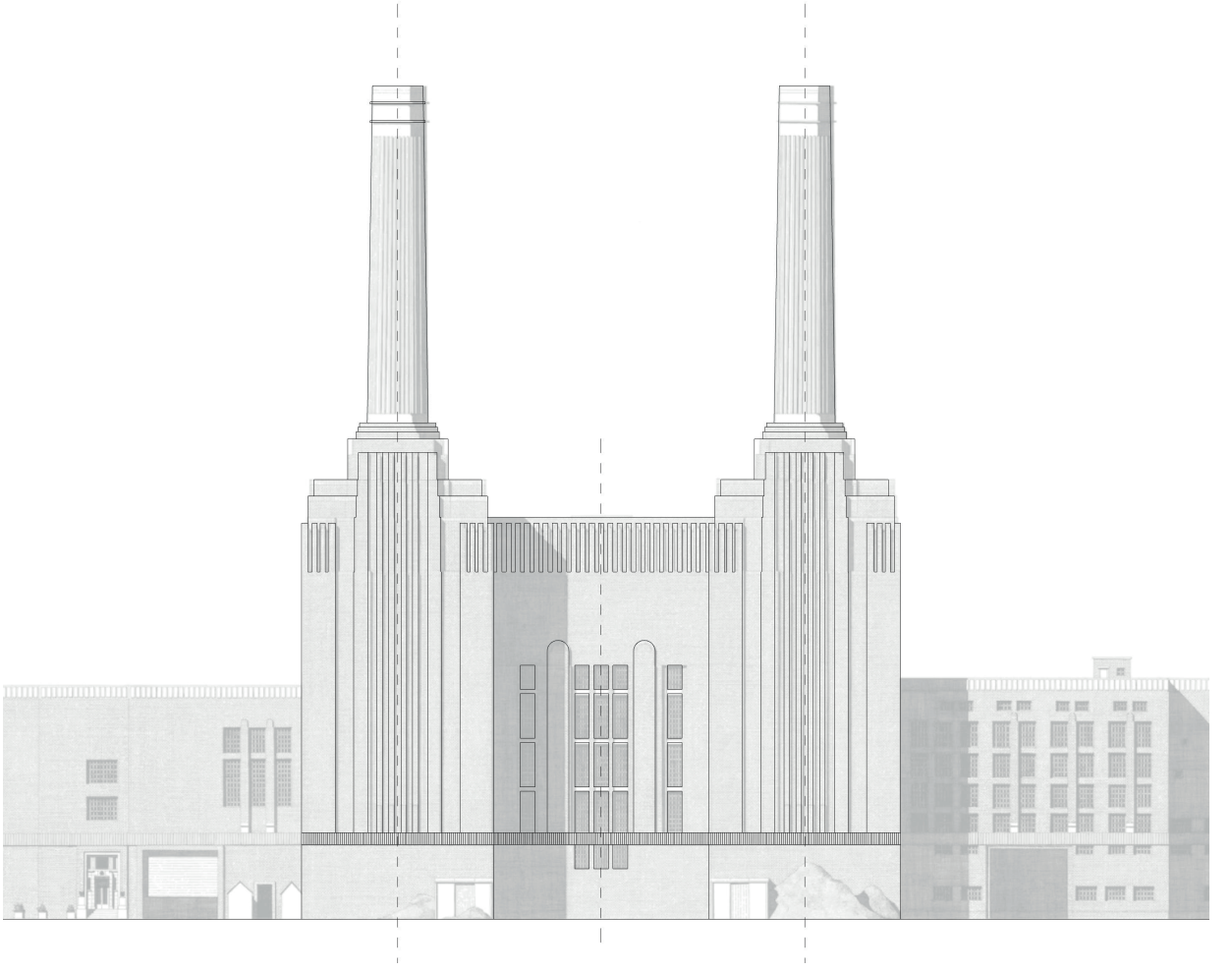
FORM AND EXPRESSION IN INDUSTRIAL PROGRESS

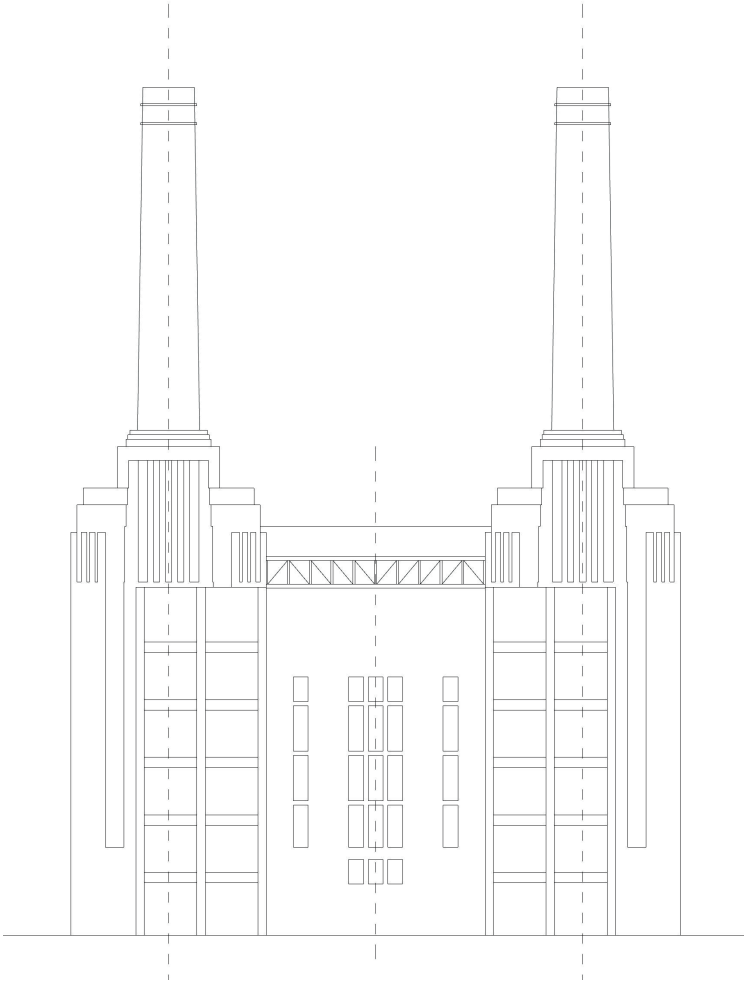
Iconic, scenic, magnificent, momentous, dramatic. All of this can be said about Battersea Power Station. Its icon is inevitably connected to the London panorama if we shift from the central mainstream sights. But what was left of the power station is just a theatrical scene. Empty shell. Beautifull on one side and simply structural on the other. No meaning is filled in between the walls, just the empty memory. After many years of neglect, the power station is being re-made. The chimney that transported fumes and steam were dismantled, the fake non-purpose columns were built and fake smoke was simulated. It is alive. Almost. But let's leave the present and let´s think about the past and what the scene meant for the others. The power station was built during the industrial revolution. The progress was welcomed and praised. It is the facade that reflects the era. The facade that shows

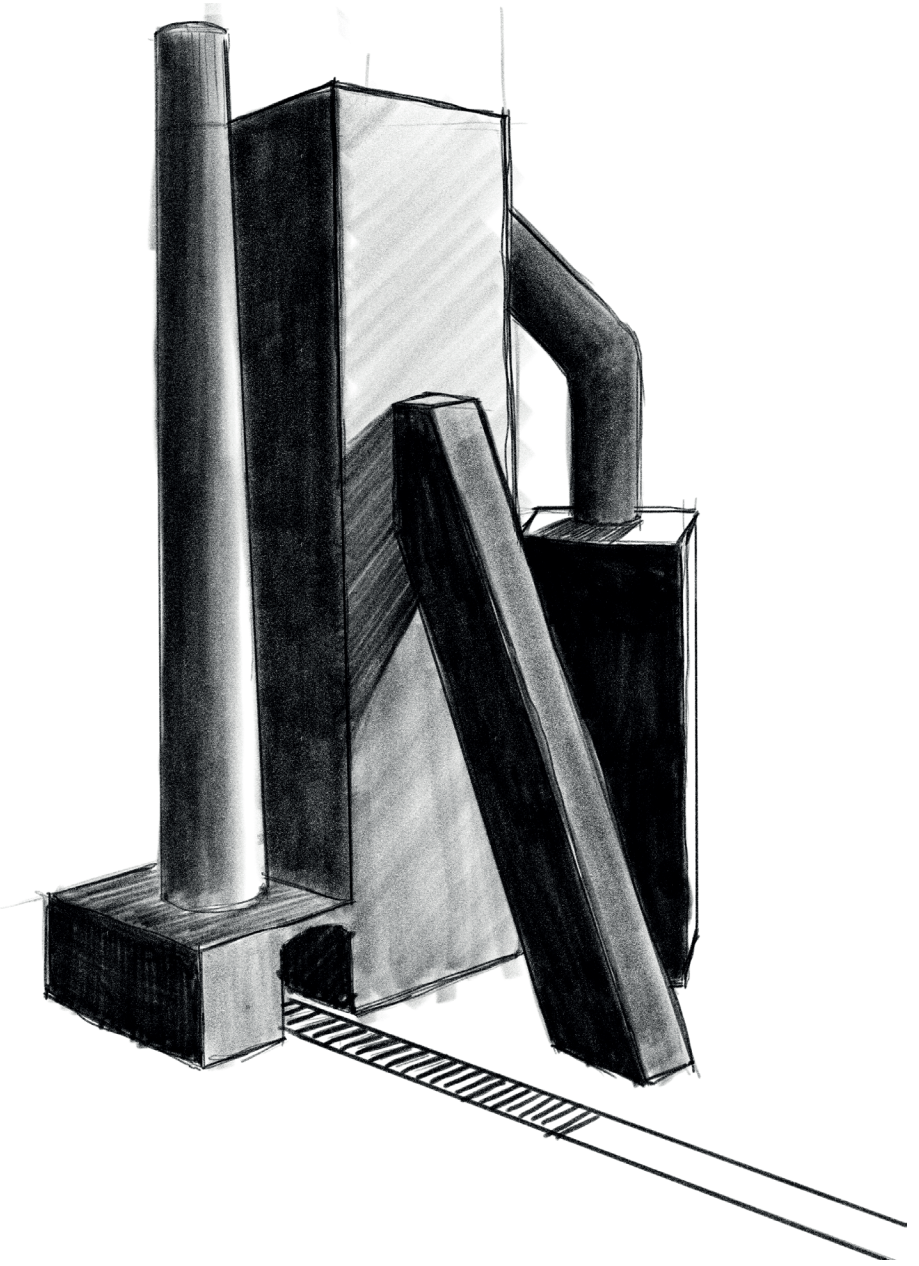


how great people can do. The facade that show us how the future will be. The form that flows around the function and covers it from the outside world is nothing but a form of expression. The function is kept hidden and all that matters is the abstraction which is also translated into the decor of the facades. This abstraction of the form, with the aspects of spirituality and religion, can be indeed very religious as the era is. Religion was oppressed into the shadows of fumes and factories and factories of progress overtook the forms. The two big towers rising to the sky weirdly reminds of the gothic cathedrals such as Notre Dame. Then the iconic shape is based on the technology and function but is purely the expression and abstraction of the idea.





