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Introduction

My pre-diploma semester has been an investigation of the growth of the city. How has it expanded and why has it turned out the way it looks today? What is caused by nature and what developments has buildings and their functions been decisive for? I did not find all answers, but I came closer to a holistic picture of why Oslo city looks the way it is today.

For my diploma, I knew that I wanted to work with transformation in some way.

The mapping was an urge to find places, and structures, that does not fulfil their potential today. I was looking for a function that had seized to exist in the city, planning to find a strategy for reusing them.

Too many buildings are demolished despite their architectural value, building capacity and in terms of sustainability. I think the best way to secure the surviving of a structure is to transform it into a program needed today.

Working with transformation is different than building something from scratch. The concept must be the structure itself, its odd details, organisational logic, and existing qualities. These can be exaggerated or hided, but they are there, waiting to be addressed. This is, in my opinion, what makes transformation interesting.

the Rivers

Around year 1000, Oslo was founded at the mount of Alnaelva. The rivers have always had an important role in the city. Firstly, as water sources for people, animals and meadows. Secondly, as the basis for the industrialisation of the city. Both Akerselva and Alnaelva has had a lot of industrial activity since the middle ages. Building factories and mills along the rivers has been decisive for the placement and growth of the rest of the city.

As the industry grew, the rivers became more and more just a drain for the production waste. They became smelly scars through the city and when electricity came, the rivers were redundant in the city scape. Both Akerselva and Alnaelva where redirected into underground culverts many places. In the middle of the 1900s the municipality further moved Alnaelva, to make space for efficient communication (highways, railways) towards the city centre.

The buildings of industry, however, was not removed. Eventually, most production disappeared from the city and many of its buildings were left vacant. The previous production city had become the recreational city.

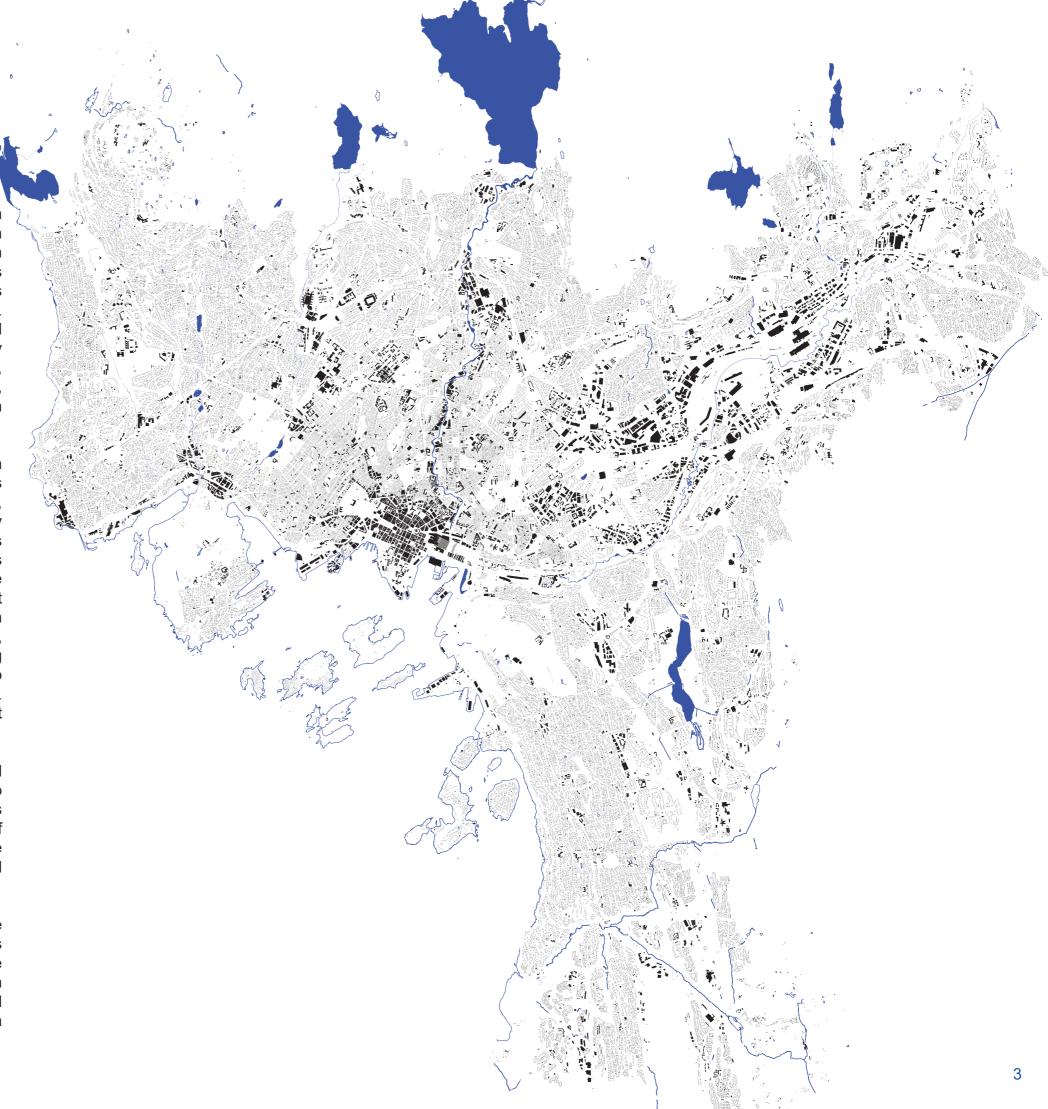
Alna river (previously Brynselva, Klosterelva and

Loelva) is the longest river in Oslo. It runs through eastern part of the city, from Alnsjøen in Lillomarka to Bjørvika. It is 15km long and falls 237 meters from the source to the fjord. The biggest waterfalls, and therefore where the industry has been most prominent, are found at Leirfossen, Brynsfossen, Nygårdsfossen and Kværnerfossen.

From 2001 it has partly been dug up again. The walk leads you through Groruddalen, a valley characterized by infrastructure, warehouses and satellite cities. The river is something else than the more visited Akerselva. It is messy. It is quiet. Signs along the path explains that this messiness, the fallen trees and rotting sumps were kept that way to keep the existing biodiversity. This is nice. The river is not only for people.

This map shows lakes and rivers in Oslo on their way to the fjord. The black buildings are non-residential. Many of them are placed along the river, and are traces of our old production city.

The gray buildings are residences, whilst the black is not. Residence is a shorgate in the city, hence the high rental and buying prices. I will therefore not focus my diploma on transforming any of them.



the Production

Oslo previously produced most of what was demanded in the city, from food to building materials. Here are some of the biggest and most famous businesses.



