



**KRISTALL VILLAGE:
ADAPRIVE REUSE PROJECT FOR A FORMER DISTILLERY
KRISTALL IN MOSCOW, RUSSIA**



POLITECNICO DI TORINO

Master of Science in Architecture Construction City

Kristall Village: adaptive reuse project for a former distillery
in Moscow, Russia

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July 2018
Turin, Italy

TABLE OF CONTENTS

ABSTRACT

PART I

HISTORICAL NOTES ON INDUSTRIAL ARCHITECTURE IN EUROPE AND IN RUSSIA

- History of industry
- Evolution of industrial buildings
- History of Russian industry
- History of industrial architecture in Russia

REUSE STRATEGIES FOR DISMISSED INDUSTRIAL AREAS

- Reuse of industrial buildings and sites
- Turin: a case study for reuse
- Reuse of industrial buildings and sites in Russia

MOSCOW HISTORY AND DISCRIPTION

- Merchant city (1147-middle of 19th century)
- Industrialization in Moscow (middle of 19th-1991)
- Deindustrialization, recent history (1991 to present)

PART II

APPROACH: ANALYSIS OF TRADITIONAL URBAN FABRICS IN MOSCOW

- Moscow traditional urban fabric
- Approach

PART III

EX-DISTILLERY KRISTALL

- History of vodka industry
- Lefortovo district
- History of kristall distillery
- Existing reuse projects
- Kristall village project

BIBLIOGRAPHY

ABSTRACT

The history of Russian industry starts in the middle of XIX century with the emerge of some successful entrepreneurs. Nevertheless, before Soviet period Russia has always been a slowly developing country that followed European model. Due to its northern location, since the very beginning it was poorer than the countries of Western Europe. The difference between the lifestyle of aristocracy and the lowest classes was so dramatic, that finally it made possible the Revolution of 1917.

Soviet period made possible the industrial revolution, the revolution that needed huge investments and concentration of all the human resources of the country; its negative side was the sacrifice that has been done to make this progress possible. Industrial buildings and sites are the witnesses of those processes, and it is important to preserve them in order to commemorate the history of a country. That is why the topic of reuse of industrial buildings is so important for today's Russia, and for the city of Moscow in particular, where many important plants and factories were concentrated. Unfortunately, there are several difficulties.

First is the lack of respect to the heritage in Russian mentality. Soviet government always wanted to rewrite history and to start from scratch; they demolished historical city centers, exploded churches and renamed streets. Probably this habit is still alive because even now historical buildings that remain both from pre-revolutionary and soviet periods are being demolished or changed dramatically.

Another reason is the lack of experience. During Soviet Period there was no independent architecture and all buildings were standard, very few buildings were important enough for a special project. Only since 1991, after the fall of USSR, architects started to work independently. Their clients often had strange wishes, because finally after all these years of being all the same they could be different. As a result, the architectural interventions of 1990s looked fussy.

In the past three decades the situation has improved because people started to travel and improved their tastes. Despite all the imperfections of economic and political situation, Russians now search for good quality things including architecture. For now, there have been several successful reuse interventions, but still a lot of ex-industrial areas are waiting for thier destiny.

The aim of this project is to try to apply Western reuse experi-

ence to a former distillery "Kristall" located in Moscow, which used to be the most important and famous distillery in Russia. Its history that starts from the end of XIX century and central location makes "Kristall" one of the most arguable ex-industrial sites in Moscow whose destiny is still not clear. "Kristall" could become a flagship for other reuse interventions in Russia.

The work is divided into five chapters. The first chapter is dedicated to the history of Russian industry and industrial architecture. The second chapter discusses the reuse experience of industrial buildings on the West and in Russia. The third chapter is dedicated to Moscow context. The fourth is explaining the concept of the project that derives from historical Moscow – a mid-size merchant town. The fifth is describing the history of "Kristall" distillery, with a close attention to the existing buildings, and the proposal for its future conversion into a residential quartier that includes partial demolition and infilling the voids with new architecture.

01

HISTORICAL NOTES ON INDUSTRIAL ARCHITECTURE IN EUROPE AND IN RUSSIA

The actual industrialization of the Russian Empire began only in the middle of XIX century and lasted until 1917 (and later - in the years of Soviet industrialization). All this time, Russia was in the role of catch-up, striving for the successes achieved in the industry by the advanced countries of the West. It follows that the technologies used both in the production and in the construction of factories and plants were mainly adopted from the West. Thus, in order to trace the history of the industrial architecture of Russia, one should start by studying what was happening earlier in the west.

First two parts of the chapter consider the Western world where industrialization began: the first part of the chapter is devoted to the history of industrialization in general and examines key events related to the development of industry; the second chapter is devoted to the history of industrial buildings, in particular the evolution of a water mill in England. In the next two parts, the specifics of Russian industrial development are considered: the third part deals with the features of industrialization in the Russian Empire and the USSR; the fourth part is dedicated to the specific features of Russian industrial architecture.

This thesis concentrates mainly on the history of industry and industrial architecture of the first wave of industrialization that has happened due to the inventions in textile industry, and does not consider the history of industry that has happened after Henry Ford and the invention of assembly line method. That is because the case study chosen for the project refers to 19th century, and industrial architecture of 19th century is different from industrial architecture of 20th century. But it is important to remember is that in Russia can be found numerous examples of both periods and both of them worth preservation.

HISTORY OF INDUSTRY

What is industry

The term *industry* generally refers to the aggregate of enterprises (factories, mines, power stations) engaged in the production of tools (for other branches of the national economy and for industry itself), the extraction of raw materials, fuel, the production of energy and further

processing of products obtained in industry or produced in agriculture - the production of consumer goods. Industry in the form in which we see it now originated in the mid-18th century in England with inventions in the textile industry. Those events that took place in England during the period of the birth of industrialization are usually called *Industrial Revolution*.

The *Industrial Revolution* was the transition to new manufacturing processes that happened in the leading western countries in the period from about 1760 to sometime between 1820 and 1840.¹

During this transition the humanity passed from hand production methods to machines, improved the efficiency of water power, increased the use of steam power, for the first time was introduced the factory system. Textiles were the most important industry of the Industrial Revolution; the textile industry was also the first to introduce the new technologies into production methods.²

From this moment, the leading countries of the West began the process of industrialization. This was accompanied by many social and economic changes. Humanity has made a transition from an agrarian society (where most of the population is involved in agriculture) to the industrial (where less than 50 per cent of the population is involved in agriculture).

The power of the influence of this transition on the life of each person is difficult to overestimate. Before the industrial revolution people never used any item produced outside of their community; about 80 per cent of the world's population identified themselves as farmers; transport was accomplished through the use of domestic animals. Thanks to the industrial revolution we have electricity, cars, furniture, antibiotics, tap water, blueberries in February and almost every item that we have in our house.

Prerequisites for Industrial Revolution in Great Britain

The industrial revolution began in Great Britain and most of the important technological innovations were British. There is no common opinion why the Industrial revolution started in Europe (and not somewhere else like in China or India) as well as why it all started in Great Britain and not in any other European country. Probably Europe had cultural superiority, science and inventions, freer political institutions, smaller population that required labor saving inventions. But why Great Britain? Three probable main reasons:

- First reason was the *Glorious revolution*³ that happened in 1688, gave people property rights and political safety. Thanks to it, England had highest wages in the world and it had support from government and aristocracy for entrepreneurship. Glorious revolution finally eliminated feudal way of manufacturing process and let the it to develop and realize the original accumulation of capital. After the revolution in England appeared big merchants, bankers and owners of powerful manufactures and agricultural farms.
- Second reason was the *Agricultural revolution*⁴ that happened

¹ "Industrial Revolution," Wikipedia, (July 2, 2018).

² John Green, "Coal, Steam, and The Industrial Revolution: Crash Course World History". YouTube video, 11:04. Posted [August 2012].

³ *Glorious Revolution*, the events (1688–9) that led to the replacement, in 1689, of James II by his daughter Mary II and her husband William of Orange (who became William III) as joint monarchs. The bloodless 'revolution' greatly enhanced the constitutional powers of Parliament, with William and Mary's acceptance of the conditions laid down in the Bill of Rights. (dictionary.com)

⁴ *Agricultural Revolution*, a gradual transformation of the traditional agricultural system that began in Britain in the 18th century. (Encyclopedia Britannica)

in England XVIII century made farming more efficient and profitable. Surplus of money provided by farming created demand for industrial goods. Existing manufacturing system could not fully satisfy this demand. At the same time this money was invested into construction of new industrial plants that cost much more than manufacturing plants.

- Third reason was that Great Britain had coal. Industrial revolution was all about the energy sources and the main energy source at the beginning was the coal. In that time the problem was that the mines were flooded easily and it was impossible to get coal that lied deeper than 30 meters. England had an advantage, because there was the coal that lied close to the surface of the earth and so it was easy to get.

In such a manner by the end of XVIII century in England coincided a number of factors: the abundance of natural resources, free capital, will and skills to invest money in this economic realm, and a demand for industrial goods that produced both price increase and market place for it.

Textiles and the beginning of the industrial revolution

From the beginning of XVII century Great Britain began to trade actively with its colonies and mainly with India. In the beginning of XVIII century wide English market easily assumed a huge amount of Indian cotton textiles because they were cheap. The government of Great Britain quickly realized the threat that the colonial goods constitute for English industry and resorted to economic protectionism politics forbidding import of Indian textiles and encouraging import of raw cotton. In that way demand and competition probably became the reasons that lead to English inventions and mechanization that lead to industrial revolution.

The beginning of industrial revolution began with the appeal of machines in textile industry. Often the inventions of English mechanics advanced the level of development of industry, and so introducing of the novelties came only after several years, sometimes decades after the invention was done.

It is well known that two main procedures in textile industry are spinning and weaving. In XVII century the weaver's loom required so much yarn for its continuous work that could be prepared by seven or eight spinners. It is quite clear that it smart thing would be to invent a technical novelty that would lighten the labor of these people.

Approximately the same as in textile production, the industrial revolution took place in other areas of the British economy. The technical innovations invented in the beginning or in the middle of the 18th century were introduced only much later, but the effect of their wide application in the industry exceeded all expectations.

Industrialization in the other countries

After England, the Industrial Revolution came to other countries of continental Europe. In this regard, British technologies were borrowed

by other countries. Often British engineers and entrepreneurs moved overseas in search of new opportunities and founded their own enterprises there. Among these countries are Belgium, France, Germany, Austria, Bohemia and Scandinavian countries. In the middle of the 19th century the industrial revolution took place in the USA, and at the end of the 19th century, in the Northern Italy and in Japan.

Industrialization always began with import of equipment technology and specialists from more developed countries; creating its own infrastructure, primarily the railway network, and personnel training. Thus, the basis for further development of the country's industry was formed.

Since the 30s of the 20th century the initial industrialization of the USSR and the countries of the socialist camp began. The Soviet government invested a large part of its resources in the development of industry and infrastructure which subsequently made the USSR a world superpower. During the Cold War, the European socialist countries, united under the sector of Mutual Economic Assistance, followed the same pattern, albeit with less emphasis on heavy industry.

Southern European countries such as Spain and Italy were passing a stage of modernization and industrialization during the period between 1950s and 1970s due to integration into the European economy, although their level of development, like the level of development of socialist European countries, did not correspond to the more advanced European countries such as Germany. In this stage were adopted the factory and assemble line technologies. Also in the mid-20th century, the industry spread to China and India.

During the Cold War, there were attempts to also carry out industrialization in the Third World countries, especially in Sub-Saharan Africa after decolonization. However, these attempts were unsuccessful because of the absence of a bourgeois class (the upper stratum of the middle class) which was capable of engaging in capitalist development, and of the stability of the state.