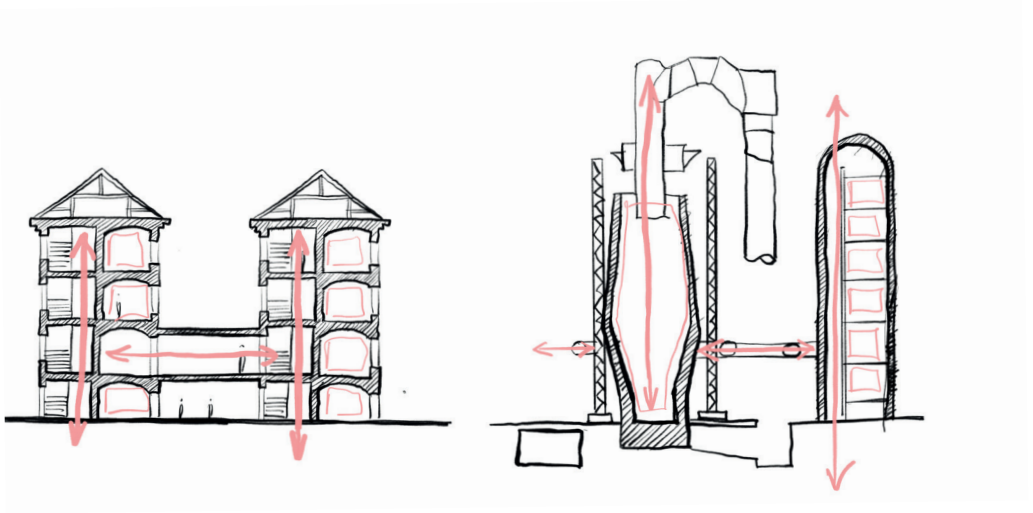


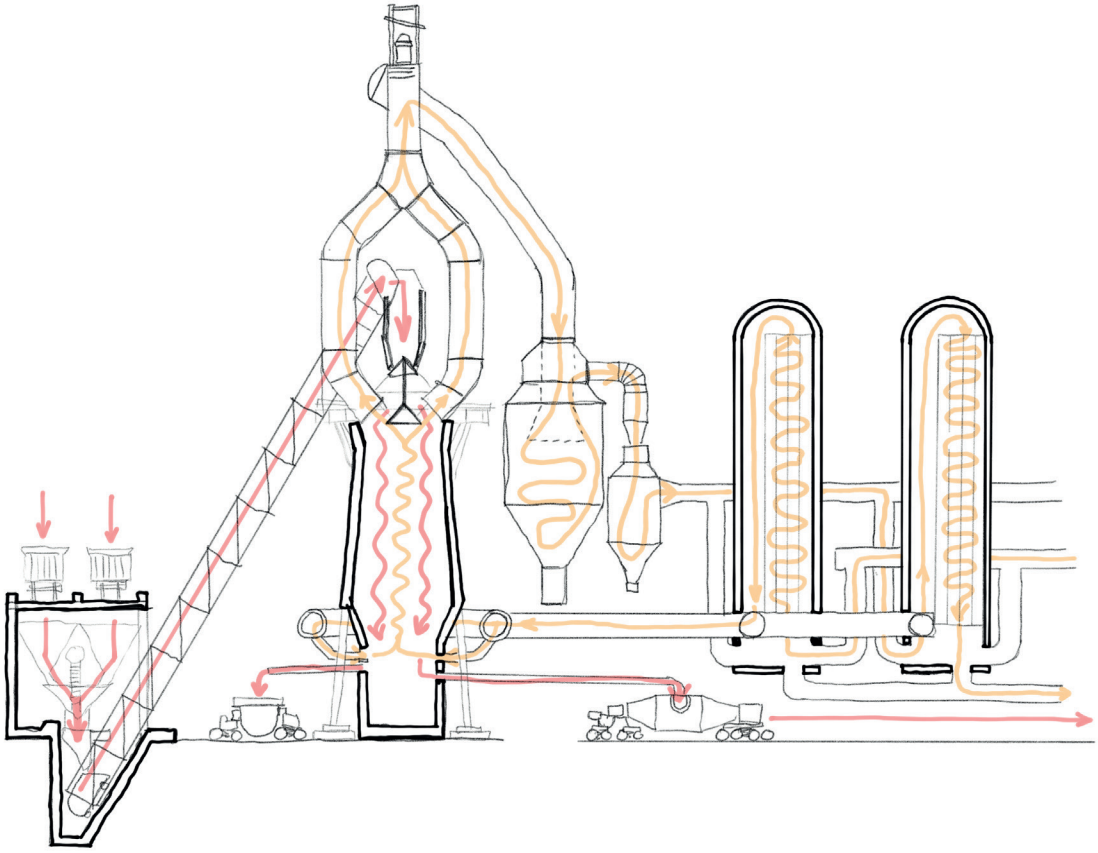


NATURE OF PURE FUNCTION AND EFFICIENCY

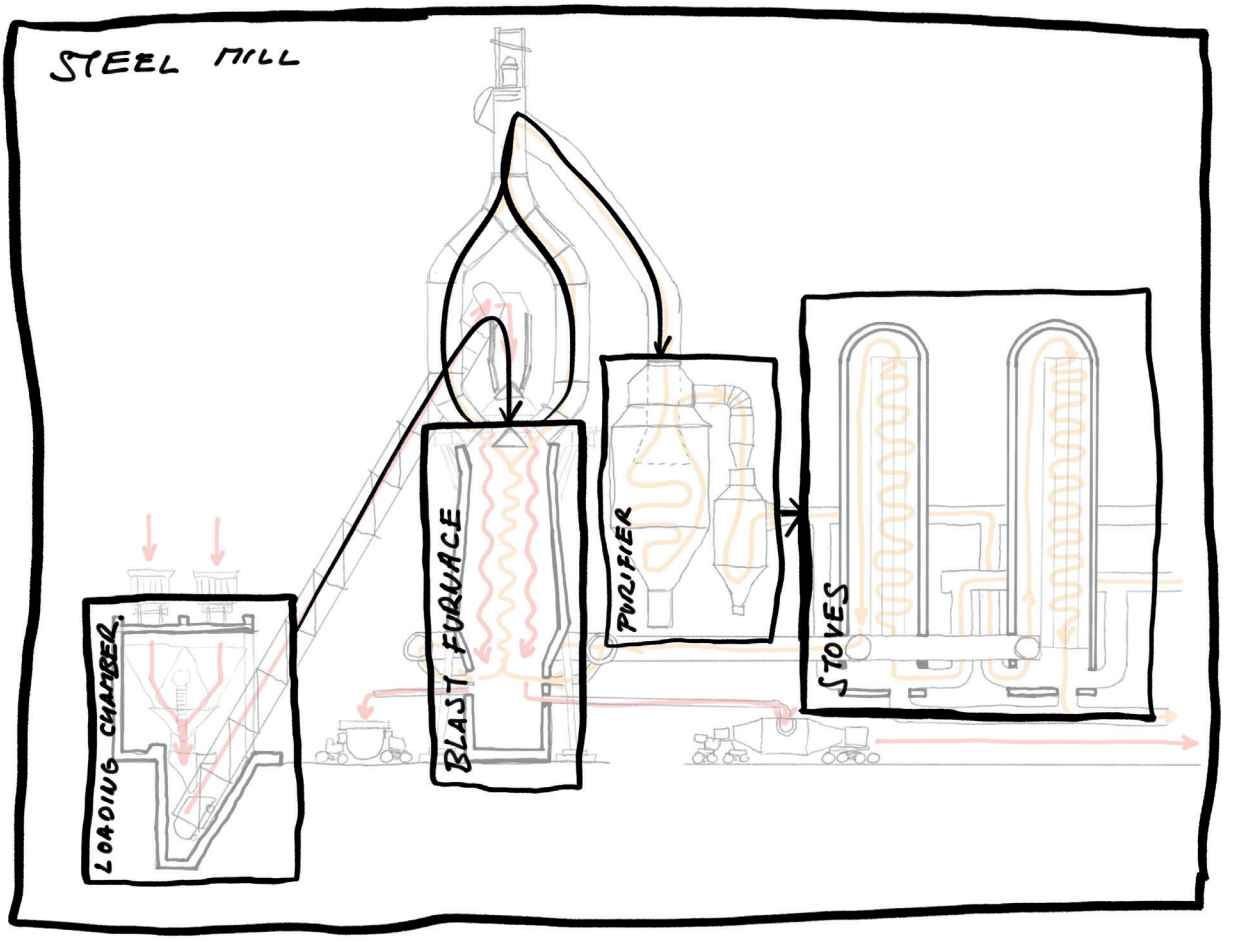
In contrast, the form covers what is important to the form itself. The function. In industrial areas such as this, there is no need to cover what is important. There are no spectators to judge the filthiness, therefore the function can be naked and liberated from the cover. Function freed from the facade also allows it to be looser. It does not restrict the flow of the connections between the different functions. Even though the whole process is designed, and focused on maximum efficiency, the structures seem to be more naturally grown compared to the ones in the halls. Of course, it depends on what the function needs. The steel mill in Landschaft park does not ask for the roof. We can say that it saves also the energy of workers but also the materials for something else. The expression of the factory is in its pure efficiency and the materiality of the structures. Metal allows making every shape possible, every size of the screw. The connection techniques vary from soldering, riveting or welding and do not require much craftsmen dexterity. The