ELECTRICAL PRODUCTION

Standard telefon- og kabelfabrik Tandbergs Radiofabrik NEBB Oslo Lysverker Elektrogården



FOOD PRODUCTION

Erlanger Bryggeri Schous Bryggeri Frydenlund Bryggeri Ringnes Bryggeri Bergene Sjokoladefabrik Bjølsen Valsemølle Sætre Kjæksfabrik Christiania Bryggeri Nora Fabrikker Freia Chokoladefabrik Jarlsberg Mineralvann

Coca-Cola



METAL PRODUCTION

Christiania Spigerverk (1853-1993)
Thunes Mekaniske Værksted
Skabo Jernbanefabrik
Andersen og Co. Metalvarefabrik
Norsk Jernstøperi
N. K. Nielsen Jernstøperi
Oslo Sveisefabrikk
Støperiet
Christiania Jernseng- og Jernvarefabrik
Oscar Skotvedt Mekaniske



TEXTILE PRODUCTION

Christiania Seilduksfabrikk
Nydalens Compagnie (1847-19634)
Hjula Veveri (1855-1957)
Nedre Vøiens Bomuldsspinderi (1846-1946)
Timms Reperbane
Shoddyfabrikken
Den Norske Skofabrikk
Joh. Petersen Lin og Bomuldsfabrikk
Blystad Fabrikker



BRICK PRODUCTION

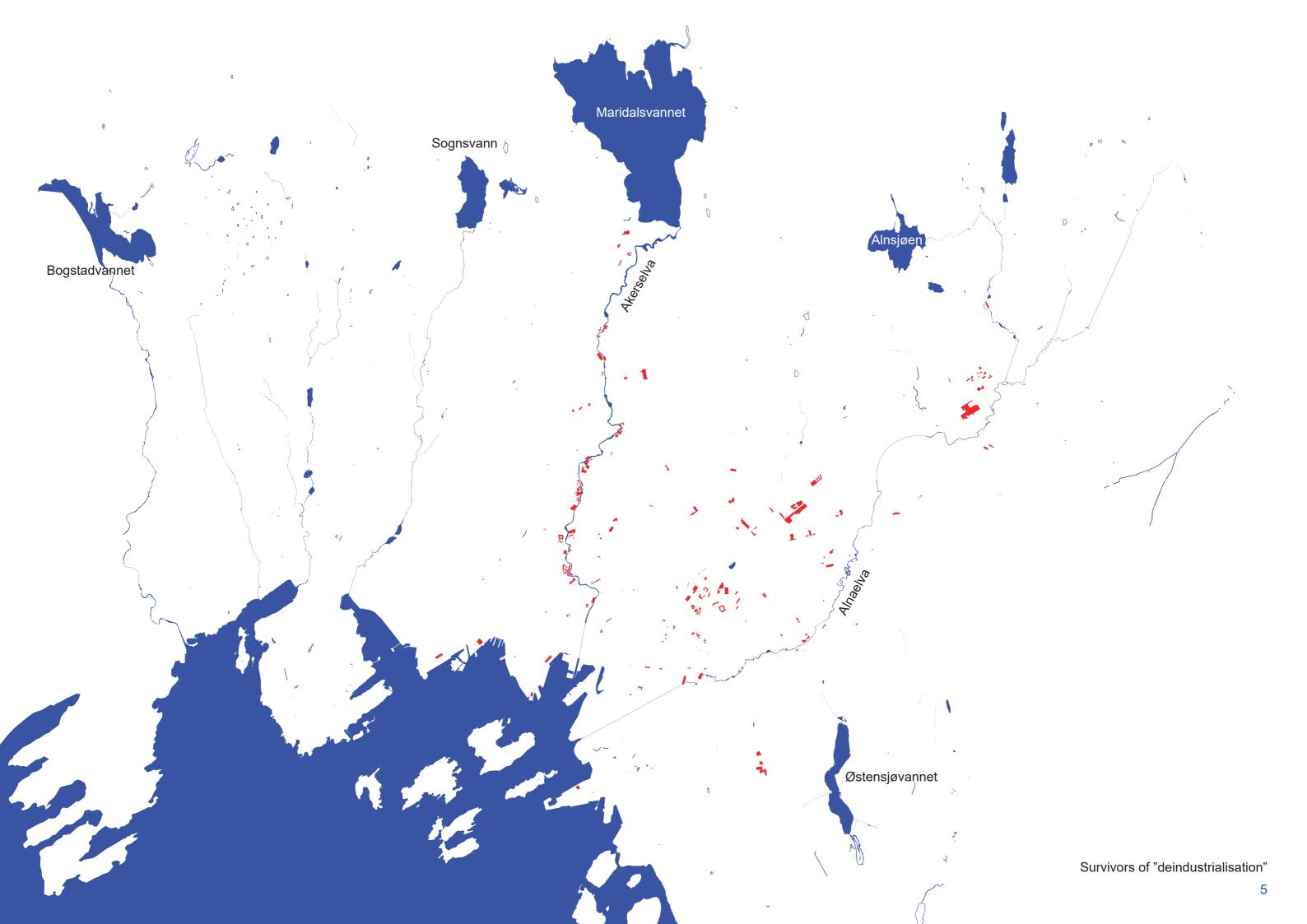
Akers Teglverk
Alna Teglværk
Bentse Teglverk
Bislet Teglverk
Bjølsen Teglverk
Bredtvedt Teglverk
Bryn Teglverk
Dæhlengen Teglverk
Ensjø Teglverk
Hasle Teglverk
Haugens Teglverk
Haugerud Teglverk
Havna Teglverk