In Organization of Petroleum-Exporting Countries (OPEC), due to oil exports, the state received funds comparable to the capital of Western countries. However, in all countries except two (Bahrain and the United Arab Emirates), these funds were appropriated by the ruling elite and were spent on luxury goods.

In Asia, industrialization was passed more successful (with the exception of Japan, where industrialization had begun in the late 19th century), because they followed a different pattern. Hong Kong, Singapore, South Korea and Taiwan made incredible industrial growth due to the government's stability, well-structured society, strategically successful location, low labor costs and low customs fees, which made Asia an attractive place for large investments in Western companies. There had been a phenomenon, which later was called offshore. Western campaigns began to move their assets to countries where cheap labor and trade unions are either absent or have no such influence as in the west.

Several countries in Latin America, Asia, and Africa have shown

5 "Industrial Revolution," Wikipedia, (July 2, 2018).

industrial growth since the late 20th century. These are Brazil, Indonesia, Malaysia, Mexico, the Philippines, South Africa and Turkey. This happened due to exports to more developed countries: such as US, China, India and countries of the European Union.⁵

Deindustrialization and industrial archeology

Deindustrialization is the process of social and economic changes caused by the decline or total cessation of industrial activities in the region or country, especially in heavy industry and in industrial production. The process of de-industrialization leads to, so-called, post-industrial stage - some enterprises are closed, and the question arises what to do with their buildings and equipment.

Industrial heritage is, first of all, monuments of mass industrial production, dating back to the late 18th and mid-20th centuries. These are enterprises, railway stations, power plants, etc., as well as the equipment that these buildings host and the stuff that was produced there.

An important period in this process was the last third of the 20th century, when the rapid pace of innovation and the appearance of new materials caused profound changes in the production system. The equipment became automated and electronic, made from new materials, which made it more compact. The old material world of industrialization has become part of history. That is why the movement for the preservation of industrial heritage first appeared in the form of a struggle to save monuments of industry, which threatened the process of reconstruction that was growing in the post-war years.

This was the origin of industrial archeology, which can be defined as an interdisciplinary method of studying material evidence created by the industrial process or for the industrial process, including buildings and structures, machinery and equipment, public settlements and adjoining territories.

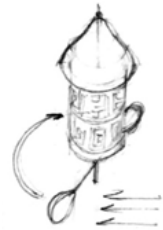
EVOLUTION OF INDUSTRIAL BUILDINGS

Wind mills

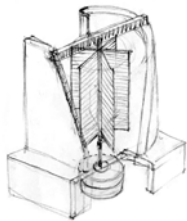
In XVIII-XIV centuries construction of industrial buildings (usually mills) was the duty of engineers not architects. They calculated developed metal skeleton constructions, glass walls, artificial heating and lighting and they were not unhampered by architectural conventions. These people have created base for the nowadays architecture.

All present industrial buildings came from corn mills which were the consequence of flour milling methods investigation. In 6000 BC in Pre-dynastic Egypt era people used pestle and mortar then they moved to a hand-turned rotary mill then afterwards, animal power was implemented. The next big breakthrough was use of wind and water energy which subsequently changed by power from steam engines and electrical motors.

In order to understand an evolution process of industrial buildings it is necessary to turn back to the 7th century in Persia. In that time people learnt how to implement wind driven prayer wheel for land



Prayer wheel



Persian windmill



Aegean mill



Saxtead green mill



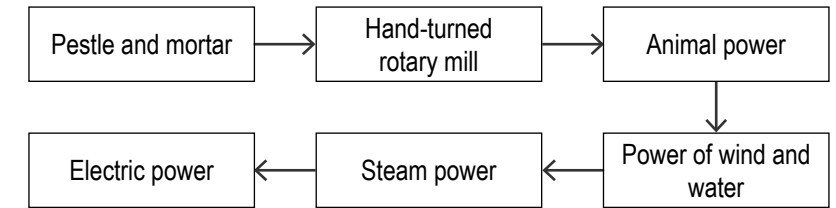
Dutch mill with a revolved cup



A mill with a fantail



Tower mill



Flour milling methods

irrigation (driving a water scoop) and corn milling. These mills had a vertically mounted wind sail which was connected with grindstones. The disadvantage of this construction was a low efficiency.

Habitual European mills appeared only in the early 12th century in Aegean Islands. There was the knowledge of gearing was implemented there. It helps to increase power and consequently to increase efficiency.

These mills had one significant disadvantage – did not rotate around axle. Therefore, Aegean mills were built forcing the prevailing wind.

The mills which were able to rotate around their own axle appeared in Western Europe. A good example is Saxtead green mill that survived to our days. This mill consists of a rigid base and a rotating upper part. All gears and mechanisms are inside the upper part. Disadvantage of the giving type is a difficulty of support a mill and its sails on a single post. But in 1430 year this problem was solved by Dutch millers who built hollow post mill where the drive was transmitted down the center of the hollow timber cylinder on which the cup revolved.

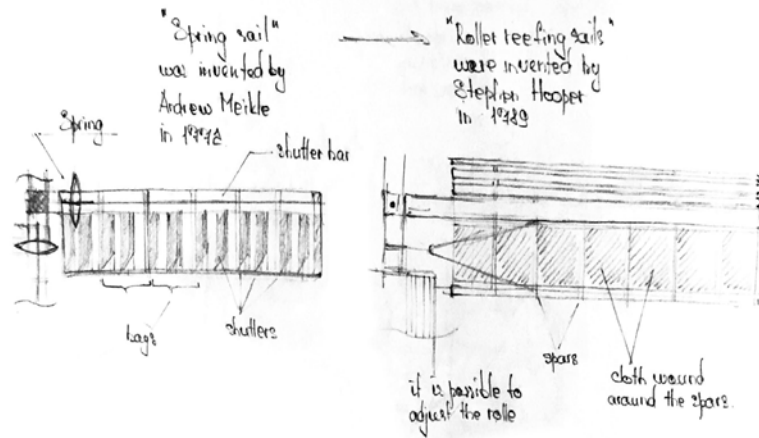
In 1745 Edward Lee invented the fantail. It drives a rod with a gear and ratchet in the cup of the mill to turn it automatically to the correct position, thus automatic turning into the wind had been achieved by one man.

Mills sails also changed over time, and in 1772 "Spring sail" was invented by Andrew Meikle. It allows adjusting the rotation speed of the sail regardless of the wind speed. There was only one disadvantage: it was necessary to stop the mill in order to adjust the reefing of the sail. This problem was eliminated in the future sail modifications such as "Roller reefing sails" invented by Stephen Hooper in 1789 and "Patent sails" invented by William Cubitt in 1807. The difference between "Spring sail" and "Roller reefing sails" was shown on the picture on the next page.

All recent inventions were applied during the construction of Great Yarmouth tower mill in 1845. Its height was around 37 m and at that time it was the highest tower mill in England.

Most windmills used to power corn mills, but many were used to pump the water from the English fens and Dutch polders.

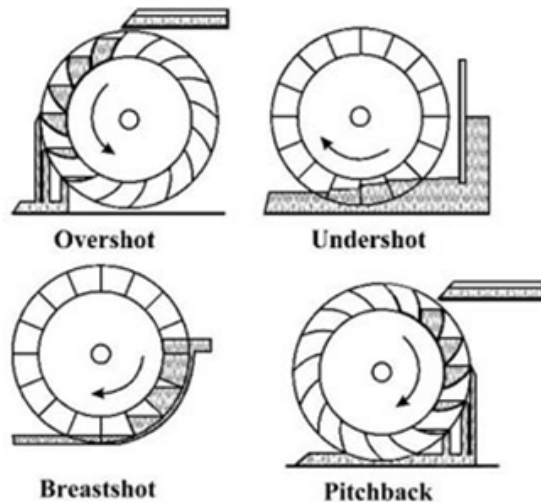
The main competitor of wind mills was the water wheel. Wind power is less steady power source than the flow of the river. In the late 19th century wind mills were still being built in England until steam engines and portable diesel motors became available.



"Spring sail" and "Roller reefing sails"

Water mills

The waterwheel is a very old invention. It was in use in China in 2200 BC. A roman architect and military engineer Vitruvius described undershot wheel in 1 century BC. The first record of a watermill in England is the granting of the use of mill to a monastery near Dover by Ethelbert of Kent in 762. Further, in the middle ages there were some 20 000 water mills in England.



Water wheel types

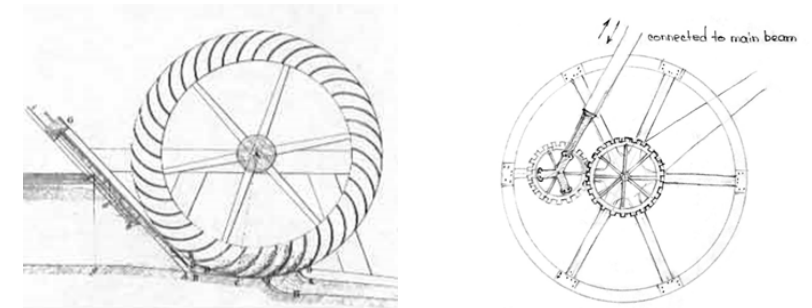
There were several types of location of the water wheel in relation to the flow of water. Typical English watermill had a brick base and timber upper works and it was either placed alongside the river with an undershot wheel dipper in the water. In 1759 John Smeaton put the study on a scientific basis and proved mathematically the superiority of overshot wheel. He also changed apple wood cog wheel to iron thus increasing the power from 10 hp to 50 hp.

Horstead Mill in Norfolk serves as an example of the post-Smeaton mill. It was built in 1789 by John Colls and Palmer Watts. The building

was mainly of white weather board over a brick, lower floor consisting of six dark brick arches. The tile roof section on the downstream side had six small matching gable sections with a seventh larger one to the right. The 4th and 7th gables bore locums for the loading and unloading of wherries. There were two wheels; the largest was undershot with the other having been replaced by a more powerful turbine in later years. Horstead Mill was destroyed by fire in 1963.

In 1824, a French engineer and mathematician, Jean-Victor Poncelet improved the undershot wheel by sloping the sluice to increase the speed of the running water and by curving the blades on the wheel.

In 1827 a French engineer Benoit Fourneyran built his first prototype for new type of waterwheel, called a "turbine" that generate more power from the same flow of water and turbines replaced water wheels in many English mills.



Poncelet wheel

Sun and planet gearing

Steam-driven mills

In 1698 English inventor and engineer Thomas Savery patented an early experimental steam engine. The first practical one was invented by Thomas Newcomen in 1712. This engine has reciprocating motion only and therefore, it was commercially sound for pumping water out of mines and was made for that purpose.

In order to drive machinery, the rotary motion was needed. It was done by Boulton and Watt firm (it was founded by Matthew Boulton and James Watt) which put "sun and planet" gearing on an engine in 1784 and converted the up and down motion of the piston arm to a revolving shaft and flywheel.

In 1786 on London's South Bank, Albion Mills was built by the architect Samuel Wyatt. The motive power was to come from three Boulton and Watt engines driving all iron gearing. The building had brick exterior walls with great arched openings. Unfortunately, it was gutted by fire in 1791.

Although the nineteenth century added steam engines to the old country water mills, for example: Chilham Mill in Kent and Fakenham Mill in Norfolk.

Water power and textile

In mid-eighteenth century England weaving was a cottage industry. With the invention of the flying shuttle by John Kay and implemen-

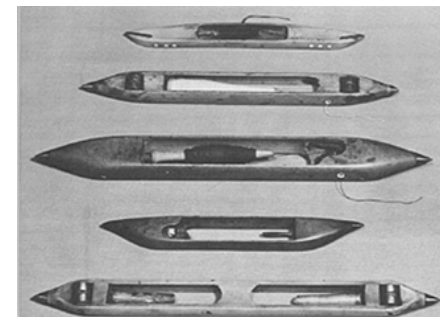


Horstead mill in Norfolk



Albion mills

tation of it in the industry in 1760, weavers became more productive. The next step of productivity increase was the invention of “Spinning Jenny” by James Hargreaves in 1764 but unfortunately, it did not have very strong yarn.