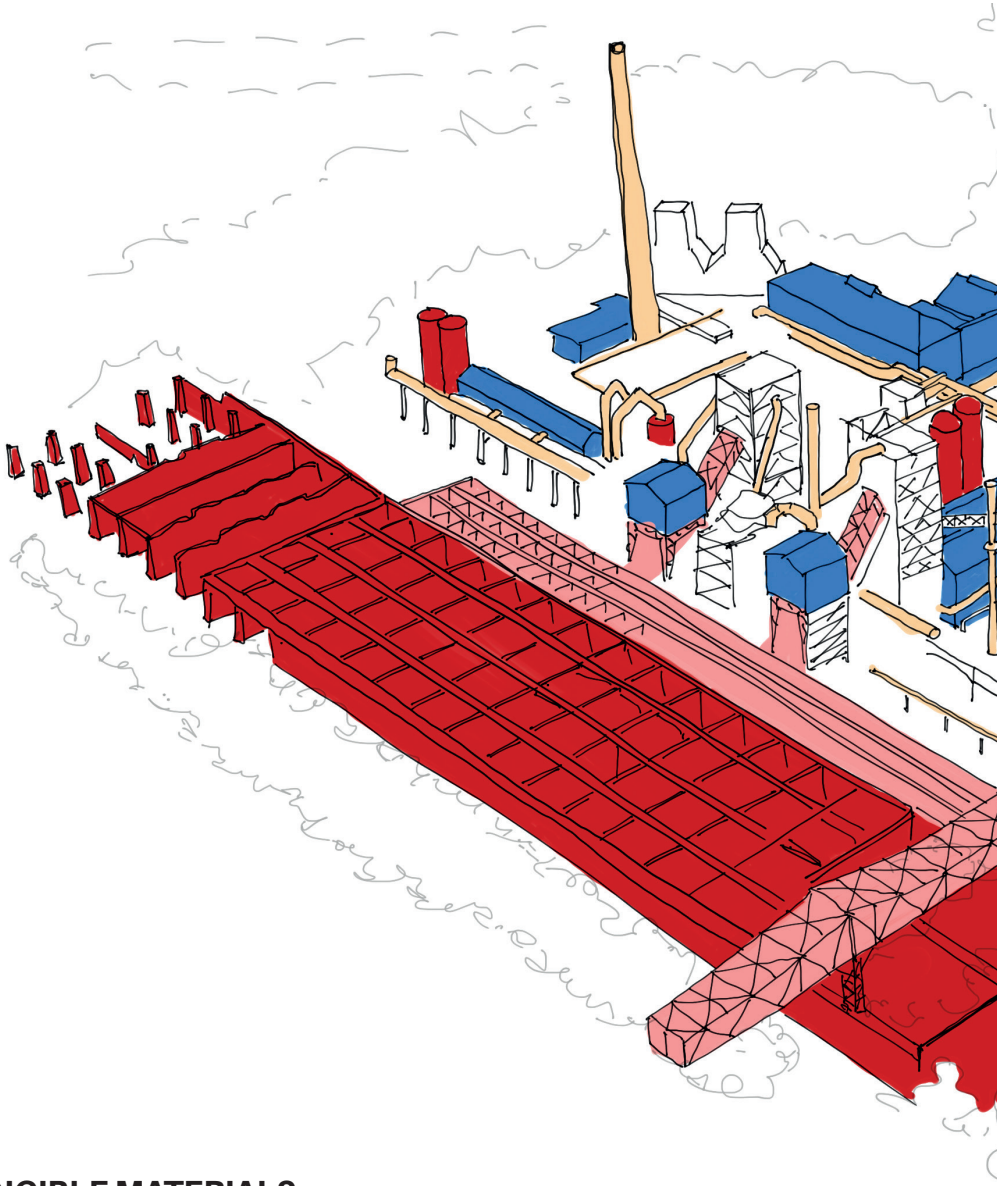
welder allows effective joints to be made in little time and give the industry the look it has. The process is the same as the shape also differs. Some factories, steel mills or refineries need more pipes than others. When we look at every production scheme in the industry it is clear that the function is based a lot on the transportation of units, either tangible or intangible, which are transported from one side of the factory to another. The whole structure of the process is mostly made by the transportation parts of materials, such as conveyor belts and pipes. On the other hand, the volumes for treatment or storage of materials are more vertical than the transportation and altogether it creates a balanced composition of vertical and horizontal parts which are very similar to the composition of residential buildings where halls and staircases are the transportation pipes and apartments are the chambers where it comes to transformation.



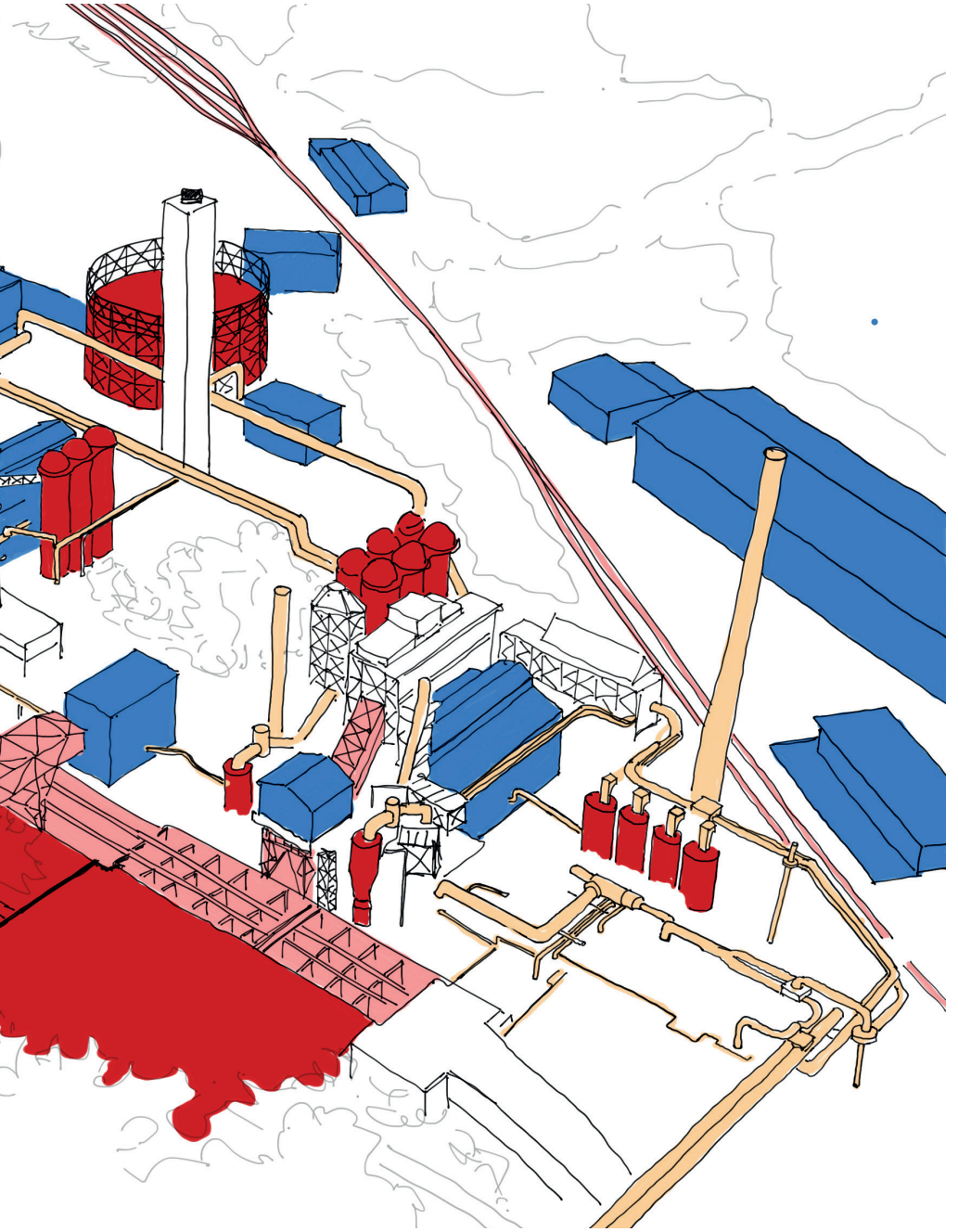


Same as the engine, also factory complex is made out of smaller parts where each part is as important as the other. When we zoom in to the complex machine as is the steel mill we can see that it is made out of separate functions to transform material to a different stage. We can zoom in indefinitely to the base of a function - It all starts with the simplest parts such as a screw and bolt. and merging two different parts and functions is creating another more extensive machine than the previous, but only together it can create such a machine. The complicated scheme of a steel mill when is analysed shows the smaller machines in a process. Between these machines, there are connections. Pipes, tubes, belts, pathways and staircases that connect every single machine to a function. When we describe the industrial complex as numerous machines connected together, it becomes more legible. The parts can be organized into groups with similar functional characteristics. Then it starts to come up from the messy industrial area and it is more clear what parts could be used for a different revitalized architectural function.