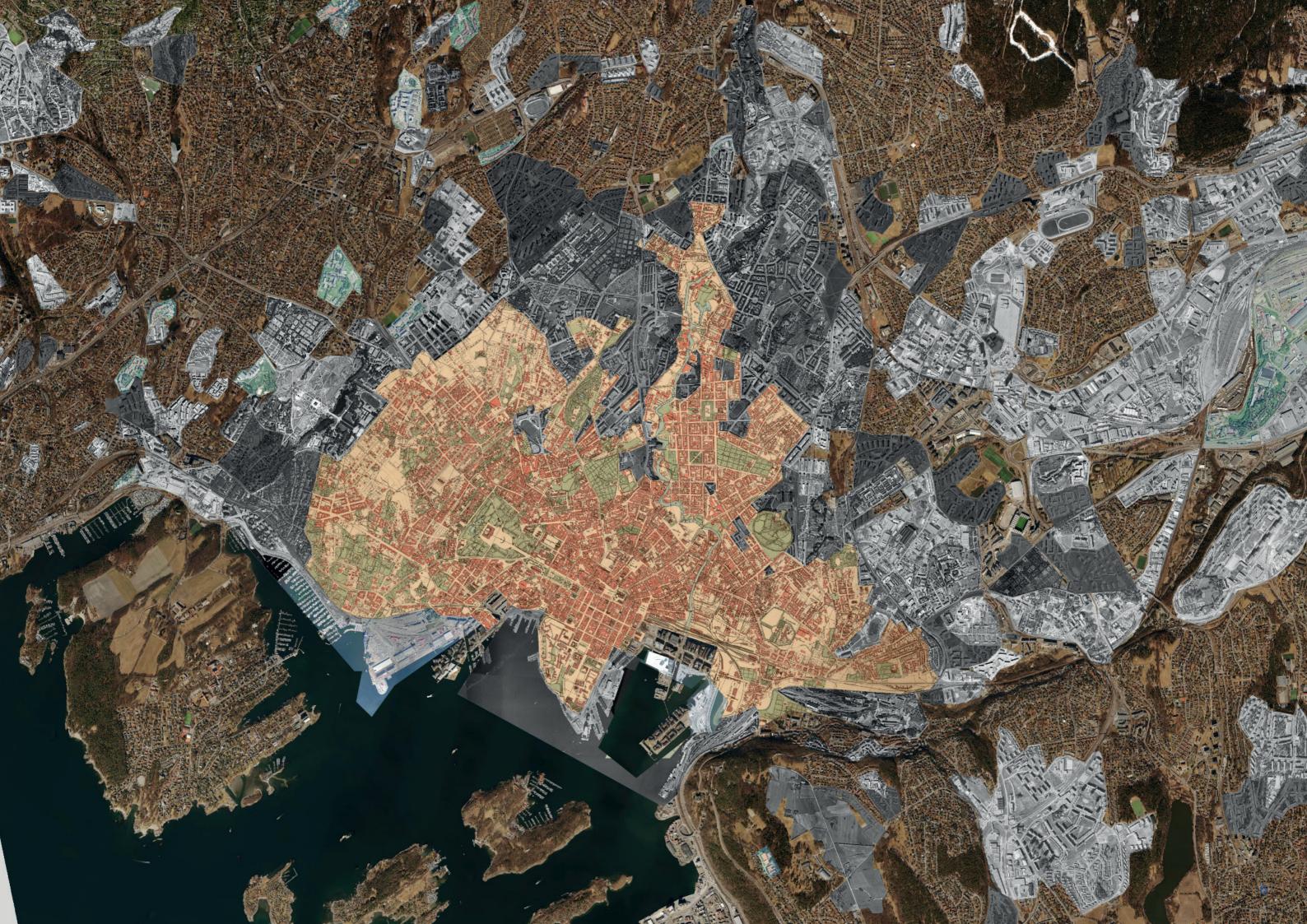
Holmboes/Holmen Teglverk
Hovin Teglverk
Håkon Vs Teglverk
Høyenhall Teglverk
Jordal Teglverk
Kasa Teglverk
Kristiania Teglverk
Lilleberg/Lenschow Teglverk
Lillo Teglverk
Mellomverket Teglverk
Munkehagen Teglverk
Nes Teglverk
Normannsløkken Teglverk

Nygaard Teglverk
Pilestredet Teglverk
Regineborg Teglverk
Ris Teglverk
Schultzehaugen Teglverk
Smalvolden Teglverk
Sollerud Teglverk
Svendengen Teglverk
Teisen Teglverk
Tobiassen Teglverk
Voksen Teglverk
Økernlund Teglverk

OTHER PRODUCTION

Sotafabrikken Den Norske Zinkhvidt-Fabrikk Norske Destillacionsværker Bryn Tændstikfabrikker Nordox Kemiske Fabrik





the City

The map on the previous page is a collage of the urbanisation of Oslo from 1900 and until today. As visible in the map, Akerselva had urban buildings and factories from the beginning of the century. The rest of the city has gradually expanded from what was the city centre, the fortress. Eventually, satellite cities appeared in the outskirts of the city.

Buildings have been used and reused, renovated and transformed to fit the shifting needs of the city scape. Following is a list of some of the most famous and successful transformations in the city.

Definitions

Transformation: reconstrucion + program change

Rehabilitation: recovery

Reconstruction: physical change

Program change new function

From industry

AHO Adress: Maridalsveien 29. Program: University

Architects: Jarmund/Vigsnæs

Arkitekter.

Transformed: 2001.

Oslo Lysverker.

Program: Energy company

Built: 1938.

Architect: City architect in

Oslo

Akers Mekaniske Verksted Adress: Bryggetorget 5. Program: commercial, office, residence

Akers Mekaniske Verksted. Program: workshop, shipyard. Built: 1841, moved to Aker Brygge in 1854.

DoGA

Adress: Østre Elvebakken 1-7, Hausmannsgate 16.
Program: national centre for architecture, residenve, office.
Architects: Jensen og Skodvin Arkitekter, A38 Arkitekter.
Transformed: 2003-2005.
Price: 5 millioner euro.
Size: 3000kvm.
Awards: Statens byggeskikkpris 2006, Cityprisen 2007, Olavsrosa 2007.

Transformator station
Program: Transformator
station for Oslo
Elektrisitetsverk. Protected,
Norways oldest electric
station.
Built: 1898.

Dramatikkens Hus/Oslo Mekaniske Verksted.

Program: serving.

Oslo Elektriske Sveiseverksted. Built: 1850s.

Grunerløkka studenthus Adress: Marselis gate 24. Program: Student housing. Transformed: 2001. Architects: Ola Mowe, Hrtb. Awards: Oslo Bys Arkitekturpris 2002

Kornsilo Nedre Foss. Program: Grain silo.

Built: 1953.

KhiO

Adress: Fossveien 24.
Program: University.
Architects: Lund Hagem.
Transformed: 2003-2010

Christiania Seilduksfabrikk.
Program: canvas factory.
Built: 1856.
Architect: P. H. Holtermann
Mat og Merkevarehuset Mills
Adress: Sofienberggata 19.
Program: hovedkvarter, kontor
og matfaglig senter for Mills.
Arkitekter: Element Arkitekter,
Ledsten Arkitektur

Kværnerhallen Adress: Smeltedigelen 1 Program: office. Architects: Hille Melbye. Size: 16 000kvm. Transformed: 2012. Kept: brick facade.

Platehallen i Kværner Brug. Program: production hall for pipes and turbines. Built: 1946, extended 1960.

Mills

Program: mayonnese factory.

Construction: reinforced concrete slabs and columns.

Mathallen Adress: Vulkan 5, Program: Food Court. Arkitekt: LPO Arkitekter. Transformed: 2012. Awards: Olavsrosa 2014

Broverksted.
Program: iron foundry.
Built: 1908, extended in1936.

Vulkan Jernstøperi, Gamle

Myrens Verksted Program: gym.

Myrens Verksted. Program: Iron forge Built: 1848.

Sinsen Panorama Adress: Trondheimsveien 197. Program: Residence. Architects: Pride Architects Transformed: 2003

Sinsen silo. Program: Grain silo. Built: 1952.