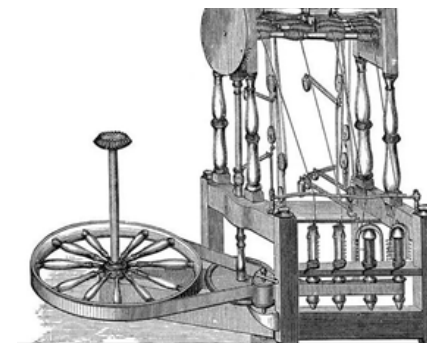


Kay's flying shuttle

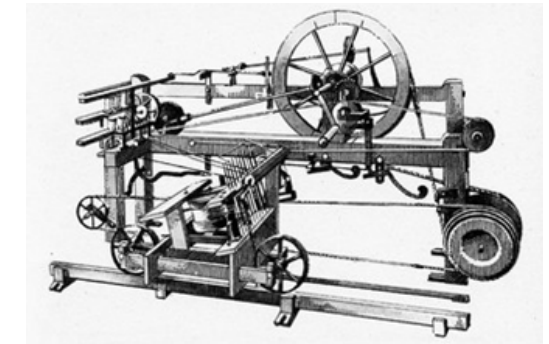


Spinning Jenny

Finally, in 1767 the “water framed” spinning machine was patented by an English inventor and entrepreneur Sir Richard Arkwright. This machine made yarn harder and stronger. It required horse or water power to drive it. Since that moment spinning as a cottage industry was doomed. In 1779 the “Spinning mule” was invented by Samuel Crompton. He brought the spinning machine to perfection and revolutionized the industry worldwide.



Water-frame spinning machine



“Spinning mule”

The first generation cotton mills

In 1718 John Lombe built a silk mill in Derby which is not only ancestor of all our factories, but is also the great-grandfather of the regular framed skeleton construction upon which the best modern buildings depend. It was 12 m wide with regularly spaced wood pillars down the center, 34 m long and five storeys high with the center wall in masonry containing 468 windows. This mill also had a 5 m diameter undershot waterwheel which drove no fewer than 26000 machine wheels.

In 1771 the first water powered cotton spinning mill was built by Richard Arkwright which laid foundation of his fortune. It was called Arkwright, Strutt and Need mill at Cromford.

There are several examples of the mills of that time, it is worth considering: Arkwright and Strutt North Mill at Belper of 1786; Arkwright, Simpson and Whitenburgh mill at Manchester of 1780; Arkwright and David Pale's mill at New Lanark of 1784. The most of them were destroyed by fire and then reconstructed since in that time fire safety was at the very low level. Losses from fires pushed fabric manufacturers to find solutions to this problem.



Derby silk mill



Arkwright, Strutt and Need mill at Cromford

Fire-proof mills

The first attempt to build a fire-proof mill was realized in 1795 at Belper in West mill. This mill was built by William Strutt and had tile and gypsum plaster floors were supported on brickwork arches supported on cast iron columns. The timber beams were encased in thin sheet iron.

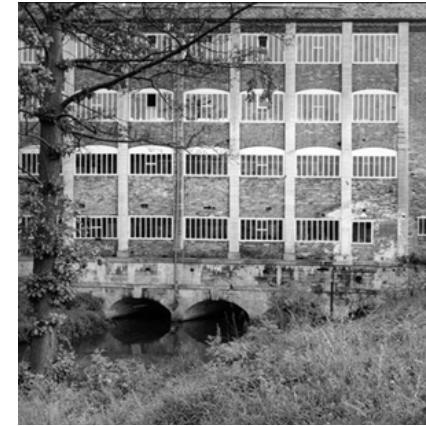
In 1797 the Flax Mill at Ditherington was built by Charles Bage. The mill was 54 m by 12 m and five floors high. No combustible material was used in its construction – stair cases were of stone; windows were of cast iron. Internally there were three rows of iron columns and iron beams span between the columns.

The finest of the early fire-proof mills is the water-powered mill at Belper. The original North Mill was built in 1786 by Jedediah Strutt and was destroyed by fire in 1803. His son, William, immediately rebuilt it with an iron skeleton. There are cast iron columns support cast iron beams spanning 3 m and brick arches span the 2 m between the beams while each 2 m bay has central heating mechanical ventilation, light and power. This mill had the first cast iron

Further, in 1813 the Stanley mill was built at Stonehouse on the Frome River. This mill had the first cast iron frame in the South of England.

Late textile mills

During the nineteenth century, general use of self-acting mule and the introduction of the ring-spinning frame demanded a greater size both of factory and of investment.



Stanley mill at Stonehouse



Typical mills for this period were: Hawthorne Mill at Chadderton, built in 1878. It was five storeys high oblong building. The outer walls of a dark red brick and the inside framing consists of rows of cast iron columns 3,2 m apart, supporting cast iron beams 6,2 m which in turn support small cast iron beams, 1,1 m apart, with brick arches spanning between them. There were used a system of sprinklers, which automatically spray on area of the factory in the event of fire.



Hawthorne mill at Chadderton

In the early 1870s rope drive was implemented. It helped to increase reliability since power was transmitted by many ropes and fire safety since the length of the rope drive allows making a fire division across the mill.

In 1895 Horrockses Company built Centenary Mill at Preston with a steel frame and concrete floors. The factory for Rose, Down and Thompson built in Hull in 1900 was the first English factory to be built of reinforced concrete. In order to construct it the François Hennebique system was implemented.

In 1910 the Swiss engineer, Robert Maillart built a warehouse in Zurich. He implemented mushroom construction instead of using beams. Therefore, reinforced concrete became an acceptable substi-

tute in construction for all previous structural materials such as stone, wood, and steel. Also, Robert Maillart had an intuition that exploited the aesthetic of concrete.



Arkwright, Strutt and Need mill at Cromford

Approximately at the same time, electric light and heating system came to use around. Heating was usually by steam pipes placed some 2,4 m above the floor. These innovations significantly increase the comfort and influence on building design as well.

Since 1905 mills started to switch to electrical drivers. One of the first was the Acme Mill in Lancashire, since electric power gave a steadier rate of drive than had been achieved with the steam engine. It gave an increased output in weaving of some 15 per cent per loom.



AEG Turbine factory



Fagus factory

The factory

A meeting of architecture and architecture ways happened in Germany in 1907 when AEG electrical firm asked the architect Peter Behrens to design the packaging, advertising and buildings for them. Now it calls “corporate image”.

In 1909 the AEG Turbine Factory was completed in Berlin. Nowadays, it is influential and well-known example of industrial architecture. The building has immense size 25,6 m+12,5m in width, a height

of 25 m and a length of 123 m. The sides are from glass, steel and concrete.

Another good example of modern architecture is Fagus Factory which was designed by Walter Gropius and Adolf Meyer. It was constructed between 1911 and 1913. The result was absolutely stunning for that period. The factory has glass at the corners it means that the role of the walls becomes restricted to that of mere screens stretched between the upright columns of the framework to keep out rain, cold and noise.⁶

6 John Winter, *Industrial Architecture: A Survey of Factory Building* (London: Studio Vista, 1970).

HISTORY OF RUSSIAN INDUSTRY

Introduction

Industrialization in Russia took place in two main stages. The first stage falls on the period of the Russian Empire, which existed from 1721 to 1917, the second stage falls on the Soviet period. As already mentioned the whole history of the industrialization of the Russian Empire is a history of lagging behind and attempts to catch up with the leading European countries. Among the main reasons why the Russian sovereign rulers did not manage to achieve the technical progress was the feudal social system. In Russia, serfdom was abolished only in 1861, until this time 80 per cent of the population was employed in agricultural work and had no right to leave the place of work and residence. Due to lack of free labor in factories, peasants were often involved in this. This kind of slave labor was widely used in factories, leading to a decrease in the production efficiency.

Both attempts of industrialization were carried out with the help of Western specialists who were doing mineral exploration, building factories, introducing new technologies into Russian production, and training artisans. It is also possible to note another characteristic feature of industrialization in Russia: first of all, it had to provide for the needs of the army, because Russia at that time was surrounded by many unfriendly states and wars almost did not cease.

Russian Empire, pre-industrial period

The first attempts at technical development of the country were made by its founder Peter the Great. He was an extraordinary person and his interests extended to a wide range of science fields. In 1697-1698 Peter the Great traveled with a diplomatic mission to Western Europe, where the most advanced technologies of that time were concentrated. Returning to Russia, he started to deal with innovations in the state, which included the industrial sector.

The main task facing the first Russian emperor was to supply the needs of the army. Thus, metal mining, metalworking, weapons production, as well as the production of sails, cloth and footwear were developing.

In Peter the Great days, geological exploration was developing, thanks to which minerals were found in the Urals. The first Ural plants were founded. The development of industry in the Urals is associated

with the name Demidov. Nikita Demidov studied at the Tula Arms Factory and became a well-known expert in this field. This allowed him to subsequently buy back factories in the Urals and establish his own arms monopoly there.

The next ruler who made an attempt at industrialization was Catherine II, who ruled the country in 1762-1796. During her ministry, Russia's role in the world economy had increased. However, trade with other European countries was mainly based on the export of raw materials and semi-finished products (sailing, cast iron and iron, wood, hemp, bristles, bread) and the purchase of manufactured goods. Russian technologies at the same time developed weakly, economy based on serfdom dominated. By the early 19th century the backwardness of Russia from the West reached its maximum. In the first half of the 19th century in connection with the rapid development of industry in the West, the export of Russian cast iron practically ceased and the collapse of Russian metallurgy occurred.

The Russian Empire: the beginning of industrialization

The real industrialization in the Russian Empire began under Nicholas I, who ruled in 1825-1855. In this period in Russia has happened an industrial revolution, similar to what happened in England in the second half of the XVIII century. This was helped by the system of protectionism introduced in 1822-1850s (Wallerstein, 1989).

Another important reason was the granting of movement and economic activity freedom to the peasants. Some peasants went into business and some of them were retrained as workers. The production of sugar, textiles, clothes, wooden, glass, porcelain, leather and other products developed; the import of finished goods, machinery and tools decreased, which indicated the development of the corresponding Russian productions. A very slow technical reconstruction of metallurgy began, and by the beginning of the 20th century most of the cast iron was melted using modern technologies, mainly based on coal (coke). The first railway line was laid.

After the death of Nicholas I in the second half of the 19th century, Russian industry once again experienced a crisis. In subsequent years, periods of growth alternated with periods of decline. The reign of Alexander II from 1860 to 1885-1888 economic historians characterize the period of economic depression and industrial decline. Alexander II held "great reforms" in particular he abolished serfdom. With him, capitalism arose in Russia.

After the coming to power of Alexander III, at the beginning of the mid-1880s, the government returned to the protectionist policies under Nicholas I. However, economic historians point to a number of disadvantages in Russia's protectionist policies during this period. Thus, import taxes stimulated the production of not complex industrial products, but the basic products of Russian industry (iron, steel, oil, coal, etc.). Import taxes were charged only in the European part of the country, while the Asian border was virtually free of any taxes and charges almost throughout its entire length. This possibility was

used by merchants who imported the lion's share of industrial imports through the border. A characteristic feature of industrialization in the 1890s became a rapid monopolization of leading industries.

The future "Kristall" distillery appeared thanks to the reform of Sergei Witte and the introduction of a state monopoly on the production and sale of alcohol, originally called "The Moscow Government Wine Warehouse No 1".

In the early 20 century industrial production again slowed, even more than in the late 19th century. In 1901-1903 there was an economic crisis that affected on a number of developed countries and was characterized by a fall in production. After the crisis, Russia still lagged behind, and the growth rate has not reached the pre-crisis level. The demand for machinery and equipment was supplied with imports, the process of market monopolization continued. From 70 per cent to 100 per cent of the production capacity (in the most branches of production) at the beginning of the First World War controlled by foreign capital, in large part - French.