STEEL MILL
LOADING CHAMBER
BLAST FURNACE
PURIFIER
STOVES



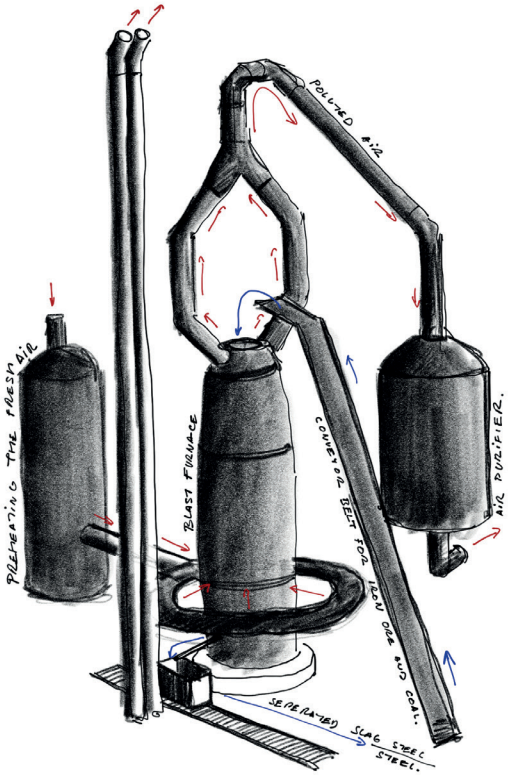
- **STORAGE**
- **TRANPORTATION OF TANGIBLE MATERIALS**
- **TRANSPORTATION OF GAS**
- **HUMAN SCALE STRUCTURES**



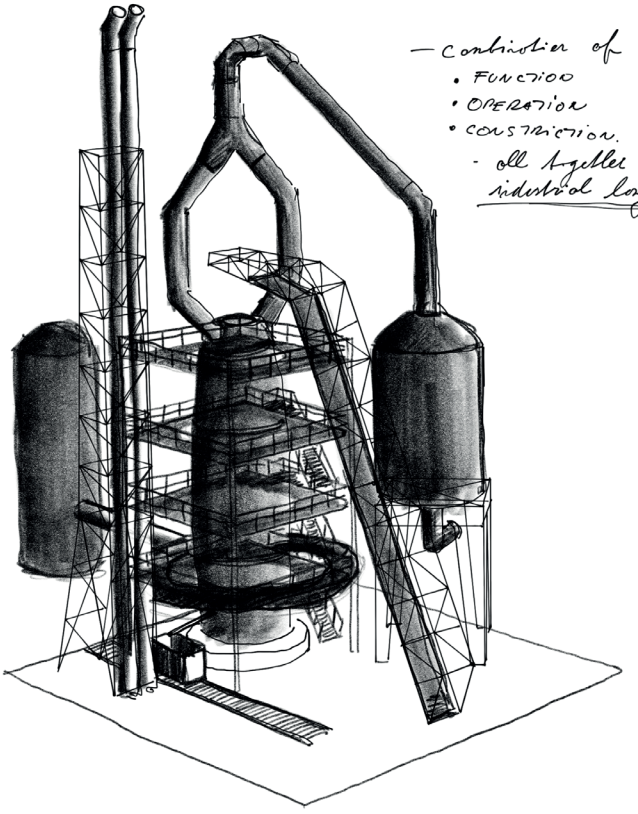
THREE LAYERS OF STRUCTURES: FUNCTION, CONSTRUCTION, OPERATION

The unit made of every structure, every wall, every railing is very complex. Looking at the complexity of the factories it is hard to come up with an abstraction that will help to determine something that brings up the qualities that can be used in our design.

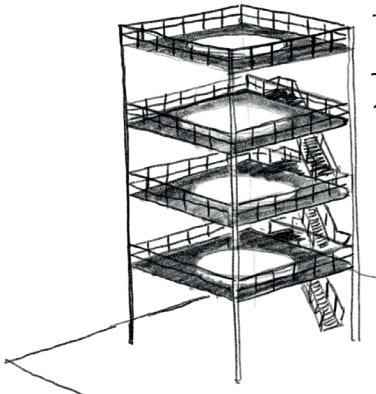
Out of the structures I have made a selection based on the purpose and divided the complex into these abstracted images. The findings were surprisingly clear, the three layers of the structures that I have distinguished are function, operation and construction. Let's not be confused with the words that can be used for everything, it mostly helps to explain what structures do what job in the whole complex.



FUNCTION.
PRODUCTION SCALE.



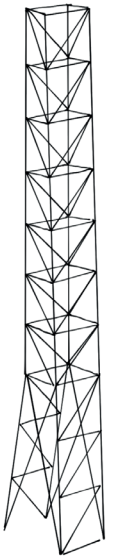
— combination of 3 different constructions.
- FUNCTION
- OPERATION
- CONSTRUCTION.
  - all together they create complex industrial language

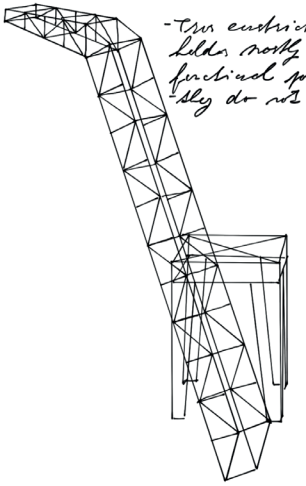


- higher platforms for operating the valves
- vertical pathways are usually
  - stair cases
  - ladders.
  - elevators.

- load as a result construction
- load is mostly for transportation, but the production stuff is mostly vertical.

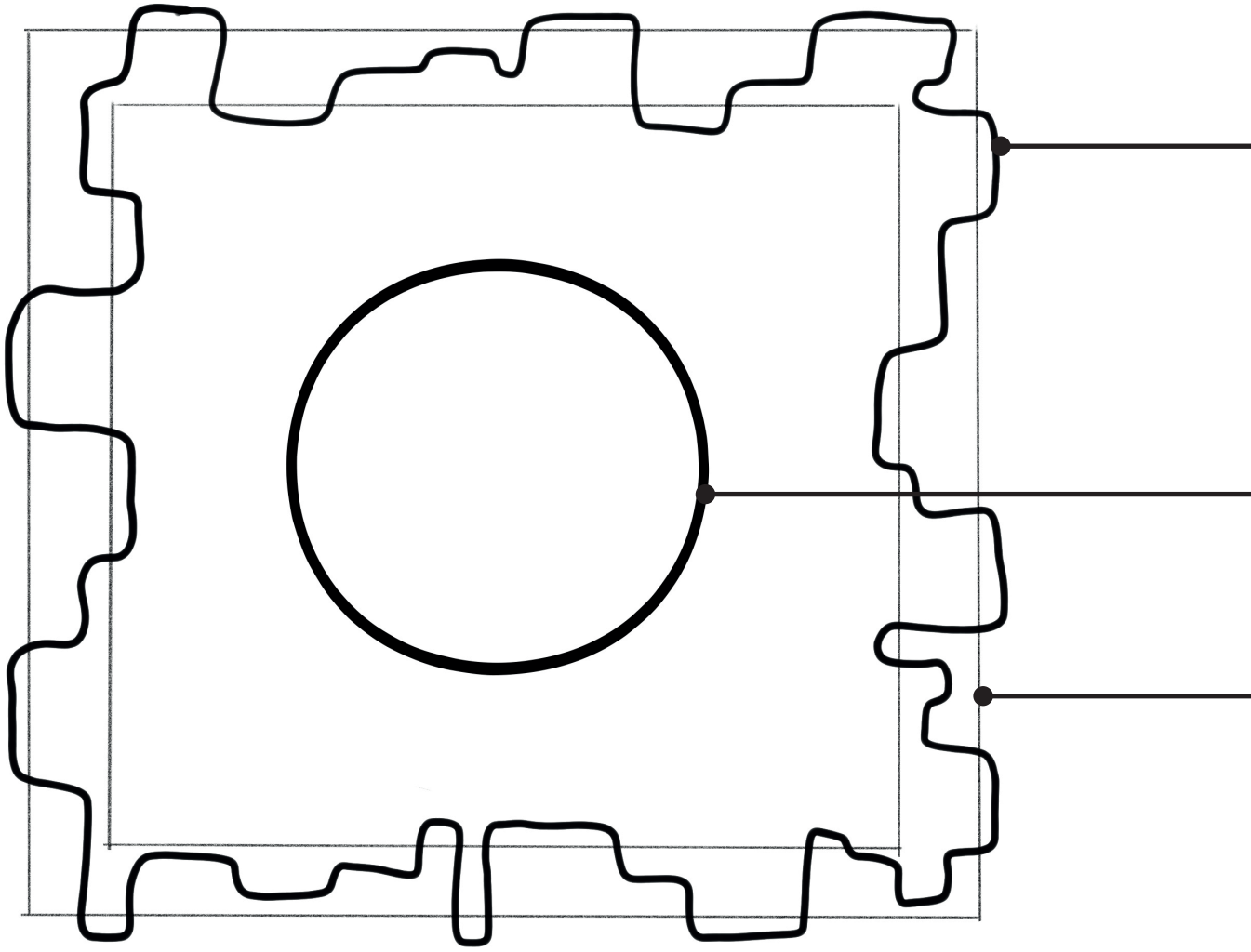
OPERATE LEVEL.
HUMAN SCALE.





- This construction holds mostly the functional parts.
- they do not

CONSTRUCTION FOR FUNCTION.



OPERATION

FUNCTION is the centre of attention. It is the structure that makes the purpose of the complex. Here the word function means also the function in the meaning of technology. The pure functionality and efficiency. Here the functions are the pipes and containers that work as storage or transportation of materials. The function is the structure for the process inside. The structure that creates or is the volume.

FUNCTION

OPERATION is a level in a structure that operates the function. In this case, the people operate the machines of a steel mill. The operation level is going around the centralized function and has a separation. The operation can also operate on the structure of a function that is a 3rd layer of the complex.