Other

Amerikalinjen Program: Hotell Architects: Kritt Arkitekter

Den norske Amerikalinjen hovedkvarter. Program: shipping company. Built: 1915-1919. Architects: Andreas Bjercke,

Georg Eliassen. Protected in 2017.

Kulturhuset 2.0 Adress: Youngs gate 6. Program: culture.
Architects: Tuvalu Arkitekter.

Transformed:
Price: 50 millioner.
Size: 2000kvm.
Awards: Oslo bys
arkitekturpris 2018

Bygård.

Program: Residence

Litteraturhuset. Adress: Wergelandsveien 29. Program: culture, commercial, serving.

Architects: Askim og Lannto

Arkitekter.

Transformed: 2007.

Awards:

Fortidsminneforeningens

Kulturvernpris

Oslo Lærerskole. Program: University. Arkitekter:

Built: 1912.

Nobels fredssenter
Adress: Brynjulf Bulls Plass 1

Program: Museum. Transformed: 2005.

Vestbanestasjonen Program: Train station.

Built: 1872.

Architects: Georg Andreas

Bull

Sentralen

Adress: Øvre slottsgate 3/

Tollbugata 30.
Program: Serving

Architects: Atelier Oslo, KIMA

arkitektur.

Torggata bad Adress: Torggata 16. Program: Food court, concert

hall, bowling, pub

Transformed: 2019 Arkitekter:

Torggata bad Program: Public bath.

Built: 1925.

Architects: Christian

Morgenstierne og Arne Eide.

Youngskvartalet Adress: Youngs gate 15

Program: office

Architects: Fabel arkitekter.

Transformed: 2018.

Price: 300 millioner kroner.

Østbanehallen

Adress: Jernbanetorget 1. Program: commercial. Architects: Mellbye arkitektur

interiør (rehabilitation 2015).

Østbanestasjonen Program: Train station.

Built: 1854.

Architects: Heinrich E.

Schirmer, Wilhelm von Hanno

Arnljot Gellines vei 35/41

The chosen site lies at the entrance to Svartdalsparken, the only remaining primeval forest in Oslo. This upper part of the forest is characterized by steep terrain and rushing waterfalls. A pedestrian bridge is fixed to the rock on the opposite side of the river. This bridge is part of the trail following the river from Lillomarka to Kværner (only interrupted and piped under Alna terminal).

To the north of the site is Hovedbanen, the rail tracks connecting Oslo central station and the local stops towards Lillestrøm. The other trains going north uses the underground tracks. The L1 local train drives past every five to ten minutes. Also using the rail tracks are less frequent freight trains, delivering goods at Alna terminal. The trail tracks make the site quite noisy.

Behind the tracks to the north is Etterstad, a housing estate characterized by free standing lamellas in an open grass field. The south is peppered with single family homes, making the rail tracks look like the boundary between the city and the suburb.

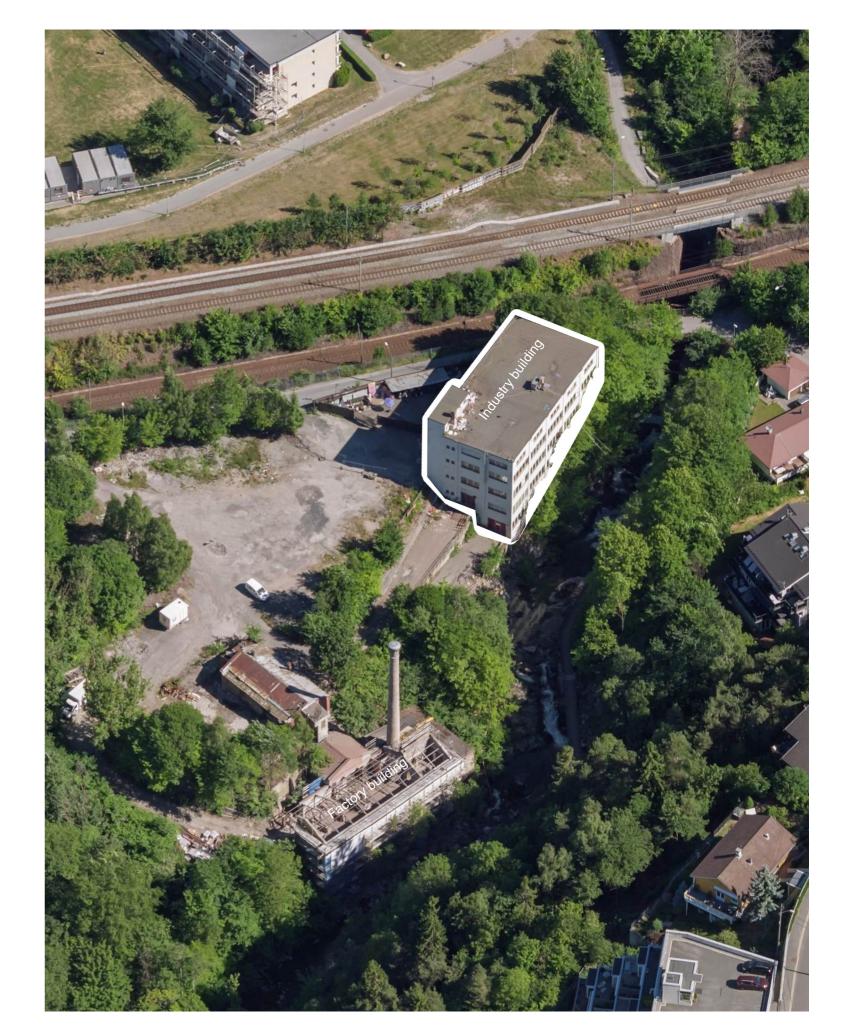
On the site is the old Nygård factories, established around 1900s. The factories consisted of a mill producing bricks

and timber until the 30s. The factory was then bought by the company Nordiske Destillationsverker A/S, producing pesticides.

There are two buildings on the site today. The factory brick building to the south was built in 1906, after the previous one burned down. This was designed by Karl Høie in 1850. In 2017 it was yellow listed. The upper floor of the factory has been used for storage and workshop, the lower floors are in such a poor condition that they remain unused.

The industrial concrete building to the north was raised in 1948 and later renovated in the 70s. The first floor is now used by the motorcycle club Bandidos, while the other floors are being renovated by Kroloftet. The building is supposed to be used as workshops, music studios and so on. I can't find anything on this at PBE.

Today, two tall housing blocks (Kværnerhøyden) are to be raised in the parking lot between them. Together with the towers, the developers are proposing to demolish the two or three upper stories to make space for outdoor areas connected to the new residence. This is a waste of space, material and existing architectural structure.