The problems of Russian industry played a significant role in the events of the First World War, when the Russian army was worse equipped with weapons and ammunition compare to other belligerent countries.

Nevertheless, at the beginning of The October Revolution a number of industries were well developed such as metallurgy, steam locomotive building, and the textile industry. Before the Revolution Russia had the largest railway network in Europe (length - 70.5 thousand km in 1917) and a large fleet of locomotives and wagons of domestic production was involved in its operation.

USSR: five-year plans

After the First World War, two revolutions and a civil war, the country was exhausted. Since 1925, the government of the USSR has taken a course toward the industrialization of the country. It included:

- Creation of large-scale machine production.
- Elimination of the backwardness of the USSR from Western countries. By the time of the 14th Party Congress in 1925, the Soviet Union's lagging behind France, the United States, and Germany had increased markedly. This fact did not allow holding a dialogue with Western countries on equal terms.
- Ensuring of the USSR development in the military sector. Without a powerful industry and science, it was impossible to build up military capabilities. But only a strong army can preserve the territorial integrity and independence of any country.
- Improving the life quality of workers in the country. High unemployment rates and low wages of workers could provoke public unrest. In fact, the laboring class at that time was much more hard-pressed compare to pre-revolutionary time.

In order to carry out industrialization in the USSR, considerable funds were required. In conditions of almost complete lack of investment, they were given thanks to collectivization. Collectivization was

proclaimed of the main communist party task in the village at the next 15th Congress in 1927. It was conducted with harsh methods. Today, industrialization and collectivization in the USSR are called the Great Turn (the term was taken from the title of Joseph Stalin's article "Year of the Great Turn"). Another source for economic development was the export of oil, but during the first decades of Soviet period this industry was declined due to the wars.

The first five-year plan was announced in 1929. It was overstated as well as subsequent five-year plans. The most famous construction sites of the 20s - 30s are: Dnieper Hydroelectric Station, Magnitogorsk Iron and Steel Works, White Sea–Baltic Canal, Turkestan–Siberian Railway, Chelyabinsk, Kharkov and Stalingrad Tractor Plants. An important role in carrying out forced industrialization was played by national enthusiasm.

The policy of industrialization has led to a marked decrease in the life quality of population, especially in peasantry. However, by the end of the 1930s, the results of industrialization became obvious: a powerful industry appeared (including new industries for the USSR), coal mining and metal smelting were increased, and so on. Only the presence of such an industry allowed the USSR to win in the coming World War II.

INDUSTRIAL ARCHITECTURE IN RUSSIA

Industrial architecture introduction

Industrial Revolution in the Russian Empire in the second half of the 19th century entailed the massive construction of plants and factories. The overwhelming majority of factory buildings were risen in Moscow and St. Petersburg and belonged to the so-called "Brick style". By this term is meant the rationalistic trend in the eclectic architecture, which was expressed in the refusal to plaster front elevation. In this case, the decorative value itself acquired brickwork: the facades were laid out of polychrome bricks, glazed ceramic tiles, tiles, terracotta panels. Moscow Distillery Kristall, the case study of this thesis, was made exactly in the "Brick style".

In Soviet Period the production shifted from light industry to heavy industry. In this period were designed and constructed projects of huge scale in modernist style. For instance, in this period in Moscow was constructed ZIL factory, the largest industrial plant in the city. These buildings were completely different in style and scale and are not listed among the following examples.

Red October Factory (Einem)

This is the most famous factory in Russia, since among all examples which were listed above it is the closest to the Kremlin. Its history starts in 1851, Ferdinand Theodor von Einem came from Germany and opened a small chocolate-manufacturing workshop in Arbat Street. In the 1860's, his companion was Julius Geis launched an active advertising campaign. After Eynem's death in 1876, Geis becomes the owner

of the company, but the old name remains, because at that time it was already a well-known brand.

In the 1880s, the firm bought a piece of land on the Bolotniy Island between the Moscow River and the Vodootvodniy Channel, near the arrow of the island. At the same time, construction is under way on the projects of architect Kalmykov. Finally, the factory ensemble was formed in 1912.⁷

In Soviet times the factory was nationalized and given a name "Red October" after the October revolution. In 2007 the production stopped. Since then the site has been rented for offices, bars and restaurants. Once it has been popular for night clubs. Red Oktober is also famous because here is located Strelka university and Strelka construction bureau. Among other Russian archistars here is located Yury Grigoryan's Meganom studio. Yet, there have not been done a complex renovation project because as the most important, it is also it is the most arguable places in Moscow.

7 Alexander Ivanov, "Walks around Moscow: the most beautiful industrial buildings in Moscow," (March 31, 2017).



Red october, post card, pre-revolutionary view



Red october, contemporary view
The left part was built in Soviet period

Badaevsky (Trokhgorny) Beer Factory

The original name of the brewery was “Trokhgorny” (three mountains). The buildings of the plant are located on the outskirts of Moscow beyond Dromilovskaya Square. Malt houses were built in 1875-1876 according to the architect Weber project; in 1904-1907 - water tower according to the architect Klein project (jointly with G. P. Evlanov) and in 1909 - old elevator.

The project was designed following the example of the Munich brewery. The leadership of construction, which began in March 1875, was carried out by A. A. Kempe. He was a citizen of Vyborg, studied in Riga and developed practical knowledge in Germany. The official laying of buildings took place on June 15. The beer factory equipment was completed by February 1876. The beer brewing began on February 5, and market launch was on June 1, 1876.

In Soviet period the brewery was nationalized and given a name “Badayevsky” after a soviet party and state figure. The production stopped in 2006 and its territory passed for warehouses. The building n.3 was reconstructed for a night club “Kryisha mira” (world roof) that soon became extremely popular. Several other night clubs were located in building n.1. Yet there has not been a complex renovation intervention.



Badaevsky beer factory

AMO ZiL (Zavod Imeni Likhachova)

The factory was founded by a group of private investors in 1916 according to the state program of introducing in Russia automobile production (the program considered creation of 6 new car factories). The investors were going to produce here FIAT trucks and to do it they signed a contract with FIAT.

Because of the Revolution of 1917, inflation, high percentage rates for credits and transport system collapse the construction of factories was not completed. By the end of 1917 were finished about 2/3-3/4 of works. It was decided to buy details directly from Italy and assemble

them in Moscow. In total the factory managed to assemble about 1319 trucks. When the details brought from Italy finished, the production stopped and the site was used for large scale repair workshops.

In Soviet Period the factory was nationalized. After the Civil war soviet government relaunched the production. For many years ZiL remained one of Russia’s most important transport industry plants. At the beginning there were constructed trucks designed abroad, but in the end there was created an engineering studio that started to design its own transport.

By the end of Soviet period the plant occupied the territory of 300 ha close to the center of the city on a peninsula of Moscow River. In 2012 it was decided to reduce the production site down to 50 ha in its southern part and to convert the remaining territory into a residential district for 30 thousand people. There was a competition for this area won by Meganom.



AMO ZiL



AMO ZiL

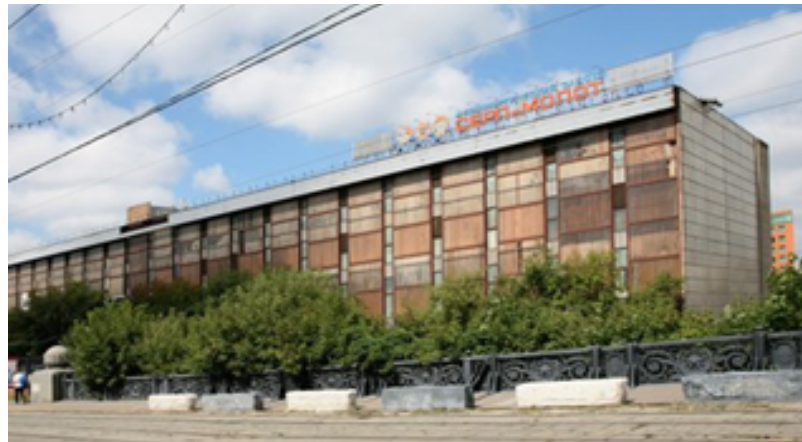
Serp i Molot (The partnership of Moscow metallic factory)

Serp i Molot is another industrial plant located in Moscow that was founded in pre-revolutionary period, but developed mainly in Soviet era. It is located on the east of Moscow next to Kristall distillery. Beside the factory is located a railway station that used to have a connection with the factory.

The factory was founded in 1883 by French entrepreneur Yuly Guzhon and was called “The partnership of Moscow metallic factory”. In 1890 on the factory was launched the first Open hearth furnace, by 1913 there were already seven furnaces, that melted 9 tons of steel per year; some rolling mills. The factory produced mainly iron, iron wire, nails, bolts, etc.

In 1918 the factory was nationalized and in 1922 it was renamed to “Moscow metallurgical plant “Serp i Molot” (Hammer and sickle). In the following years the production continued developing and became one of the most important metallurgical plants in USSR.

Since 2011 the production stopped. In 2015 was started the construction of residential quarter of the site of the factory.



Serp i Molot



Serp i Molot

02

REUSE STRATEGIES FOR DISMISSED INDUSTRIAL AREAS

The transformation of ex-industrial areas into residential districts is a global phenomenon that is seen in many countries that are entering or have completed the transition from an industrial society to a knowledge-based and service-based society. (Baum⁸, 2012)

As with the industrial revolution this trend initially came to United States and Western Europe and then spread to the other countries. The pioneers of reuse of industrial buildings were the artists who started to adapt former factories for their needs of living and working space. This chapter is considering the history of reuse of industrial buildings and sites, and the most interesting examples of reuse.

REUSE HISTORY OF INDUSTRIAL BUILDINGS AND SITES

Pioneers of reuse

In earlier periods such as Renaissance and Baroque artist were hired for many years and located in their patronage residences. With the end of XVIII century starts the Enlightenment Age with its ideas of liberty and human rights. The society started to appreciate an artist as a personality, not just a craftsman, consequently artists became more independent and wealthy, they earned more and more and began to settle in luxury palaces. In the XX century with the social and economic change the artists again changed their lifestyle. Modern artist did not have one common direction, everyone was searching and experimenting. These experiments often were not evaluated properly by their contemporaries, and mostly Modern Artists were poor - Van Gogh, for instance. Only few of them, such as Picasso and Dali were exceptions and could afford upmarket buildings. Initially the center of Modern Art was in Paris, the famous La Ruche (literally the beehive) was an artist's residence in Monparnasse district. After the World War II it shifted to New York.

With the beginning of the deindustrialization and the governance crisis the inner part of New York became derelict. The middle class migrated to the periphery. In 1950s the artists started to settle in dismissed industrial buildings in Lower Manhattan. They were attracted by its price and spatial qualities. Industrial buildings had large windows and



Bedroom in Arles
Painting by Vincent Van Gogh, 1888



La Ruche

it gave light necessary for their work. Open plan made the space very flexible and could fit various activities. Also industrial buildings had big spaces, and it was important because Modern Artists created large paintings. But above all the physical qualities, living and working in a factory was resonating with a certain spirit of rebel and challenge to institutions that was inherent to that generation. This kind of reuse was called 'loft conversion' and the apartment itself was called 'loft' or 'loft apartment'.

The provisional atmosphere, the open interior and the seemingly careless way in which living and working area distributed in clusters within a space is often the result of a deliberate intervention intended to express a free lifestyle. The interior of the loft resembles an urban plan in which clusters intended for specific programmatic purposes are surrounded by an inhabitable space, where it is not always clear whether the clusters are defined by the space or the space is defined by the clusters. (Christiaan⁹, 2012)

With the increase of lofts in Lower Manhattan was created kind of a network between people who settled there. Exhibition halls, galleries, event spaces and cafes emerged and created a new 'city within city'. There were several important events that defined the history: in 1951 there was an art exhibition organized in a building set for demolition, in 1952 an artist Harold Rosenberg performed an "action painting" emphasizing that the process was more important than result; in 1963 Andy Warhol opened his "Factory" and it gave a new dimension of loft and its urban environment.