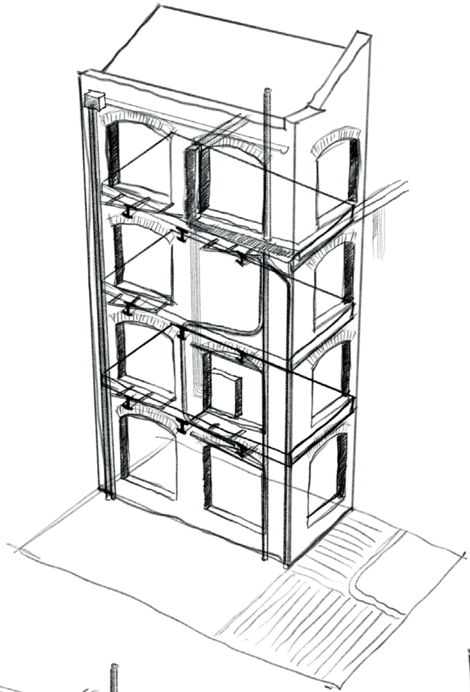
CONSTRUCTION

CONSTRUCTION is the structure that supports the function. These structures do not have another purpose other than a support for the function.

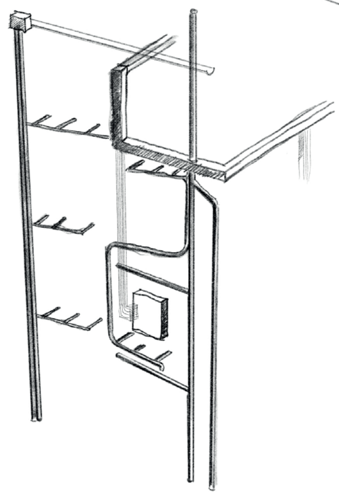
EXPRESSION AND FUNCTION IN RESIDENTIAL BUILDINGS

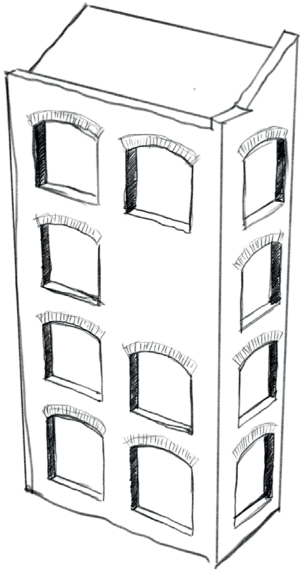
Following the process of model making and abstracting a fragment of a place, the third model is a model from Hackney Wick. This model shows an old warehouse that was reconstructed and repurposed into a residential building. The residential function clearly overwrites and alters the facade of a warehouse, creating an alike situation to the one in Duisburg. Pipes, bricks, humans. It all gets together in this complex structure.

To unfold an abstraction into another abstraction I have used the same 3 layer approach as before to see how a different function fits into the concept of 3 layers of construction. So let's take a look into the residential building more carefully.



- in residential building function
therefore the 3 layers turn and
operating machines but machines
- The operation and function
(to safe space? or is it logi





OPERATING THE FUNCTION
OF LIVING.

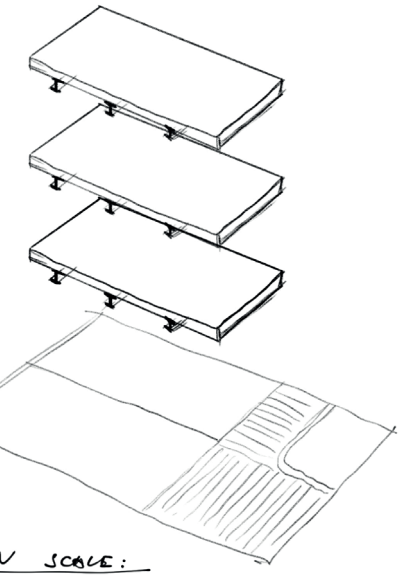
OPERATION.

ELECTRICITY, GAS, WATER

CONSTRUCTION FOR
FUNCTION

HUMA
~~OPERATI~~
FUNCTI

switch to human living
operation is not human
operating human.
is also elevated vertically
tically more reliable?)



V SCALE:
ION LEVEL 3
ON - RESIDENTIA

While the purpose changed. the function remained centralized. The human scale switched with pipes and metal containers. The function became the living of humans. From waking up until falling asleep. We can say that this is the process that is the function. The process of human life.

The operation also changed position with the humans. Instead of humans operating the machines now, machines operate us. It gives heat, light and water. It makes us go. It makes the function work. But the position of operation level remained around the function. It is in the walls and ceiling.

And all of this stand on the construction that holds the function and the operation at the same time. The construction becomes kind of a canvas for an expression of the function and operation.

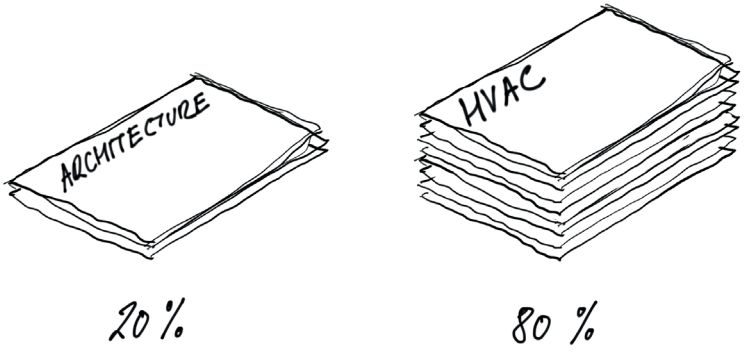
WHAT IS EXPRESSED ON THE FACADES?

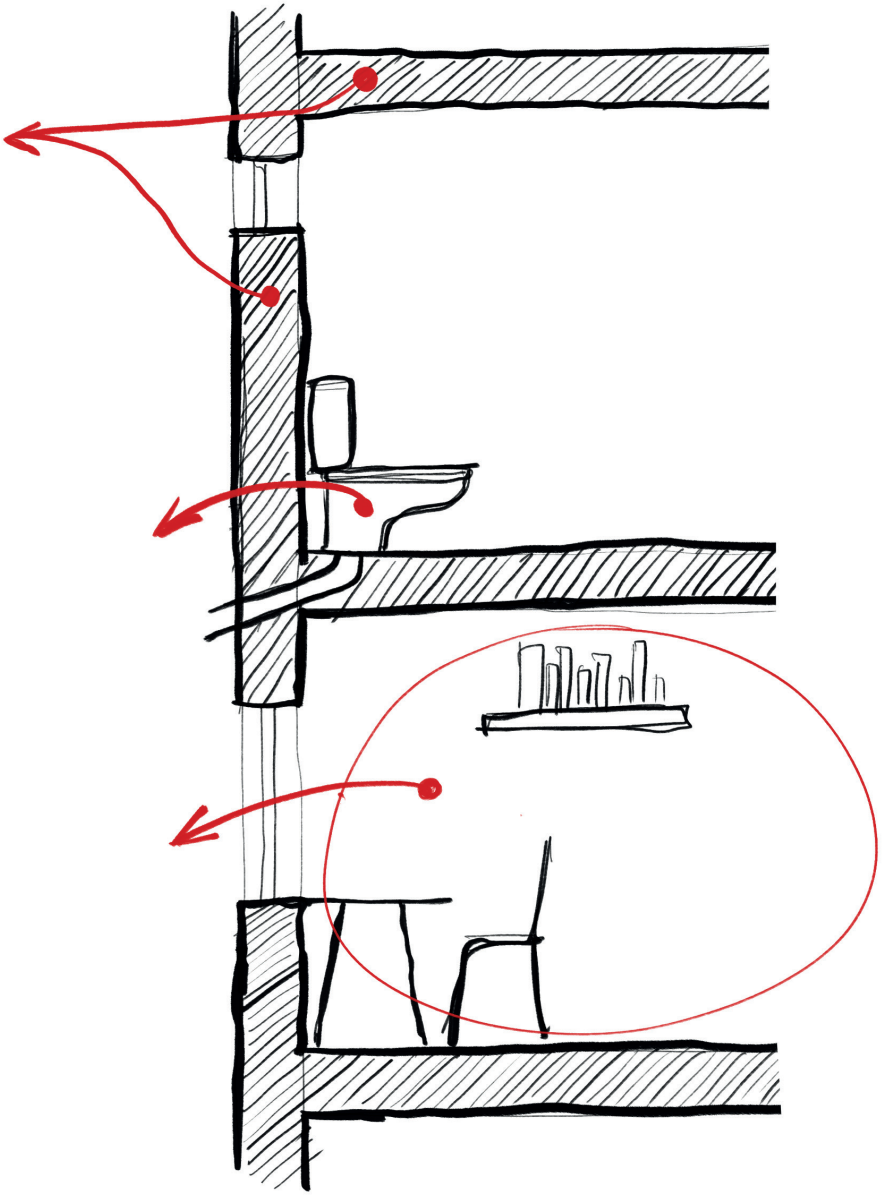
When we go back to the expression of an industrial architecture - which out of these three layers are mostly expressed on the outside of the building or structure? Is it the function of the building, operation level, construction or all of them together?

Modernists and functionalists claim that architectural facades mirror the function inside. And by function, they mean the activity that happens inside of the structure. For instance, Adolf Loos, when he rejected all of the decoration on the facade, the only decoration left were technical permeations such as windows. Only this evidence of what is happening inside formed the facade composition.

But not only the function or activity is expressed on the facade. For it to be expressed it needs a "canvas". Construction works as a grid with its own expression that allows other aspects to express themselves. While the function happens in a 3d space, the functions and technology are reflected on the outside - the facade.