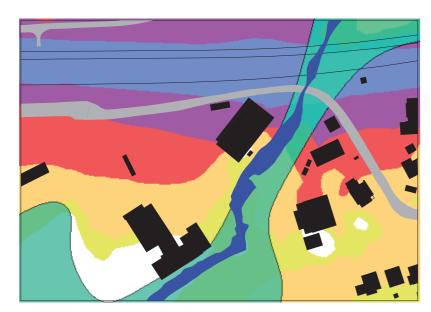






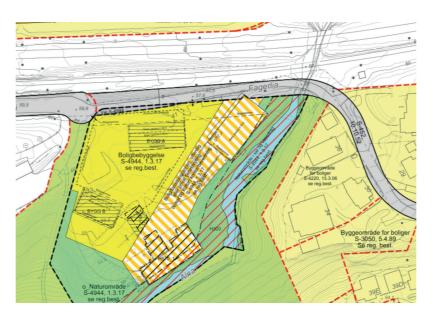
Aerial photo, 1947

Nygård Fabrikker seen from the south, 1955



Noise map 1:2000

The noise from the train tracks make the building unfit for residential units apart from to the south. The green field marks quite area, decided by Oslo municipality.



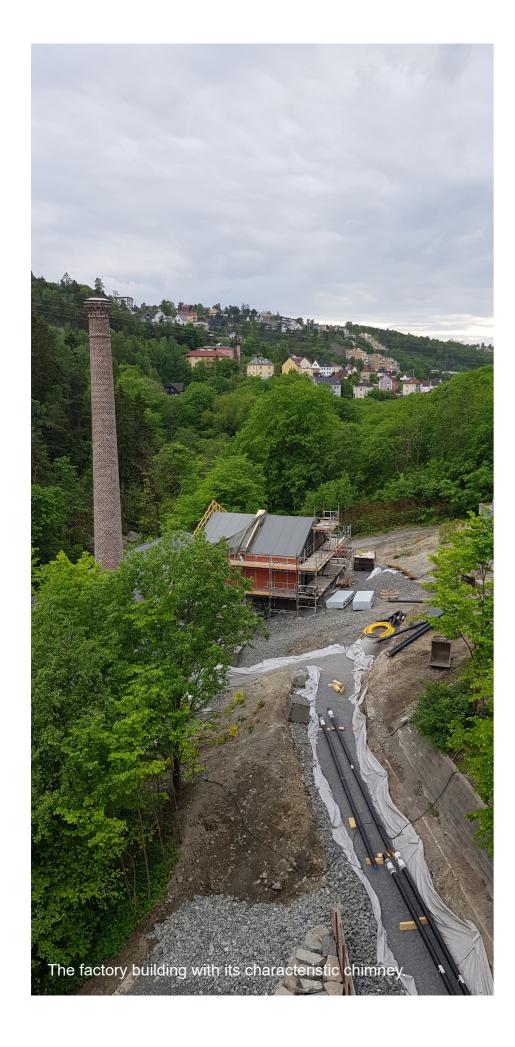
Regulations.

Two new residential towers are planned on Nygårdskollen, Kværnerhøyden. The striped hatch covering the existing buildings means residence, commercial, private and public services.

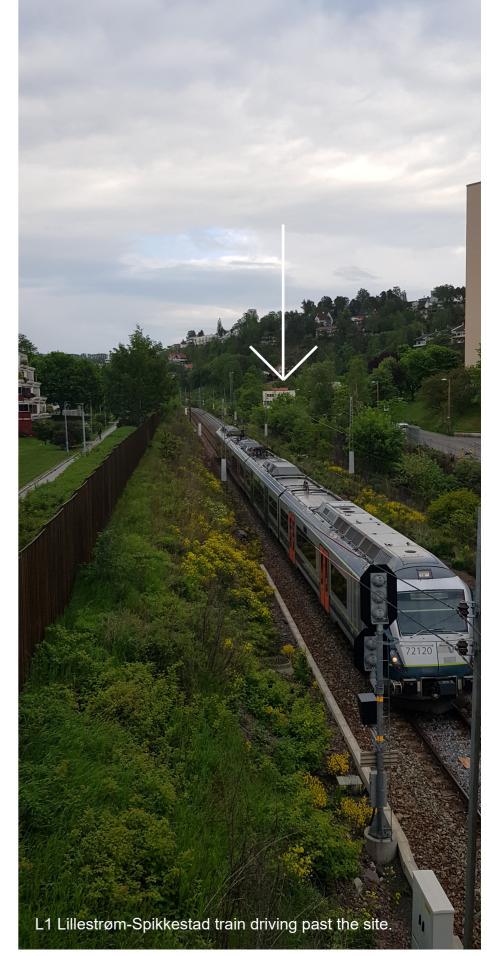


Terrain on site 1:2000

The south east part of the site falls down more than ten meters to the river.







the structure

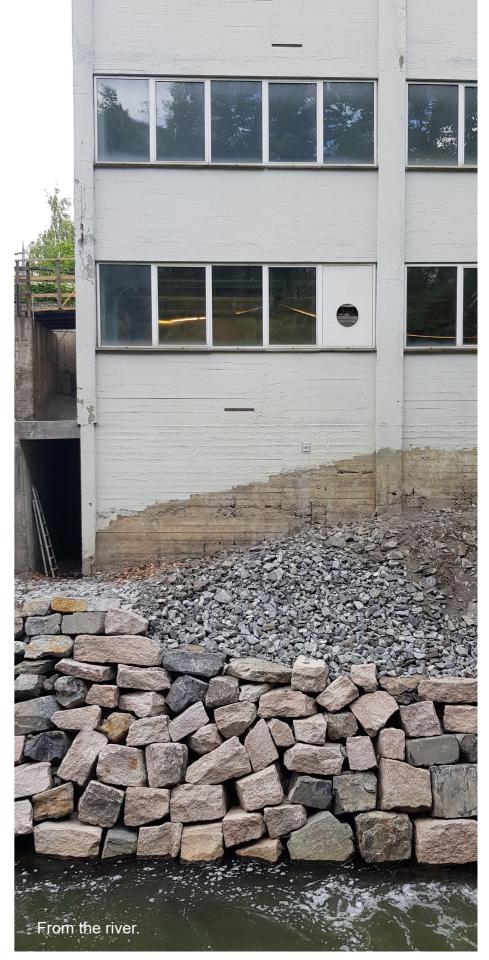
Arnljot Gellines vei 41

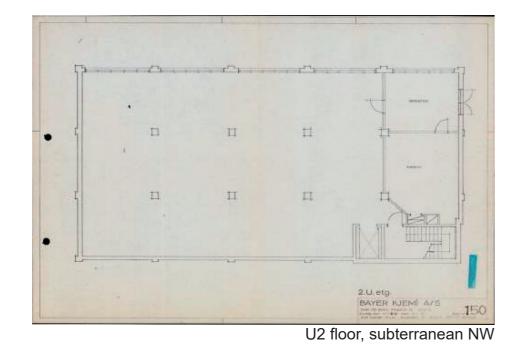
The industry building from 1948 has a footprint of 470 square meters. In total, the building is approximately 2000 square meters. It is situated in a steep terrain down towards Alnaelva, resulting in the two lower floors being subterranean from the north. They each has their own vehicle entrance (garage doors) accessed by ramp from Nygårdskollen.