Andy Warhol (born Andrew Warhola; August 6, 1928 – February 22, 1987) was an American artist, producer, designer, writer, collector, publisher of magazines and film director, an outstanding person in the history of pop-art movement and modern art in general. In 1963 Warhol opened his Factory, an art studio that originally was located on the fifth floor at 231 East 47th Street, in Midtown Manhattan and later in several different buildings over the years. It became known for its silver-painted, tin foil-covered walls and fractured mirrors, and its house equipment Warhol used to create his assembly line screen prints. Throughout the sixties, The Factory also became known as a hangout for hip, artistic types. Warhol would host parties and collaborate with

⁸ Martina Baum, "City as loft," in *City as loft: adaptive reuse as a resource for sustainable urban development* (Zurich: gta Verlag, 2012), 11.

⁹ Kees Christiaan, "Traces of the city as loft," in *City as loft: adaptive reuse as a resource for sustainable urban development* (Zurich: gta Verlag, 2012), 14.

artists, musicians, and models. The Factory was also a regular hang out spot for 60's cultural icons, like Mick Jagger, Bob Dylan, and The Velvet Underground, as well as many other writers and artists.



Andy Warhol in The Factory



Andy Warhol and his screen prints

10 *SoHo*, stands for South of Houston Street, a district in Manhattan.

In that way the *SoHo*¹⁰ district became famous as a bohemian quartier and people who wanted to be a part of it started to settle here. In 1980s the economic situation has changed, and the district got big investments, the price of the loft apartments became too expensive for artists. They could not afford anymore to live and work here. What happened is that by the early 2000s only rich could afford living in Lower Manhattan, the bohemian community moved out except for some very successful artists and gallery owners that remained.

Since then this sustainable approach of bringing ex industrial areas back to the city spread all over the world. By these days there has been a number of successful adaptive reuse interventions for the industrial sites that vary in scale, geographical position, time period, former and new function, number of architects involved, etc. Sometimes it was top down initiative when the owner or the government were the initiators of the interventions, sometimes it happened following bottom-up scheme like in case of artists in SoHo. In this thesis are described only those of them which are comparable to the case study that is a former distillery situated in Moscow close to the city center and occupies an area little less than 100 000 m². The idea is to analyze the reuse projects according to the approach chosen by an architect or a studio and the level of invasion for the existing architecture. The projects are presented in chronological order.

Ricardo Boffil's Factory

Architect	Ricardo Boffil
Location	Sant Just Desvern, Spain
Site area	100 000 m ²
Year	1973-1975
Former function	Cement factory
New function	Head office of Taller de Arquitectura

Approach	1. Demolition of part old structure to reveal the hidden forms and certain spaces 2. Definition of functions 3. Cleaning of the cement and adding of new greenery.
Level of invasion	Medium: partly demolition, some modest new structures were added.

In 1973 Ricardo Boffil (born in 1939), a Spanish architect, has found a disused cement factory that consisted of over 30 silos, subterranean galleries and huge machine rooms. Attracted by its unusual forms, he decided to buy it and to convert it into the Head office of his studio.

The transformation began with the demolition of part of old structure in order to reveal the concealed beauty of brutalist raw cement silos, he compares this step with a work of a sculptor. The next step was to clean the silos because they were full of cement and it was impossible to penetrate inside. After that they started planting vegetation that would climb walls and hang from the roofs. The last step was to define the spaces and to add some new structures. In three years the project was accomplished.

In such a way existing structures provided the project with various unusual spaces meeting the needs of different activities. The site hosts the studio, the conference and the exhibition hall located and the architect's residence. The whole structure is surrounded by garden and is melting in greenery. The architect affirms that this is the best place for him to work and to live.¹¹

¹¹ "The Factory / Ricardo Boffil," <https://www.archdaily.com/294077/the-factory-ricardo-bofill> (November 15, 2012).



Ricardo Boffil's Factory
Photo by Ricardo Boffil



Ricardo Boffil's Factory
Photo by Ricardo Boffil

SESC Pompéia

Architect	Lina Bo Bardi
Location	São Paulo, Brazil
Site area	250 000 m ²
Year	1967-1977
Former function	Metal barrel factory
New function	Community center

Approach	1. Discussions with public 2. Insertion of a new brutalist structure in raw concrete 3. Restoration of the old warehouses serve as a background for the new structure. 4. The architect takes care of interiors and any detail in general
Level of invasion	Medium: old warehouses were saved; new dominating buildings were added.

Lina Bo Bardi (1914-1992), a Brazilian modern architect of Italian origin. She was invited by SESC Pompeia (Serviço Social do Comércio, Social Service of Commerce) to intervene into an adaptive reuse project of a former metal barrel factory. SESC Pompeia (Serviço Social do Comércio, Social Service of Commerce) are non-profit organizations run by commercial associations that provide sport and cultural facilities for the poor. These places serve as a meeting point for people.

Bo Bardi spent 10 years working on this project, involving into discussion the people, future users of the site. She decided to restore the two brick warehouses and to use them as a background for the new brutalist concrete towers. The brick buildings of the former factory hosted a theatre of 800 places, a library and exhibition spaces while the new towers contained the sport facilities. Bo Bardi took care also of the interior spaces. The project was finally opened to public in 1977.

This project is important because it combines modern architecture and social needs. This outstanding architecture intervention of the concrete is now one of classic Modernist buildings.¹²

12. Andrea Valeriani, "SESC Pompeia, Lina Bo Bardi," <http://www.archidiap.com/opera/sesc-pompeia/>, (February 22, 2016).



SESC Pompeia in Sao Paolo



SESC Pompeia in Sao Paolo

Duisburg Nord park

Architect	Latz+Partner
Location	Duisburg, Germany
Site area	1 800 000 m2
Year	1991

Approach	Industrial facilities are preserved and used as the main theme of the new park.
Level of invasion	Low: partly demolition, most is saved.

Peter Latz (born in 1939) is a German landscape architect and a professor of architecture at the Technical University of Munich. His office in 1991 won a competition for the best solution of reuse of a huge territory of a former steelmaking factory. His studio 'Latz+partner' was selected from five participants. Unlike the others they proposed to save most of the industrial facilities - the workshop, the locomotive depot, bridges and bunkers - and make them the main theme of the new park.

Here the new bridges were built, pedestrian and bicycle paths were laid, alleys and grooves were planted, all kinds of grounds for active and passive recreation were organized. One of the blast furnaces has been turned into a climbing wall, the other has an observation deck, and in the former gas tank there is a diving center

This project has a huge area, but it was selected anyway because it was the first project where the existing structures were used as a part of landscape for its time approach that later was applied in other similar sites.¹³

13. "Metamorphosis of the blast furnace plant Thyssen-Meiderich into a landscape park," <https://www.latzundpartner.de/en/projekte/postindustrielle-landschaften/landschaftspark-duisburg-nord-de/>.



Landschaftpark Duisburg-Nord



Landschaftpark Duisburg-Nord

Tate Modern Gallery

Architect	Herzog & de Meuron
Location	London, Great Britain
Site area	43 000 m2
Year	1995-2000
Approach	From outside was added a light beam at the top floor. The interior was mainly replaced with the galleries, the central space (machinery) was left empty in order to host big installations and projects. The ground floor is provided with entrances from all directions that connect the site with the surrounding urban fabric.

Level of invasion	Low: a very soft intervention with minimum exterior alterations. The interior machinery was replaced.
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Herzog & de Meuron is a Swiss architectural studio founded in 1978 by Jaques Herzog (born in 1950) and Pierre de Meuron (born in 1950). In 1995 they won a competition for adaptive reuse of the Bankside Power Station that was dismissed since 1989. In 1995 there was a competition. They proposed a very soft intervention with minimum exterior alterations.

The building is located on the river Themes, which divides it from St. Paul's Cathedral. The station's chimney stands as a counterpoint to the cathedral's dome, the architects took it into consideration and didn't change the skyline of the site. The only exterior change is the light beam on the top of the roof. It is a very minimalistic element that is in contrast with the original brick façade. From inside however the difference between old and new here is not always clear. It was done intentionally because the architects didn't want to distract attention from the works of art.

In order to accommodate art of different size, Herzog & de Meuron replaced much of the power station's interior with galleries of different size. The large space of the turbine hall is the most striking part of the interior. This is the central plaza of the whole building and a very flexible space able to host art or event of any size. The building is connected with the urban fabric through the gardens, the entrances are situated along the whole perimeter providing access from all the directions. This project has become one of the iconic for the reuse of industrial buildings.¹⁴

14. Rennie Jones, "AD Classics: The Tate Modern / Herzog & de Meuron," <https://www.archdaily.com/429700/ad-classics-the-tate-modern-herzog-and-de-meuron>, (September 17, 2013).

Zollverein Coal Mine

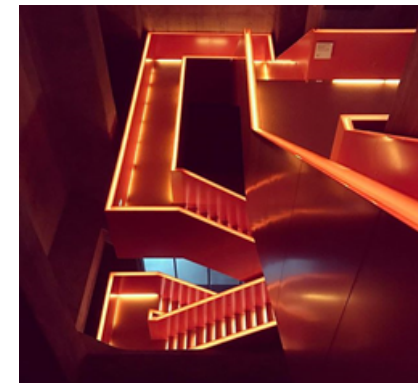
Architect	OMA
Location	Essen, Germany
Site area	1 000 000 m ² (12 000m ²)
Year	2001-2010
Approach	Industrial facilities are preserved and adapted for a Visitors Center and Ruhr museum
Level of invasion	Low: most is saved, even machines; only some small extensions were added.

Zollverein Coal Mine is situated in Essen not far from Duisburg where the famous Nord park, both make part of Ruhr region famous for its industrial past. In 2001 UNESCO added Zollverein Coal Mine to the list of the world heritage industrial monuments. OMA was invited to develop a masterplan and propose the contemporary use for the site, because by that time it was already a very famous and influential studio. OMA is a Dutch architectural office founded by Rem Koolhaas (born in 1945) and three other partners in London in 1975.

The project included adaptive reuse of one of the most emblematic buildings of the site: a former factory for sorting coal. It was decided to locate there the Ruhr museum and the Visitor Center. OMA decides to preserve as much as possible of the existing structure including the machines inside the building to combine modern use with historical context.

The access to the inside of the building is through an escalator that goes up to 24 meters, the movement from the top and bottom is similar to the flow of the original factory production. From the escalator visitors get to the distribution space. Above there is a former there is machinery space that remains in its original state, the lower levels where the coal was stored before host the exhibition space and the museum's storage.¹⁵

15. "Zollverein Masterplan," <http://oma.eu/projects/zollverein-masterplan>.



Zollverein Coal Mine, the staircase
Photo by Francois Gregory



Zollverein Coal Mine, skating activity
Photo by Stiftung Zollverein

Fondazione Prada

Architect	OMA
Location	Milan, Italy
Site area	1 000 m ²
Year	2008-2018
Approach	
Level of invasion	Medium: old buildings were preserved, 3 new buildings were added.

Fondazione Prada is an institution dedicated to the contemporary art and culture. In 2008 OMA was commissioned to work on its new headquarters in Milan. The site is a former gin distillery Largo Isarco dating from 1910, located in the nearest periphery of the city. It was chosen by Fondazione Prada because it had a range of various spaces: high/low, big-small, dark/light, opened/closed etc., that allowed to expose different kinds of art. OMA decides to complement old spaces with new ones, creating even more variety. The project was also important because it was intended to put the beginning to the change of the whole district.