In the project documentation, the architecture part makes only around 20% of the drawing documentation while technology drawings or so-called "HVAC" makes the rest. It is therefore clear that technology must have an extensive impact on the expression of the building, nowadays

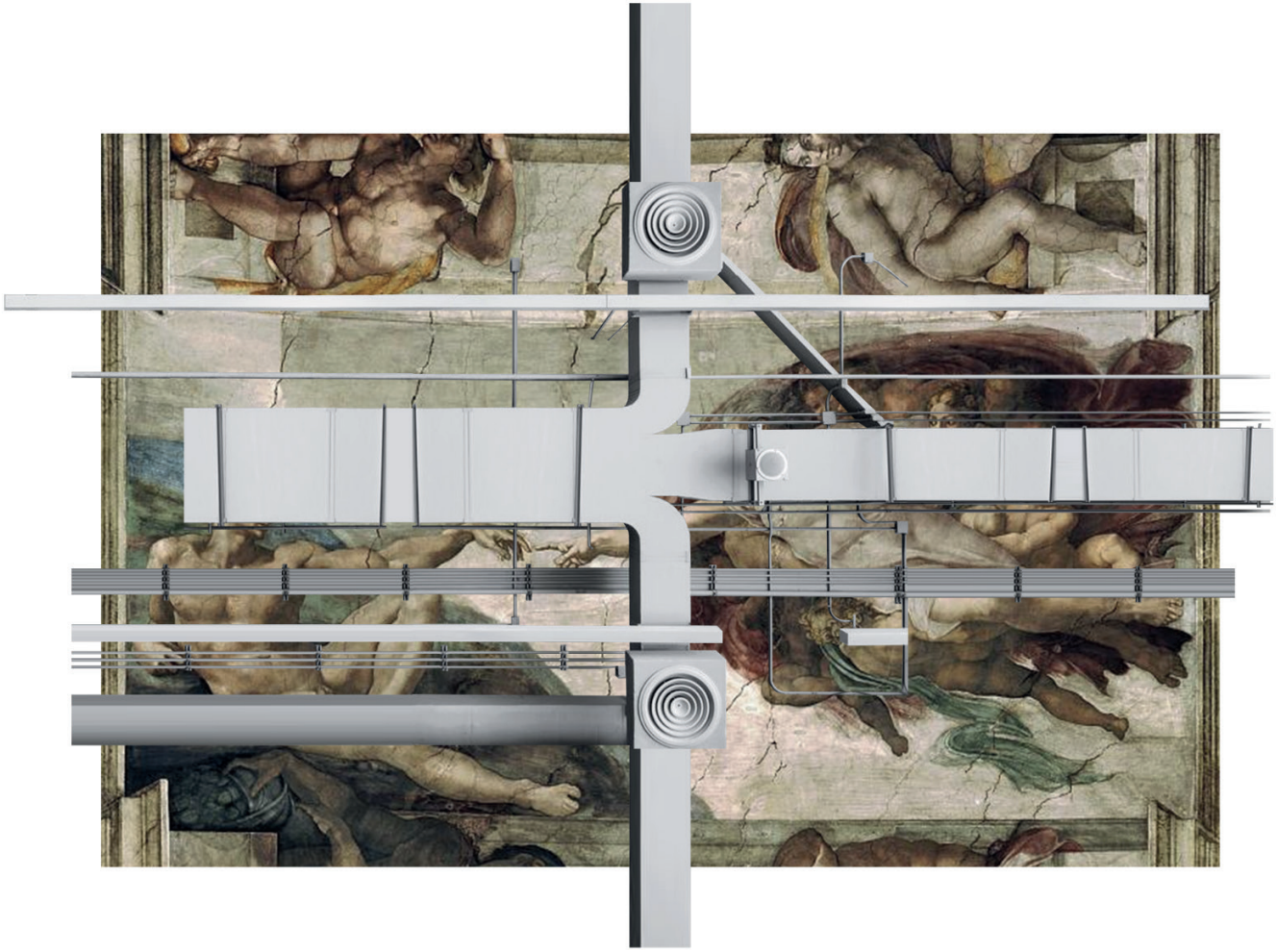




maybe even bigger than anything else. While we put so much importance on the technology in the housing, such as AC ventilation, heating, electrically controlled window shading, smartphone-controlled bulbs, rooftop photovoltaic panels, electric car chargers and more, it can sometimes cast a shadow over architecture and the decor. The modern electric age makes us neglect everything else but the "operation level."

NEGLECTION OF DECOR OVER FUNCTION

In many cases, technology overlaps the facades and decoration. On the collage of "the technology expression" are pictured few operation technologies that express themselves on the account of the architectural facade. Instead of big windows that offer natural light and ventilation, these technologies take over the used space and artificially substitute light, heat and air. Not only that it is a foolish approach to substitute natural with artificial but it also represses the architectural qualities.

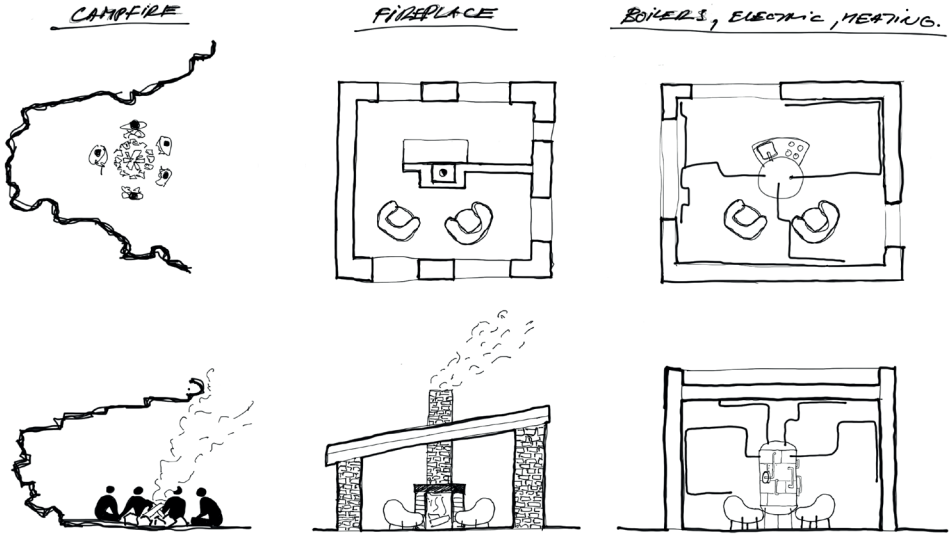


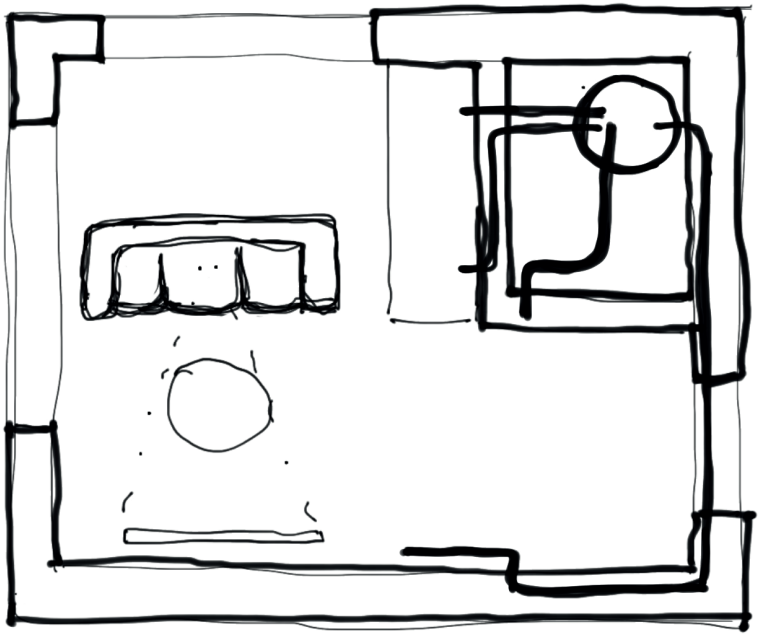
HYPOCRACY OF TECHNOLOGICAL REJECTION - TURNING AWAY THE FACES

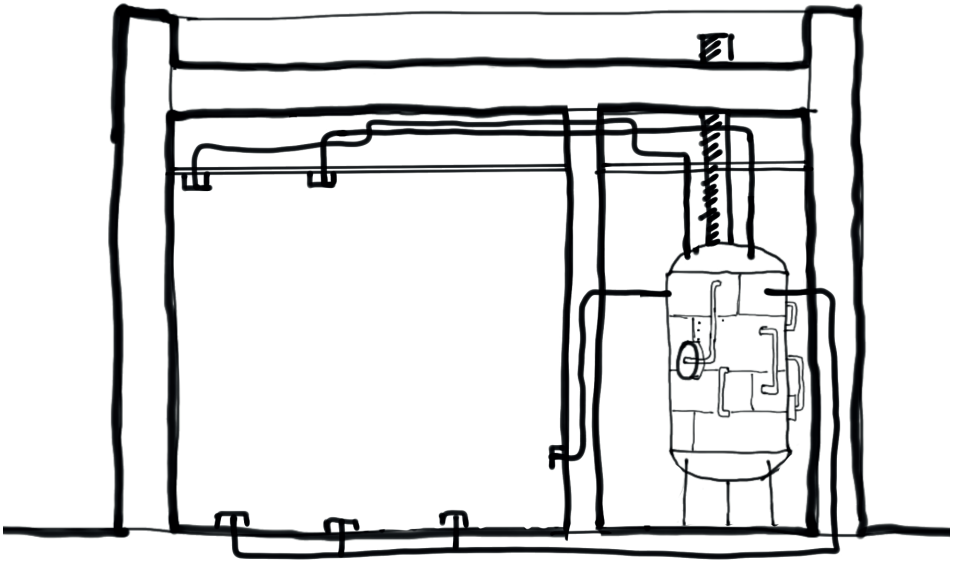
Despite the importance, we put on technology we tend to hide it. We push it to the corner of disposition. We hide it behind a wall and a fake ceiling. We choose to live in a denial of technology while using its products and that makes us hypocrites.