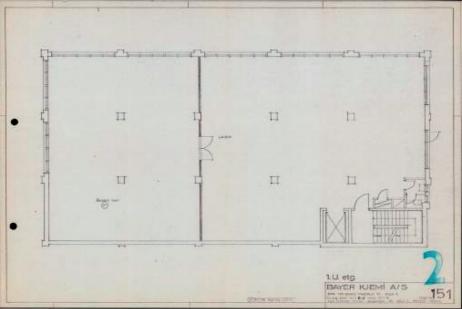
The buildings' main construction is a reinforced concrete skeleton, with concrete slabs resting on top. The vertical circulation is placed in the entrance corner from the Arnljor Gellines street, leaving a generous open space in the middle. The building is not insulatied.

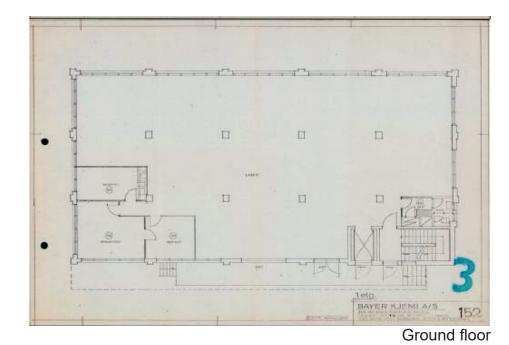
The building is 15 meters wide and 30 meters long, subdivided with a logical column grid of 5m x 6m.



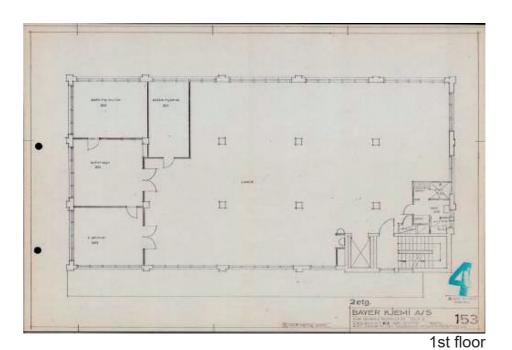






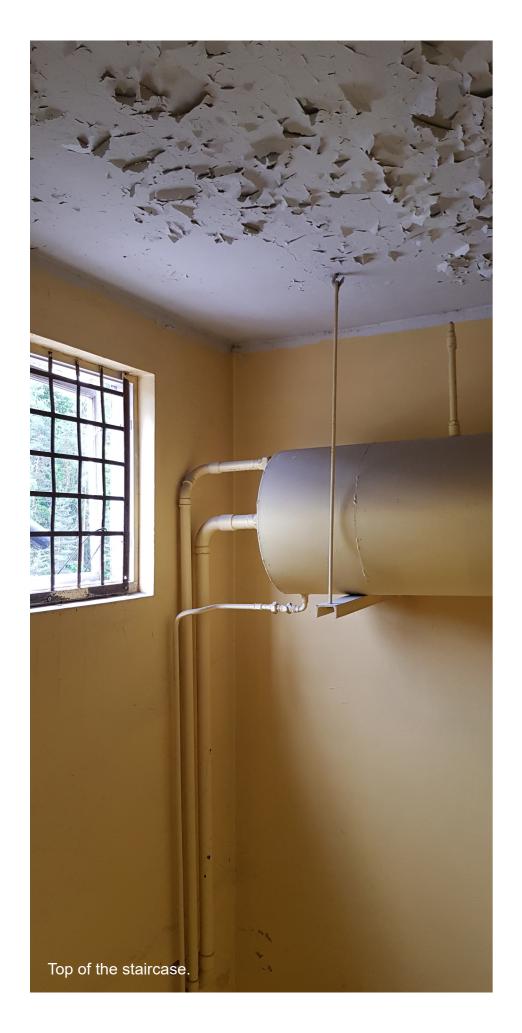


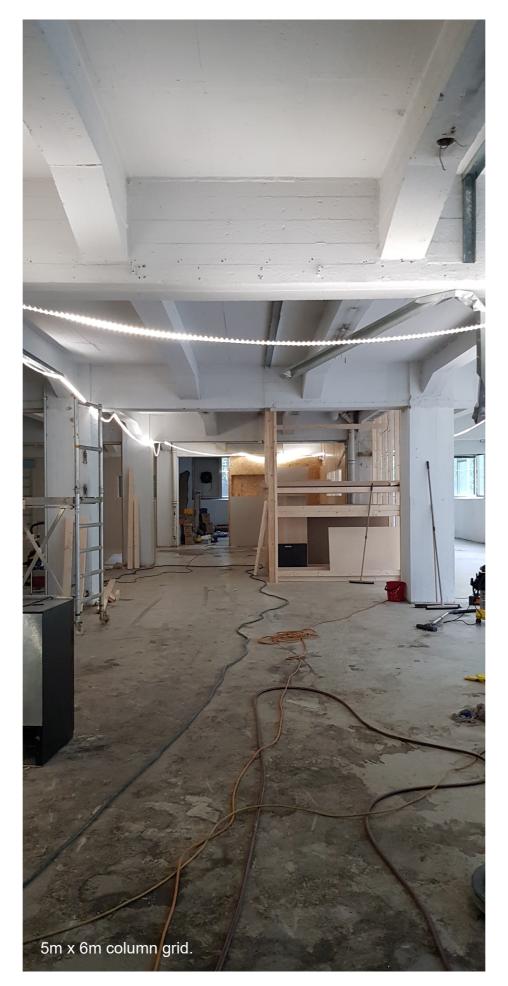
U1 floor, subterranean NW



BAYER IJEMI A/5 154

2nd floor







the Program

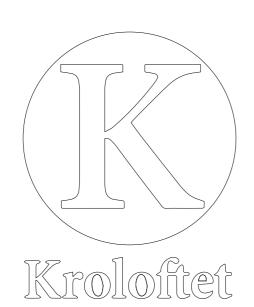
With transformation, the starting point is different. It requires a deep understanding of the building. This structure is flexible, made efficient by the grid structure and organization of necessary functions in one corner. The flexibility offers the opportunity to transform the building into many different programs. The noisy surroundings make it unsuitable for housing.