Fondazione Prada, tower covered with gold leaf
Photo by Bas Princen.



Fondazione Prada, White tower
Photo by Bas Princen



Fondazione Prada, Podium
Photo by Bas Princen



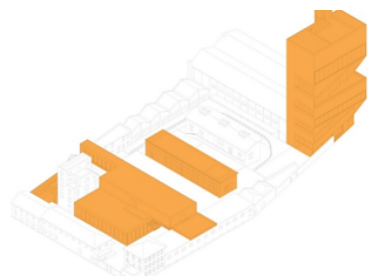
Fondazione Prada, Cinema (on the right)
Photo by Bas Princen

16. Koolhaas, "R. Koolhaas (MI/ ARCH 2013 - Lezioni pubbliche di architettura urbana)," 2014.

OMA decides to demolish one flat building to make a square. Then to the seven remaining old buildings were added three new structures: Torre, a nine-level exhibition space for the permanent collection; Podium, that hosts temporary exhibitions; and Cinema, a multimedia auditorium. The challenge for the studio was to find a fitting architectural language because according to Koolhaas when new buildings are too beautiful than the old buildings begin to look poor.¹⁶ Another aspect is that Milan is a historical city with a lot of layers, so it should have a respect to the context. So the architectural intervention was intended to be quite modest but at the same time give a new look to the site. The new look becomes even more important if to remember that Prada is something that is associated with fashion, so the headquarters is also an advertisement for the brand.



Fondazione Prada
Model by OMA



Fondazione Prada, new buildings are highlighted
Axonometry by OMA

The studio pays much attention to the choice of the materials that underline the contemporary look of their buildings. The new pavilion looks quite modest thanks to its minimalistic style, and contemporary with its glazed walls and a beam covered with foamed aluminum that has a bubbled pattern, on its top. The cinema is covered with metal that looks like mirror and almost disappears in the context. The new tower is made of concrete and painted white that it gives it lightness. It gets its contemporary look from its shape and simplicity in details. The white tower together with the old smaller tower painted with gold alternates the skyline communicating that something interesting is getting on here.

17. Koolhaas, "R. Koolhaas (MI/ ARCH 2013 - Lezioni pubbliche di architettura urbana)," 2014.

18. "Fondazione Prada / OMA," https://www.archdaily.com/628472/fondazione-prada-oma?ad_medium=gallery, (May 7, 2015).

Koolhaas says that The Fondazione is not a preservation project and not a new architecture. What is the most innovative here is that there is no one object, no 'masterpiece that dominates', but a lot of 'relatively sophisticated moments'.¹⁷ The site was opened in 2015, but finally the project was completed in 2018.¹⁸

TURIN: A CASE STUDY FOR REUSE

Turin's industrial history

Turin is an important business and cultural city of Northern Italy, administration center of the region and the homonymous province of Turin. After the unification of Italy (Risorgimento) in 1861 Turin became the capital of Italian Kingdom as it was the capital of the House of Savoy who became the ruling dynasty. The industry came to Turin after the capital was moved to Florence in 1864 and Turin lost its key function of a political center. Actually Turin was a late-comer to the industrialization.

Nevertheless, there remained some activities that became a good basis for the industrial development. Firstly, there were money. Secondly, Turin was the headquarters of army and in particular of its production activities: armories. And finally there was a system of education: Turin University that was founded in 1404 and Technical School for Engineers (Scuola di Applicazione per gli Ingegneri) that later grew into Polytechnic University of Turin.

The first industry that came to Turin was the railway production. Railway companies of that time were private and there were several of them. Two of them were the most important: t Turin-Genoa with the station Porta Nuova, and Turin-Novarra (later Turin-Milan) and it started from Porta Susa. At the beginning these companies didn't collaborate, but later in order to save some money they decided to unite the two stations with a loop and to construct common workshops for train maintenance in what is now the area of Polytechnic University of Turin. Some of these workshops remained and used for the needs of the University.

The mechanical industry gave birth to the beginning of the car

production. It started as a spin-off of the railway industry. At that time cars were not a mass product, but more an object of desire for the highest classes of society. They were assembled almost manually and cost a lot. There was no infrastructure for cars – no roads, no gas stations and they used them mainly for races and maybe for short trips. In Turin there were several private workshops for car production. In 1899 a group of people of the upper class of society, including Giovanni Agnelli, founded Fiat (Fabbrica Italiana Automobili Torino) in Corso Dante. They started car production still without considering this plant as something important, as nobody knew that cars would become a mass product.

Meanwhile in Detroit Henry Ford founded Ford Company in 1903. He simplified the production in order to make cars affordable not only to the upper classes but also to the middle classes. In 1908 he introduces his Model T car that was produced with no options, the customer could not choose parameters, but it costed less. He implicates what is called assembly line, a scheme that helps people to multiply the production. The idea of assembly line is that it should not stop, if it stops the owner will lose money.

Giovanni Agnelli decided to implement the assembly line for his production and decides to invest in the construction of the new headquarters of Fiat. They needed an area in suburbs, but not too far so that workers could get there. So they choose Lingotto. People would come by via Nizza, and raw materials by railway Torino-Genova. The main building of Lingotto was inaugurated in 1923, in 1926 was completed the office building and the work started. But soon it was clear that the multistory building is so not comfortable to move around, it is dirty and unhealthy. One-story building is also much better in terms of assembly line. Furthermore, during the war when it was bombed, the production stopped because it was very compact and fragile. Lingotto was dismissed in 1982. In 1936-1939 was built the actual headquarters of Fiat, Mirafiori. It was buildt by a civil enginer Vittorio Bonade' Bottinowho has been building for Fiat everything in 1930s-1970s.

During the fascist period in 1922-1945 the production never stopped. The government has also invested in the construction of some social structures like hospitals (Ospedale Molinetti), the General Markets across the railway from Lingotto, and they also created a shopping street – via Roma, which is partly modern, partly imitation old style.

In 1910s there was a first wave of immigration when people from other parts of Italy came to Turin for a job. And during the first wave there were mainly people from the North of Italy. The second wave was much bigger and it happened after the end of World War II when people came mainly from South, the population grew from 600 000 in 1941 to 1 100 000 in 1961, that is more than now (900 000).

The World War II destroyed Turin because Northern Italy became free later than the other Italy, only in 1945. Furthermore, Turin was an industrial city and during the war Fiat produced weapon, so it was a military object. But the same industry helped Turin to get well and to bring the prosperity to the country in the future 20 years.



Lingotto factory in Turin

Fiat earned during the war and therefore it was one of few businesses in Italy who could help to reconstruct the city. They had to reconvert their production from military back to civil. It was decided to produce cars for the middle class. It should be a small car that one can use in the city and to take his family on holiday somewhere by the sea or in the mountains. That is how Fiat 600 and later Fiat 500 emerged and became the symbol of the Italian reconstruction and the Italian car design.

As it was said above in 1945 there was a second migration wave. These people were peasants who were forced to move to the north because of unemployment. Italy was destroyed and the reconstruction could not be based on peasants, it was based on industry, so they came here with their families that were big in that time, 3-4 children, grandparents, aunts, uncles, etc. They had to host somewhere, but the city was bombed. And they needed a job, but they were not educated. So the Italian government has decided to invest in building construction to solve both problems: unemployment and lack of houses. The following years changed the cities expanded in the periphery sometimes uniting with the nearby cities due to this grows.

At the same time for the upper class there were constructed more sophisticated buildings like 'Bottega d'Ersamo' near Molle Antonelliana by R.Gabetti and A.Isola. The construction took three years (1953-1956).

In 1961 Turin held a national labor exhibition to commemorate 100 years since the unification of Italy. For this event there was constructed a whole quartier "Italia'61". There were located a number of particular buildings such as Palazzo del Lavoro by Pier Luigi Nervi and Palazzo a Vela (Palavela) – another pavilion with a sail-shaped roof. These buildings were quite big and of particular shape therefore representing the ambitions of the city's industry on its peak in 1960s.

In 1970s there was a war between Israel and Arabian countries that interrupted the export of oil. It was a crisis that showed that the indus-

19. Sergio Pace, "Torino: the architectural and urban history 2014," Politecnico di Torino on-line lectures. Posted [May-June 2014].

try was not the future. It took Italy about 20 years to adapt to the new conditions.¹⁸

Turin's postindustrial history

Turin has passed to its postindustrial era. Again many buildings were dismissed, there was no work, and there was a need for a new activity for the city that would attract money. The new activity was found in culture, that was already there in abundance. Turin has a long history that left its signs on the city – in architecture, arts, but not only. For instance, in Turin there is a famous opera house, Teatro Regio (Royal Theatre) that is still very popular even if there are few people who like opera. Why not to find out what else does it have and not to show it to the public? The authorities understood that culture was something that they could propose to the new consumption society and make the city an attractive place.

In 1984 Castello di Rivoli becomes a Museum of Contemporary Art; in 2000 Molle Antoneliana was opened to the public as a museum; in 2007 Veneria Reale became a huge exhibition center, very successful. Egypt Museum, Car Museum, Gallery of the Modern Art – anywhere one can find something to see. Slowly the voids inside the urban fabric were filled with something meaningful in cultural sense, but not only – also hotels, restaurants, bars and shops.

At the same time there should be done something to make the city nicer, more clean, more comfortable to stay. To do that, for instance the railway loop that connected Porta Nuova station with Porta Susa station was put underground. On the top of it is now passing a part of Spina – a road that passes through the city avoiding historical center. The former workshops of the railways were transformed for needs of the University.

The University itself has expanded and now educates also thousands of foreign students. These students also live here, spend here money: rent apartments, eat, go to the bars, cafes; they parent come to see them and also spend here money, visit the museums and eat in the restaurants. It means that apart from normal tourists there also temporary citizens, like students or workers who also are the consumers of the city. These people are attracted by education and the city itself – good transport system, green areas, safety, various events that are held from time to time.

A very important step in the postindustrial history of Turin were the Olympic games of 2006 that made an advertisement of the city as a contemporary city that could be interesting to come and to see, but also to invest. This is on one hand, and on the other hand together with the Olympic organizers the local authorities managed to solve the city's problem. For example, was created the park in Piazza d'Armi that is a public park even if on its territory are situated an old stadium of "Torino" football team and an event space constructed by a Japanese architect for the Olympic games that now hosts concerts. Another example is the Palavela in Italia'61 that was adapted for figure skating.

Next follow three examples of reuse of ex-industrial areas, the

most emblematic from my point of view: Lingotto as the first one and the most complex; Parco Dora as it is a park that takes example from Duisburg Nord and even done by the same studio; and OGR, the most recent and also big reuse intervention.

20. Pace, "Torino: the architectural and urban history 2014," 2014.



Olympic games in Turin in 2006
Photo credit: Balichws.com

Lingotto, Turin, Italy

Architect	Renzo Piano
Location	Turin, Italy
Site area	180 000 m2
Year	1985-2003
Approach	The conference room on the top of the building is the main external alternation that significates that the building has been modified. Much attention for the interior design.
Level of invasion	Medium: exterior has seen very few interventions, while interior was modified.

21. *High-tech style*, an architectural style that is combining the elements of high-tech industry and technology into building design. One of the iconic buildings for high-tech is Pompidou Center designed by Renzo Piano and Richard Rogers in Paris in 1971-1977.

22. *Rationalist style*, an architectural style developed in Italy in 1920s-1930s, it is characterized by laconism of forms, severity and underlined functionalism.

23. "Lingotto factory conversion," Renzo Piano Building Workshop (RPBW) official site, <http://www.rpbw.com/project/lingotto-factory-conversion>.