Many times I heard how ugly the heating plant is and it should be moved from the city, but not many people realize that it is this heating plant that heats our homes. In Brno, the heating plant Teplárny Brno brings heat to 80% of residential buildings and the location is fundamental for the effectivity of the heat transport. But people often tend to forget what stands behind the final product as we tend to hide what we do not like. The technological part of the house is pushed to the side or to the roof where no one can see it. Technology is banished to the exile behind the wall while we depend on it 100%.

If the main reason for the denial is the aesthetics of the technology, why do we think of it as something disgusting? Yes, The expression and the aesthetics of the machines and technology are completely



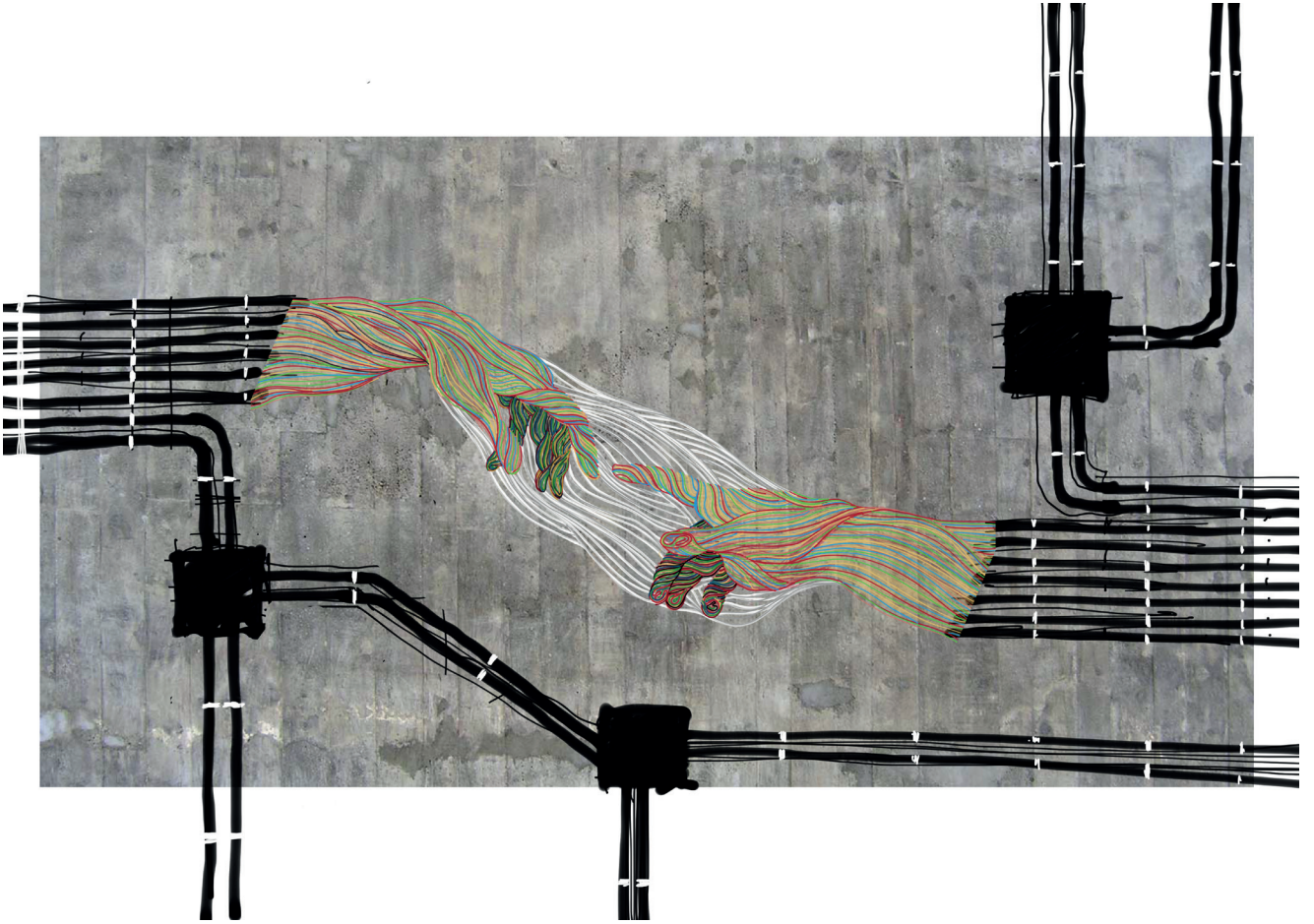




different from the normal architectural aspects, but it has already become a part of it. Technology is still very young in our culture compared to archetypical structures and solutions, so maybe it only needs time for it to be acknowledged. If we would acknowledge and take advantage of the technology rather than repressing it, technology and the operation level could even have the potential to become a nice expression of the building. It would not be just an addition to the architecture that spreads throughout the building like a parasite. It could be used as a part of architecture and moreover, we could learn how to use it in an artistic way.

With the right approach of the use of technology in architecture, it can even become the architecture itself as Banham says in one of his articles: "With the ever-increasing amount of technology the self-supporting technology can become a building structure leaving the architecture out of the design. therefore the technology would become the structure of the building and its architecture"

Banham´s reasoning for the neglect of technology lies in a fear of technology taking over architecture. Architects are scared that HVAC engineers will take over the whole process and the architecture will vanish, therefore they refuse to properly work with the potential of technology. But in order to keep the profession of architects, they need to adapt and learn how to use it in their own design process.



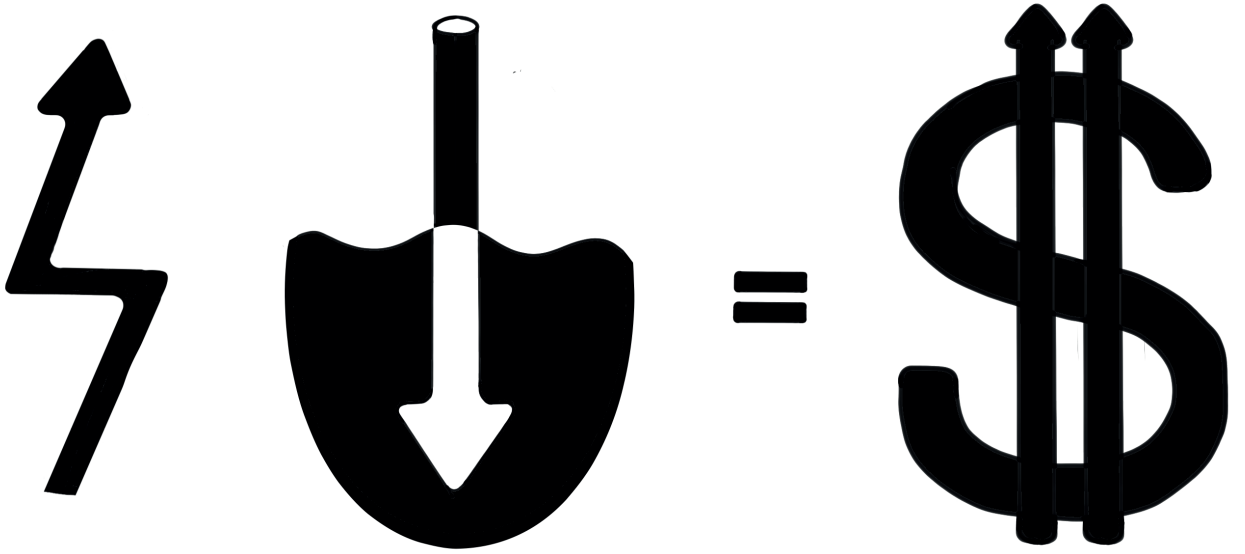
POST-OIL ERA / PASSIVE HOUSING

Due to the increasing use of technology in housing and our lives, electricity consumption is rising, while fossil fuel resources that power this electricity demand are getting lower every year. This situation reflects in the increase in the price of energy.

To prevent the consumption of energy, every year we create new restrictions and regulations on the environmental disruptors. In other words, we alter our lives, eating habits, cars and houses that generate too much CO2. However, this alteration does not solve any of these problems. Every change in the name of salvation is nothing more than a displacement of the problem somewhere else. Somewhere where we do not care.