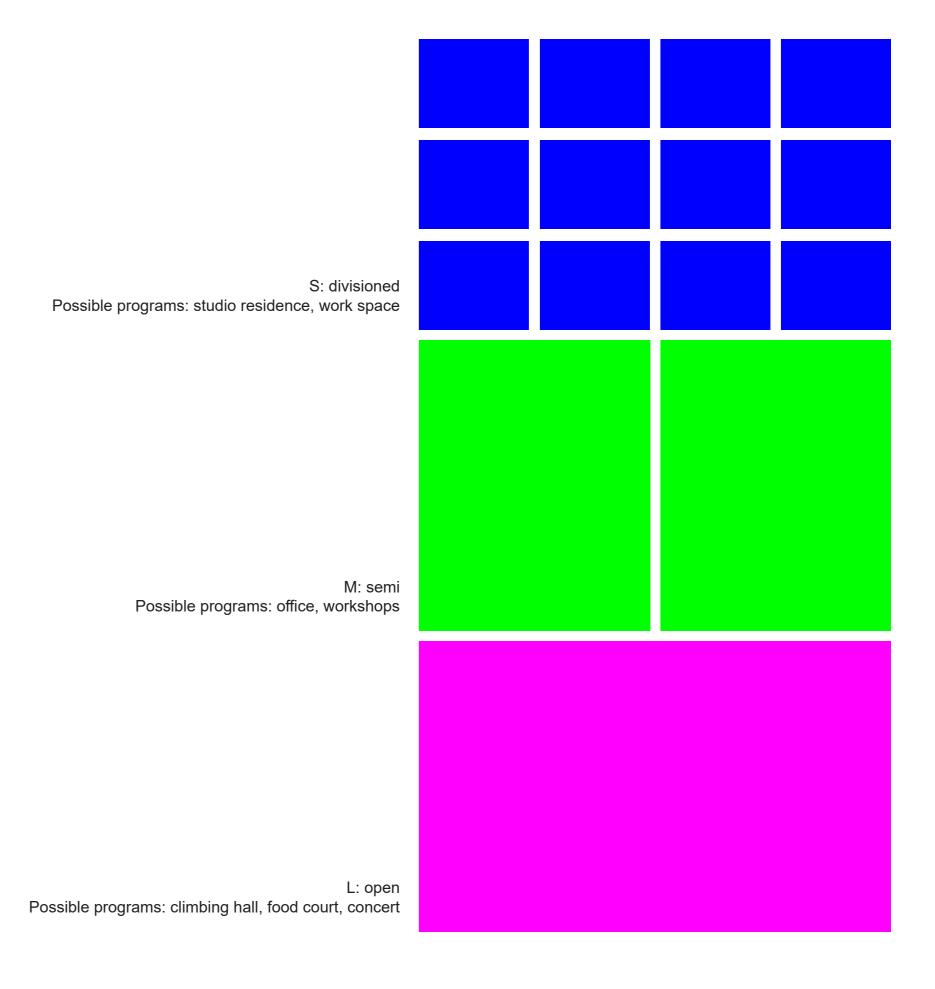
Since summer 2020, the site and buildings has been rented out to Kroloftet. Kroloftet is a non-profit creative work community, offering its members workspace and workshop equipment. When I started my diploma, Kroloftet had just moved in and started the rehabilitation of both buildings on the site.

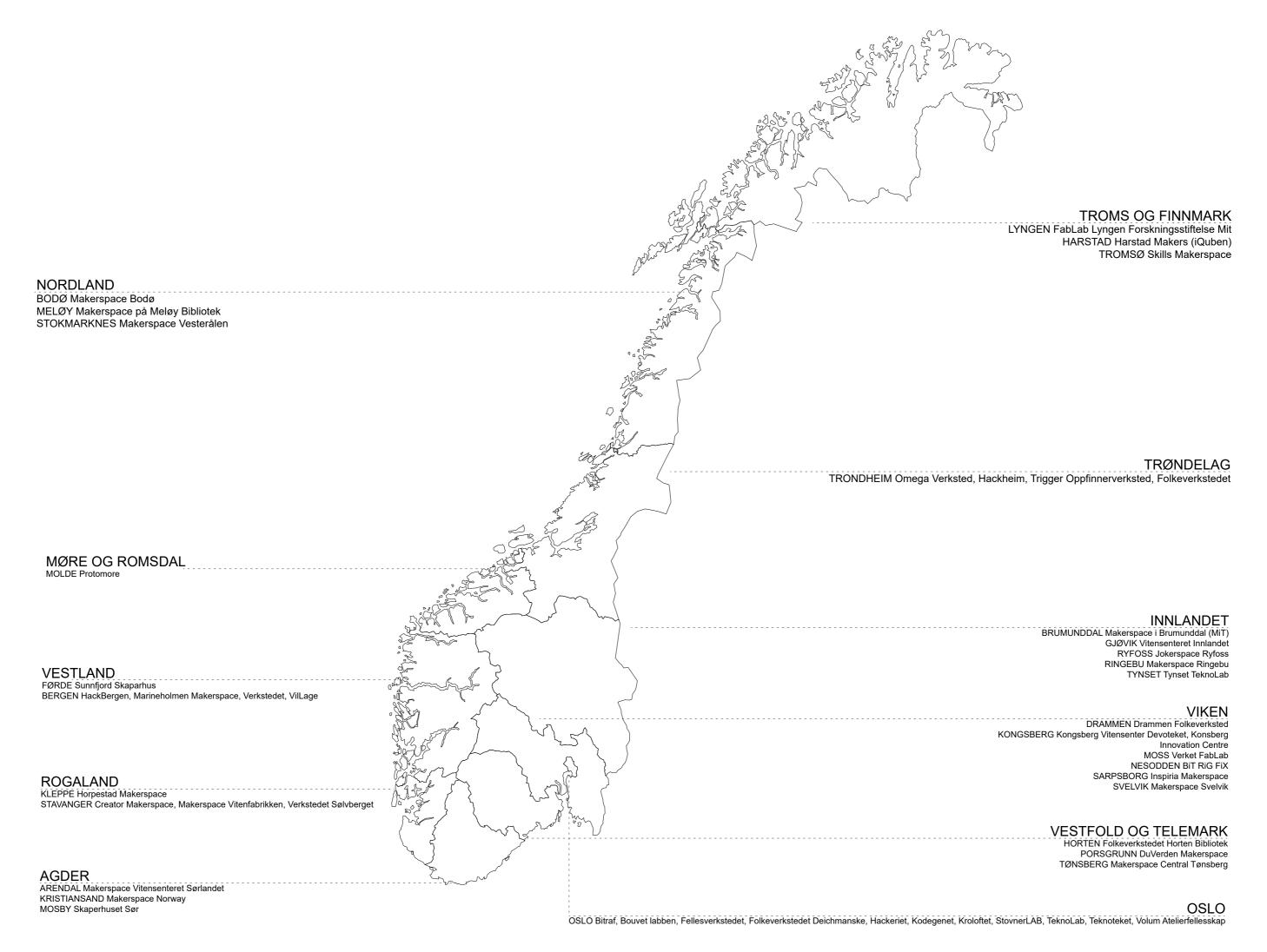
A makerspace is a common space where people can produce or repair what they please. It is often in the fields of art, technology, or science. The space offers both analogue and digital tools to be used by the members. The road from idea to product is short, as new technology that previously was reserved for big business are

accessible for amateurs. This is for example laser cutters and 3D-printers.