Renzo Piano (born in 1937) is a well-known Italian architect, together with Richard Rogers he is considered as a founder of *high-tech*²¹ style. In 1985 Renzo Piano was invited to make an adaptive reuse project for Lingotto, the former car plant located in the south of Turin, one of the main sites of the car factory Fiat. Lingotto was built in 1916-1930 in *rationalist*²² style. It used to be the largest and the most modern car plant in Europe as from architectural point of view so in terms of production. The main building of the site (Le Nuove Officine) is long 500m and five-levels high and has a road for testing cars on its top²³.

Piano decides to leave the exterior part of the building with very few alternations. The famous car testing road was restored. To the top of the building was added the "Bubble", a meeting room with glass walls and a helicopter pad (1994). In 2002 was added the "Casket"-a

metal box that hosts a permanent art exhibition belonging to the Gallery “Giovanni e Marella Agnelli”.

The interior however was completely modified in order to adapt it for the new functions. The main building has the Auditorium and Congress Center (1993-1994), Hotel “Le Meridien” and the “Garden of wonders” (1993-1995), and a multiplex cinema (1999-2005). On the north in 2002 was restored the ramp that is used to get to the commercial center, to the dental clinic of the University of Turin (1992-2003) and to the Department of Architecture of Polytechnic University of Turin (1999-2003). Piano designs all the interior spaces in a similar style, characterized by large symmetrical atrium spaces.

The Sorting department – another building located on the southern part of the site hosts temporal exhibitions. Renzo Piano also designs the public spaces surrounding the building where he applies the original grid of the façade to the pavement.

After that followed some interventions done by other architects. In 1998 other architects - Roberto Gabetti e Aimaro Isola restore the office building located along via Nizza, and it becomes Fiat’s management headquarters. From the other side of the main building for the Olympic games 2006 was constructed a footbridge that connected Lingotto with the residential area, separated by the railway.



Lingotto, department of Politecnico di Torino



Lingotto, internal courtyard

Parco Dora, Turin, Italy

Architect	Latz+Partner
Location	Turin, Italy
Site area	370 000 m2
Year	2004-2012
Approach	Industrial facilities are preserved and used as the main theme of the new park.
Level of invasion	Industrial facilities are preserved and used as the main theme of the new park.

The same studio that worked in 1990s for the Duisburg Nord park in Germany in 2004 won a competition for conversion of a former industrial area located in the North of Turin that until 1990s hosted large production plants of Fiat and Michelin, into an urban park. The ap-

proach used for this case was the same as for the Duisburg Nord park (Peter Latz became famous with that project as a specialist of creating industrial parks-parks that preserve the memory of industrial history of the place). This approach can be arguable, because actually this kind of parks are not really parks in a conventional point of view (like something associated with nature), however it is a convenient decision that became quite diffused since 1990s.

The park takes its name from the river Dora. It has five different areas that take its roots from the remaining industrial structures: bridges, stairs and ramps connect the various parts of the park between them and with the surrounding quarters.²⁴

24. “Parco Dora, Turin, IT” Latz+Partner official site, <https://www.latzundpartner.de/en/projekte/postindustrielle-landschaften/parco-dora-turin-it/>.



Dora Park



Dora Park

OGR (Officini Grandi Riparazioni)

Architect	Various
Location	Turin, Italy
Site area	290 000 m2
Year	2014-2017
Approach	Existing building is preserved and used for cultural and leisure functions.
Level of invasion	Low: only inevitable interventions to the existing buildings.

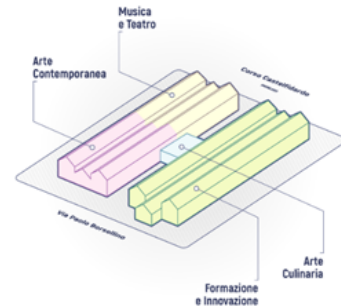
OGR (Officini Grandi Riparazioni) is H-shaped building located near the center of Turin, a former workshop for trains repair. The building consists of three parts: Northern Workshop, Southern Workshop and the transition area between the two workshops. In 2013 CRT Foundation obtains OGR, and in 2014 the general director of the OGR Massimo Lapucci launches a bug project of the complex’s transformation. He was assisted by Project Manager and Architect Marco Colasanti. For this intervention were invited different architects and engineers. The first masterplan was designed by Studio Carlo Ratti, and then the work on the project passed to the FOR Engineering Architecture (supported by Zumaglini & Gallina SpA).

The idea was to create a multipurpose and flexible space. The Northern Workshops, the most complex part of the project, combines

various functions: foyer, theatre ('Sala Fucine'), exhibition space for contemporary art and conference and workshop hall ('Duomo', 19 m high space where the trains used to be placed vertically for maintenance). Acoustic spaces of the Northern Workshops were designed by Peutz Group, invited by project group of OGR.



OGR, Exterior view
Photo by Danielle Ratti



OGR, functional scheme
Axonometry by FOR Engineering Architecture

The Southern Workshops are dedicated to the researches and start-ups. The transitional part is a food court. The ticket office is adjacent to the southern workshops. Both Southern Workshops and the transitional part, together with external space of the OGR were designed by 'Building Engineering studio'.

The invasion level of the intervention is minimal. It was decided to leave as much as possible of the existing buildings. Many walls were preserved in their original state (except for simple consolidations of the plasters and superficial cleanings), only the parts that are in direct contact with users and the walls of the spaces with special hygienic needs have been plastered again. Studio Carlo Ratti also designed new windows for the complex, because the old windows were in a bad state.²⁵

25. Stefano Sapienza, "Officine Grandi Riparazioni: un nuovo spazio per Torino," InterCassa, <http://rivista.inarcassa.it/terza-pagina/officine-grandi-riparazioni-un-nuovo-spazio-per-torino/>.



OGR, interior view of the transitional space
Photo by Piero Ottaviano



OGR, interior view of the transitional space
Photo by Piero Ottaviano

REUSE OF INDUSTRIAL BUILDINGS AND SITES IN RUSSIA

Attitude to reuse in Russia: Central military shop "Voentorg" in Moscow

In the beginning of 1990s in Russia the preference was given not to the restoration but to the plaster casts imitating historical buildings. In this period were demolished about 700 historical buildings²⁶ and often on their place were constructed imitations of original buildings. These imitations were usually of a very low quality made of cheaper materials. It was much easier and profitable to demolish the building and to construct whatever was needed. A good example of this trend is a history of the *Central military shop "Voentorg"* in Moscow.

The Original building was constructed in 1913 for the *Economical society of the officers of Moscow* military district by architect Sergey Zalesky (1867-1917) in Art Nouveau style. The three lower floors hosted commercial spaces, the fourth floor – offices, the fifth – workshops for shoes and clothes production. Through all its history the building didn't change its function, it has always been the main military department store of the country. In 1992 there was an accident, a piece of marble slab fell down and killed one woman and seriously injured another, the building was closed.



Voentorg, exterior view
Original building



Voentorg, exterior view
New building

In 2002 the owner of the building becomes an entrepreneur Telman Ismailiv, they say he was a friend of the functional city mayor Yury Luzhkov. In 2003 Luzhkov regardless the public opinion, regardless the embargo of the main city architect, regardless any kind of attempts to stop him decided to demolish the building and to construct on its place a copy. Even when the functional ministry of culture Mikhail Shvidkoy approached with a letter the president Vladimir Putin, it didn't help, the building was demolished.

In 2008 was completed a new building that was supposed to be similar to the old one. But in fact almost nothing remained, only general proportions. During the design phase was not done a scientific photo fixation of the interiors of the building, the designers didn't take into consideration the artistic value of the facades and interiors. The volume of the new shopping mall was six times bigger than the original, they added two floors on the top of the building, instead of rectangular tower on the corner there was a round one with a dome and a spire, the

bay windows and the floor divisions were deleted. Instead one atrium there are three. The façade material and color were changed. The building does not correspond anymore to the Art Nouveau style. According to the survey done in 2010 among the leading Moscow architects by Forbes magazine, the new “Voentorg” took the first place as “the ugliest building of Moscow”.



Voentorg, interior view
Original building



Voentorg, interior view
New building

This story is not unique, and it is still happening even now because often people who are responsible for these terrible interventions are lacking culture and education to understand the importance and also the economic benefits that a historical building could bring to the site. Other people just don't care: in Moscow for instance people who make these decisions usually are coming from other parts of the country and they don't care about the city and just want to earn money as fast as possible (because the economic situation is not stable) and to forget.

27. Yury Luzhkov, “It's not the time to give up,” *Moskovsky komsomolets* (April 20, 2009).



Yury Luzhkov, the mayor about the new Central military shop:

“Voentorg” came out magnificently. There is an underground parking. At the same place at the entrance the warriors with the shields.²⁷

28. “Moscow citizens should enjoy new Voentorg”, TV program *Vesti* (August 7, 2008).



Photo by Michael Lucan

Vladimir Resin, the construction manager about the new Central military shop:

“This is similar to choosing a wife – one likes blonds, another – brunettes. Long legs or short legs, ears these or that, all together it is nice. New-built? – Yes, new-built. One cannot say that it is old. But in the center of the city were made 35 thousands square meters of parking space. You need to be happy!²⁸

In these circumstances it becomes difficult to create something good. First projects of reuse of ex-industrial buildings in Russia belong to the middle of 1990s, but there was few interest to the industrial heritage. Many former factories and plants spontaneously were converted

into business centers without attention to their beauty and complex reconstruction, hoping to demolish existing buildings. The situation changed in the beginning of 2000 when in Moscow appeared new projects that considered the oldest dismissed industrial territories of the central part of Moscow. One of them was Red Rose factory.

Krasnaya Roza

Architect	Sergey Kiselev and partners
Location	Moscow, Russia
Site area	60 000 m2
Year	2003-2012
Approach	Former factory is transformed into an office center, masterplan provided by one studio, small parts commissioned to others. To advertise the future office, center some space was rented to designers. Careful restoration with addition of new buildings.
Level of invasion	Medium: partly demolition, new buildings construction.

Krasnaya Roza (Red Rose) is former silk factory located in the Moscow city center. It was founded in 1875 by Klod-Mari Zhiro, a French entrepreneur coming from Lion, later it becomes the largest silk factory in Russian Empire. After the revolution in May 1919 the Zhiro's factory was nationalized and given a name of Rosa Luxemburg (1871-1919), a Polish revolutionary socialist. The factory was dismissed since 1990s. In 2003 Sergey Kiselev was commissioned to convert Krasnaya Roza into a business center.

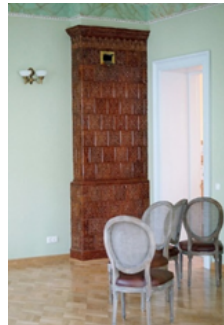
Sergey Kiselev (1954-2010) is a Russian Architect, he has founded the studio “Sergey Kiselev and partners” in Moscow in 1992. Kiselev was one of the first to open a studio after the seize of USSR; one of the first to use computer for his work and to work with foreign partners. Kiselev died in 2010 but his studio remains one of Moscow's most successful studios, able to create contemporary architecture. The proposal of the studio for Krasnaya Rosa was a step-by step reuse strategy that was going to be completed by 2012. The concept was to create a new business center with various tenants and opened to the city, so that anyone could go inside. Kiselev's studio provided the masterplan and commissioned some buildings to other architects.

The complex includes 10 buildings of various size and history. Two of them were constructed for residential needs of a manor house that used to be on the site before Zhiro came here with his factory. Later they were used for the production needs. Now these buildings are protected by government as they are considered as architectural heritage. The first is Vsevolzhsky manor- a wooden building that refers to XVIII century and managed to survive the fire of 1812. The building was relayed with the use of wooden buildings restoration technology, its tiled

furnace was saved, the interiors filled with antique furniture. The house was designed for important guests. This building was commissioned to Ludmila Barsh, another architect who provided restoration project. Another building is a gallery where Zhiro used to save his collection of paintings, also located inside the quarter.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.