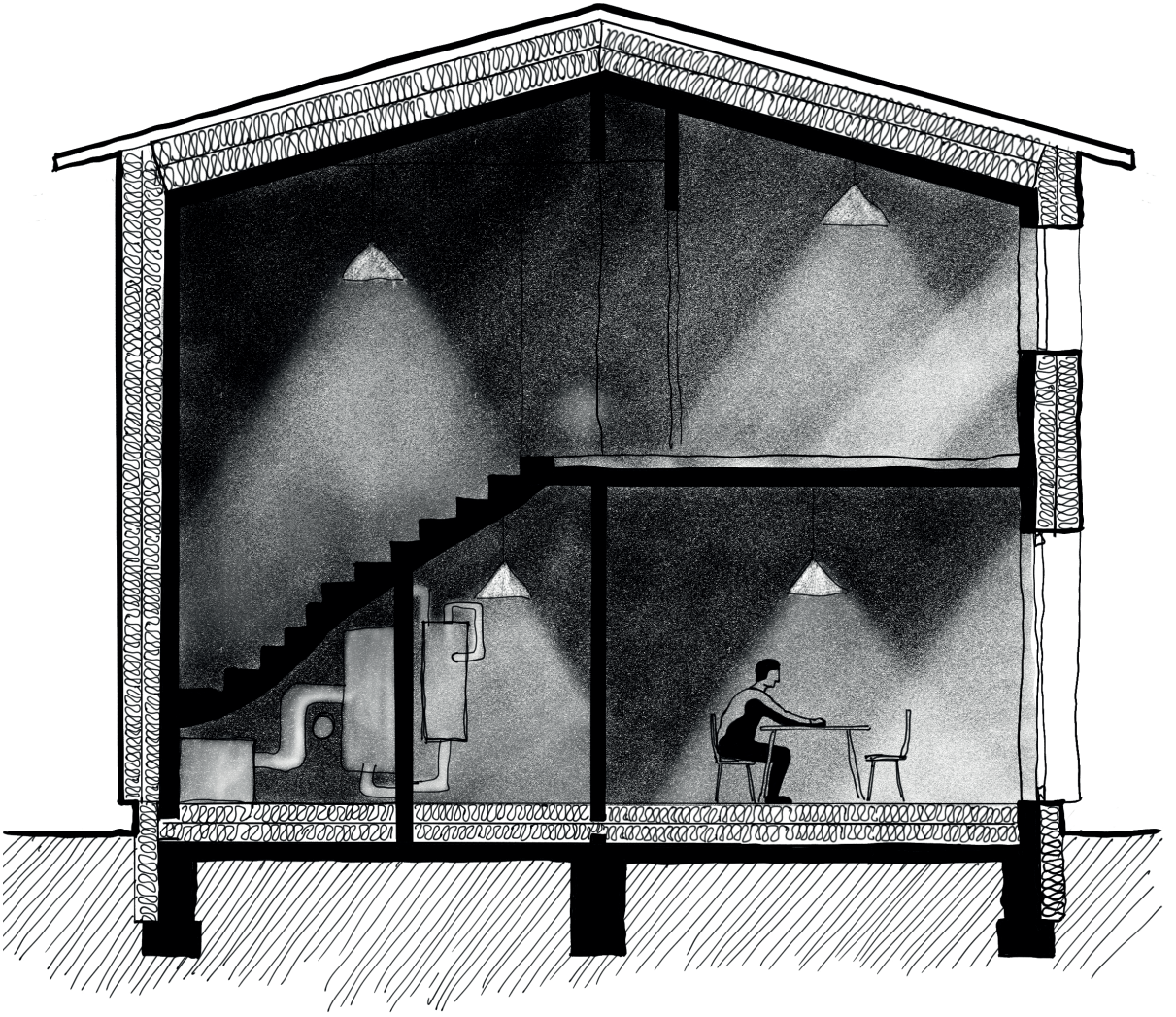
Every year we put more and more demand and restrictions on the facades of the buildings to avoid heat loss instead of thinking of how much necessary energy we use and waste. As a solution, we make plastic polystyrene coats for every building to reduce the environmental burden. But what about the production of polystyrene which is adequately harmful.

This current approach is not just taking over architecture and making generic design buildings all over the land but is causing an indefinite loop of environmental problems, from which it will be harder and harder to get out. The only answer to this paradox I can think of is that it is not an issue about the environment, but about the money and expenses.


ENERGY CONSUMPTION
FOSSIL FUEL RESOURCES
INCREASING IN PRICE

Nowadays, the actual section of a current passive house standard looks like this: It is a completely sealed interior space covered with 300 mm polystyrene, minimal windows only on one side of the building and the most basic rectangular shape. The sealed up structure has to be lighted and ventilated artificially with the technology which is hidden inside. We are trying to make an independent house but in a paradox, we are creating a house that is and will be always dependent on the electrical system as it has to artificially substitute what the sealed structure does not allow to come in.

Where will we end up, if we keep with this approach of repressing the facades and shape? This is a sketch of a small space in a most efficient shape with no windows to prevent heat loss, but it will still need to be plugged in to be used.



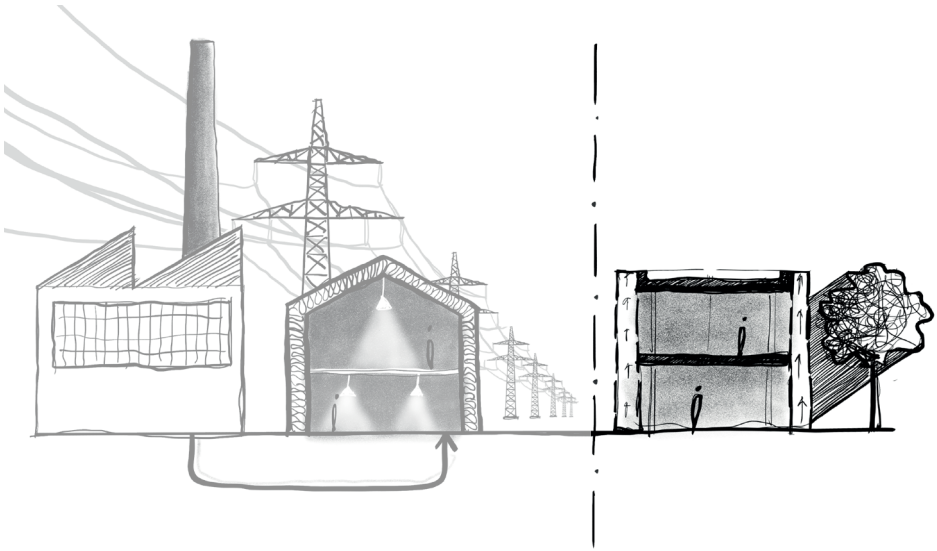
But why do I talk about electricity consumption in the research of machine architecture? We all can see several industrial sites that were abandoned or demolished due to a lack of resources or obsolete technology. The heritage sites that are lucky enough to remain standing are the clear symbols of this phenomenon. The machines are silent and containers empty. The technology made for a specific resource cannot be reused for a different one. The industry is unplugged from the source of power and the industrial haste momentum becomes a cold, static motionless empty corpse.

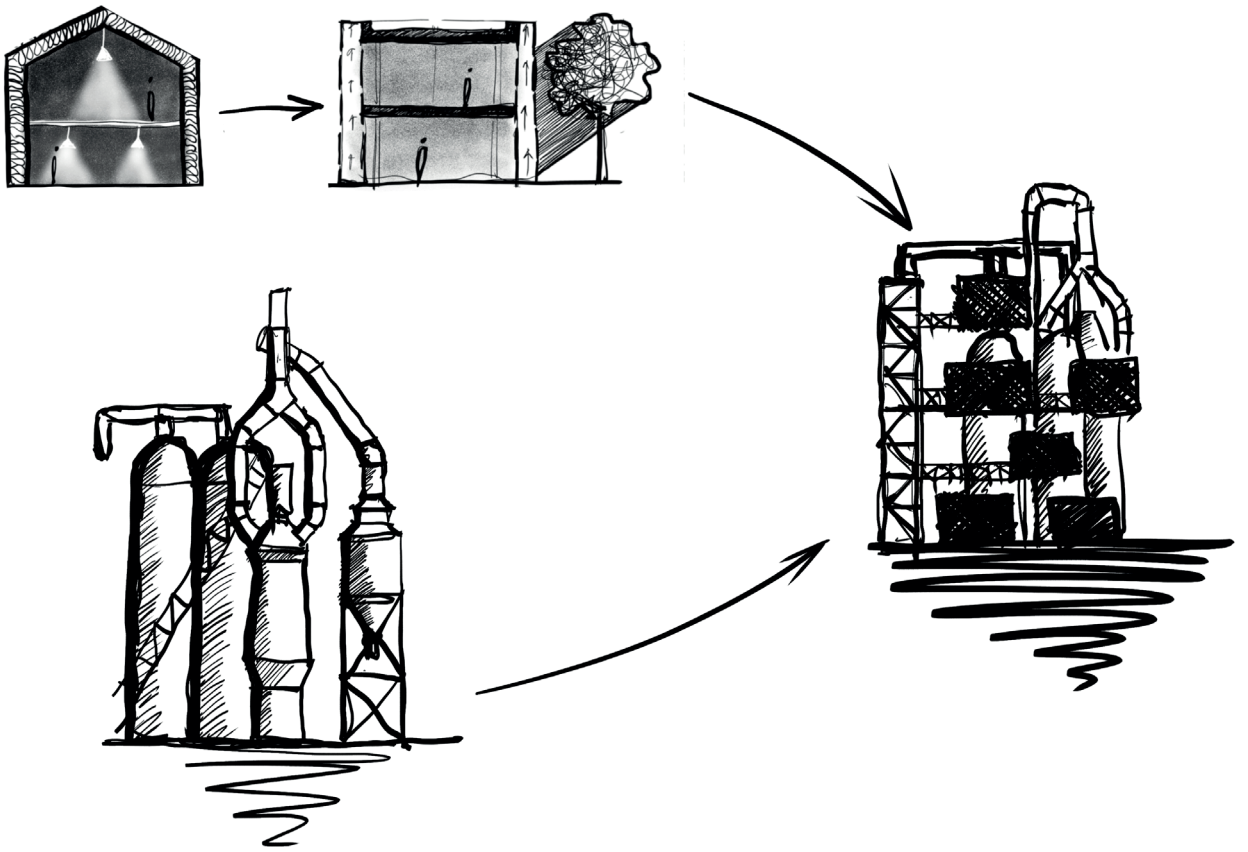
I am worried that this will also happen to passive houses. If there is a resource shortage that cannot power the high demand of energy consumption, houses that are dependent on electricity and external power will become dark cave-like overheated structures. These houses will be useless and non-reusable in the post-oil and post-coal age and we will have to demolish them and build more suitable ones for the future context.

DESIGN PROPOSITION

So as a conclusion to this observation, instead of creating electricity-dependent structures that will become obsolete and useless, we should design a NO ENERGY HOUSE. A house for a living that is not plugged into the system, does not use any electricity and uses only environmental design for natural heating, shading, ventilation et cetera. In other words a self-sufficient machine.

Because of increasing abandoned structures that are not powered anymore, a place for this experiment of NO ENERGY HOUSE would be well fitted in the post-industrial context such as Landschaftpark. This experiment of a new way of living would use only materials and technology that are already available on the site. That means no extra energy will be put into making new materials or transporting them from a far distance. With this experimental method, the design will keep the expression of the machines and the heritage of the industry. More importantly, the NO ENERGY HOUSE will repurpose the function of the area, create a self-sufficient living and will make a whole new machine that works on no fuel.





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