Makerspaces are popping up many places and is a part of the global maker movement. This movement be a continuation of do-it-yourself (DIY). The idea of the common space is to gather people, both professionals and amateurs, to exchange ideas and knowledge and to collaborate.







organization

Submitted	mat	erial	dip	oma
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Text	Abstract		Week 33	Research
	Program / Pre diplo	oma report	Week 34-35	Site analysis Program studies
	Process material			Volume studies
Drawings	Situation plan	1:500	Week 36-38	Existing structure
	Situation sections	1:500	Week 39-40	Architectural approach
	Outdoor plan	1:200	Week 41-42	Organizational logic
	Plans	1:100/50	Week 43	Midcrit
	Sectons	1:100/50	Week 44-47	Revise after midcrit Produce drawings
	Axonometric			Finish drawings
Illustrations	Rendering/collage		Week 48-59	Make models if delivering

1:500

1:100

Site model

Model

Schedule diploma semester

Week 50

Submit everything

Diagrams

Models photos





Built: 1936-38

Program: Transformer Architect: Harald Eng

Transformed: 2001 Program: University

Architect: Jarmund/Vigsnæs

The Oslo School of Architecture and Design (AHO) is the place I have spent most of my time during the last 5 years. It is in Maridalsveien 29 and is one of three public architecture schools in Norway. The school facilitates for approximately 700 students.

The structure that today houses AHO was built in 1936-38. Back then it worked as a transformer workshop for Oslo Lysverker. In 2001, Jarmund/Vigsnæs Arkitekter transformed the old factory into a modern university.

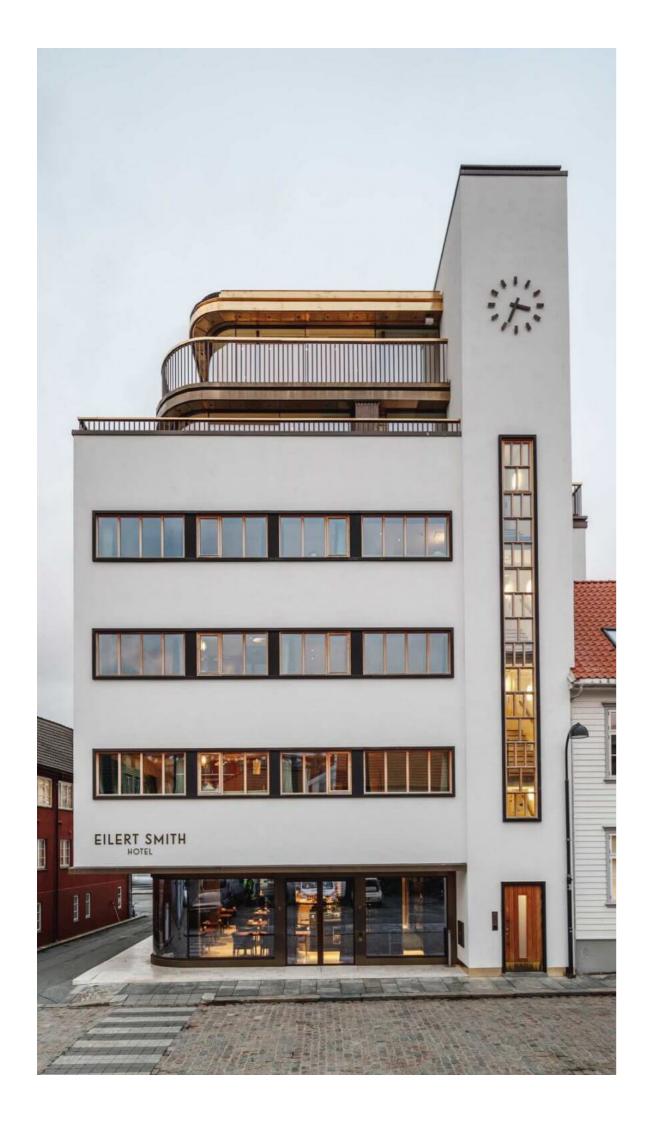
AHO has relevance to my

diploma in many ways. Firstly, the structure is built up in a similar way as the building I am transforming: Concrete skeleton with spans of 6 meters. The facades are closed with bricks and glass. This too was previously factory and storage which has guided the ceiling height, placement of windows and building depth.

The transformation included logic organization of functions and circulation. The ground floor consists of all common functions: workshop; cafeteria; lecture halls; library; and computer labs. Some of the

slabs and even beams are removed to ensure daylight to access these functions. The first floor is reserved for studios. Both these floors are planned so that you can walk all the way around it. The upper floor is inhabited by people who work at the school.

The second relevance AHO has to my diploma is the program. I am not designing a school, but a place for production in many scales. This is also what AHO is about. The workshops are the most specific program.



Eilert Smith Hotel

Reference project

Built: 1937

Program: Storage and office Architect: Eilert Smith

Transformed: 2020

Program: Hotel and restaurant

Architect: Trodahl

Eilert Smith Hotel is a boutique hotel and Michelin restaurant RE-NAA located in Stavanger city centre. The building is design by functionalist architect Eilert Smith in 1937. He designed it as both storage, offices, and business facilities for the peasant workers organisation.

The original design shares characteristics with the paint factory that I will transform in my diploma. They are both typically functionalist, with each function being visible, and nothing more than it needs to be. This is emphasised by the stairwell which is pulled out of the building and underlined

with vertical windows. They are both stripped of details and ornaments. The constructive pillars are visible in the façade and horizontal window bands run seemingly uninterruptedly.

Transforming the building from storage space to luxury hotel included both rehabilitation and extension. The structure was poorly maintained and not insulated. For insulation, Trodahl Arkitekter used Isokalk, a mix of aerogel and lime mortar sprayed on the outside. This insulation makes it possible to keep the plastered surface and the overall expression as 50mm is enough.

Furthermore, transformation demanded an extension. Two stories were added on the roof. This is the master suite. Trodahl Arkitekter wanted the to keep the functionalist expression and decided on a solution in line with the existing architecture. The stairwell/clock tower was extended to maintain the height difference. The two roof stories were pulled back and softened with rounded corners and a less dense appearance. The ground floor was rebuilt to have the same footprint as the roof.

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