Apart from the buildings that have official heritage status there is a number of second-rate buildings - modest, but still quite nice examples of industrial architecture of XIX century. Kiselev decided to reuse also these buildings despite it was not necessary by law –for that time it happened very rare. One of the examples of this reuse is a reconstruction of building number 9, that was commissioned to another studio – Rozhdestvenka, founded by Narine Tutcheva in 1990s. Tutcheva has been working with reuse, Krasnaya Roza is one of her best works where she decided to attach to a façade a multistory glass gallery. It is a very nice combination of old and new, that demonstrated how successful can be these kinds of intervention.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.

The last existing building worth notion is building n.1, a shed that was programmed for demolition. During the construction phase in order to advertise the site they were rented for a small price to Art-play gallery that hosted also architectural and design studios. Later when the works were finished Artplay moved to another ex-industrial

site, Manometr factory. Now it has grown into a whole quarter where designers and architects are working next to the building materials and furniture sellers; there is also located British higher school of art and design, and its branch - Architectural school, not mentioning small shops and cafes.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.



Krasnaya Roza, Vsevolzhsky manor after reconstruction. Photo by Evgeny Chesnokov.

To the existing buildings were added some new office buildings. Each building – aold or new was named after some famous russian enterpreneur of XIX century: Morozov, Ryabushinsky, etc. One of the buildings now hosts an office of Russian “Google” – Yandex.



Krasnaya Roza, axonometric view. Vizualization by Sergey Kiselev and partners.



Krasnaya Roza, internal courtyard view. Vizualization by Sergey Kiselev and partners.

29. Paper architecture, a phenomenon that happened in USSR in 1980s when a group of five architects started to create architectural projects inspired by the works of Piranesi and Russian avant-garde, that can exist only on paper. It was a protest against standardized construction, that was in that time in Russia due to the ideological limits and economic situation.

Winzavod

Architect	Alexander Brodsky
Location	Moscow, Russia
Site area	20 000 m2
Year	2007
Approach	Maximum attention to the existing buildings, mainly interior changes.
Level of invasion	Low: only interior design interventions.

Alexander Brodsky is a Russian architect and Artist. He is one of the founders of ‘paper architecture’²⁹. In 2005 he was invited by a Russian billionaire and the owner of the site Roman Troizky and his wife Sophia (who became the director of the whole project) to adapt it

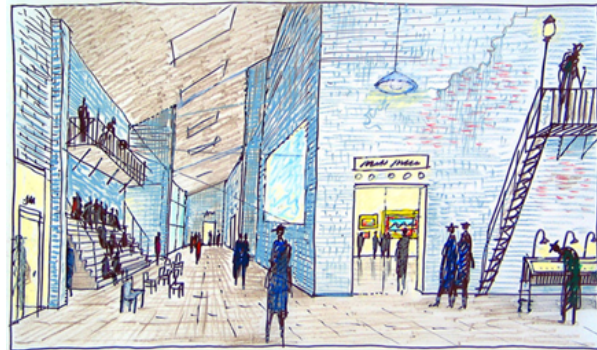
30. Darya Paramonova mentioned it in their common interview with Alexander Brodsky and others, where they discussed Winzavod on Svoboda radio station, "Winzavod", <https://www.svoboda.org/a/391666.html>, (May 6, 2007).

for the needs of contemporary art exposition. Their idea was to unite all Moscow galleries that work with Contemporary art on a closed territory, so that someone who needs to buy art can always come here and choose what he wants. At the same time, it could be a nice platform for the galleries and their communities to communicate and work in a nice environment.

Winzavod is a former brewery, founded in 19th century, located not far from the current site of Artplay design center. Brodsky did not change the external view of the buildings; all the work was concentrated inside. He added only some small things like sheds and pavilions to make the place more comfortable. Darya Paramonova, an architect of Brodsky's studio, said that if they noticed a nice imperfection, they chalked it to communicate to the builders not to touch it.³⁰ The result was a very cozy space with its human scale and red brick walls, a perfect background for art of various genre.



Winzavod project. Sketch by A.Brodsky.



Winzavod project. Sketch by A.Brodsky.

Soon as it was planned many galleries moved from other places in Moscow and people who wanted to buy contemporary art began to know this place. But not only – also normal people who were interested in art or just wanted to see something new. After the galleries came other projects – a café, workshops for children, photo studios, artists, musicians and journalists, and a shop with artistic stuff. Winzavod is one of the most successful and well-known creative clusters in Moscow. Nevertheless, some people say that now when it is so famous,



Winzavod project. Sketch by A.Brodsky.



Winzavod project. Sketch by A.Brodsky.

it tends to become more a commercial spot than artistic as it once happened with SoHo.

Winzavod, Artplay and Arma (another ex-industrial territory converted into a business center) are changing the whole quarter, a former industrial zone that now becomes known as a place where creative class choose to work and to live.

Arma (Moscow gas factory)

Architect	Sergey Kiselev and partners
Location	Moscow, Russia
Site area	55 906 m2
Year	2011-2015
Approach	A factory transformed into office center with orientation on creative class. Old buildings are accompanied by a new one designed with a reference to existing buildings.
Level of invasion	Medium: partly demolition, new buildings construction.

The enterprise was founded by "The Lighting with Flowing Gas English Association of Moscow". The main creators were the English engineer Goldsmith and the Dutch entrepreneur Bukye. According to the project of architect Fyodor Dmitriev, two office buildings were built along the lower Susalny Pereulok (lane), and according to the project of Rudolf Bernhard - four round gas-holders, which became the symbol of the plant.



Krasnaya Roza, axonometric view. Vizualization by Sergey Kiselev and partners.



Krasnaya Roza, internal courtyard view. Vizualization by Sergey Kiselev and partners.

On December 25 of 1865 several gas streetlights were tested on the Kuznetsky bridge and two days later the first official one was solemnly lit in the Kremlin at The Cathedral of the Archangel. Gas was obtained by dry distillation of coal. By the 1868, gas lamps in Moscow there were more than 3000, in 1910 - 9000.

In Soviet period the factory was nationalized. Since 1997 the factory started production of gas isolation valve and was renamed to Arma (armature). Since 2002 the production stopped.

The reconstruction was commissioned to the same architectural

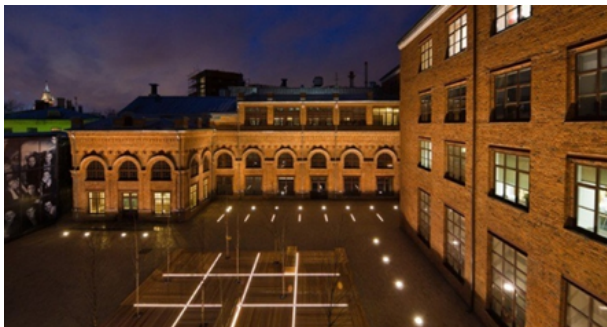
studio that worked for “Krasnaya Roza”. The intervention considered only a part of the plant, mainly the buildings on the south. It included the demolition of some soviet period extensions, reinforcement of foundation, the roof slopes got windows and terraces. Thanks to the reconstruction were opened the passages to the territory. The gates between the buildings were reconstructed, the car traffic was reduced. The works were done in several stages, one by one buildings got a new look. The studio also took care of public spaces.

Stanislavsky factory

Architect	John McAslan + Partners
Location	Moscow, Russia
Site area	60 000 m2
Year	2004-2010
Approach	Existing building is preserved and used as an office building, combined with a private theatre as a gift for the city. Attention to the public space design. New buildings don't take the attention.
Level of invasion	Low: only inevitable interventions to the existing buildings. New buildings designed very carefully in order not to spoil the view.

John McAslan (born in 1954) is a British architect, he has founded John McAslan+Partners in 1996. His experience in restoration and redevelopment of historic buildings in the UK seemed useful for Russian Investors and they invited his studio to work on an adaptive reuse project for a former gold thread factory in Moscow.

Stanislavsky factory is one of the most successful reuse projects done in Moscow. The complex consists of 13 buildings and hosts office space, 60 luxury apartments, a hotel and a restaurant. To commemorate the history of the site and to bring the cultural aspect to the place it was decided to refurbish the original theatre. Mc Aslan & partners made a restoration project for the existing buildings and designed the landscape. They were assisted by a Russian studio that produced the working drawings. Later this studio designed new residential buildings for this area. The new buildings look very modest so all the attention goes to the historical buildings.



Stanislavsky factory, landscape design
Photo by John McAslan+Partners



Stanislavsky factory, the theatre
Photo by Hufton & Crow

The factory was founded by Stanislavsky family who were one of the country's leading industrialists and cultural patrons. Konstantin Stanislavsky, the son of the founder, was the inventor of the Method acting system. He is well known not only in Russia, but also abroad. On the site of the factory is located a theatre built by Stanislavsky for workers of the factory. It hosted the first performance of Chekhov's “Cherry Orchard”. It was important to use this particular identity of the place in the project.

MOSCOW HISTORY AND DISCRPTION

Moscow is the biggest and the wealthiest city in Russia, located in its European part. The official population of Moscow city is 12.5 million people, and 15.5 million people of the Moscow agglomeration. But according to non-official estimation it is about 20 million including people who live in Moscow region and work in Moscow, non-registered residents and illegal migrants.

The history of Moscow officially starts in 1147 when it was firstly mentioned in annals as a settlement. It has appeared on an intersection of trade routes and remained a medium-size city of merchants and craftsmen until 19th century.

In the 19th century Russia was stepping into the phase of industrialization, and in Moscow were concentrated 7 per cent of country's processing industry, mainly textiles. It also became the biggest transport hub in the country and had a dense tram network.

After the Revolution (1917) and the Civil War (1917-1923) when Soviet Government decided to force the industrial development of the country, Moscow was subjected a radical transformation, the production activity shifted from light industry to heavy industry and military sectors of economy.

The population was rapidly growing because of workers coming from countryside and created a big housing crisis. In 1950s the planners started massive construction of pre-fabricated housing. New dormitory districts and industrial belt were connected with the city center by an underground network. At the same time in 1950s was rising the interest for the high technologies and science (aerospace and nuclear technologies). New scientific centers were located mainly outside of the city in so-called "academic towns" around Moscow to hide it from public.³¹

After the seize of Socialist regime, in 1990s heavy industries as well as scientific sector started to decline.

In this chapter the history of Moscow is described with a particular attention to the industrialization of Moscow. The examples of Moscow industrial architecture as well as its particular features are given in the first chapter where Russian industrial architecture is described.

31. Evgeniya Bobkova, "Productive landscapes of Moscow: binding modernities," Master thesis, TU Delft, Delft, 2014.

MERCHANT CITY (1147-MIDDLE OF 19TH CENTURY)

The fortress

The city of Moscow gradually grew around the Moscow Kremlin, beginning in the 12th century. Moscow appeared as a settlement on the eponymous Moscow River, which was an important part of trade route. During the period from 16th to 17th centuries Moscow grew up in five concentric divisions, formerly separated one from another by walls: 1.Kremlin ("fortress"), 2.Kitay-gorod ("walled town", but interpreted as "Chinatown" by folk etymology), 3.Beliy gorod ("white town"), 4.Zemlyanoy gorod ("earthworks town"), 5.Miestchansky gorod ("bourgeois town").



A) Kitay-gorod

A) Beliy gorod

A) Zemlyanoy gorod

Ancient districts of Moscow. Plan of Moscow in 1668 compiled by Mattheus Merian.

First walls of Kremlin appeared in 1156 and were made of wood. In 1367-1368 wooden walls were replaced by walls made of white stone. In 1485-1495 finally appeared famous red brick walls. Until the end of XV century Moscow basically remained a medieval fortress surrounded by villages.

The walls of Kitay-gorod appeared in 1534-1538 and remained until 1934. They were de-signed by an Italian architect called by locals Petrok Maliy, who arrived in Moscow together with the envoys of Pope Clement VII in 1528. He was probably born as Pietro Annibale in Italy and worked as an architect in Vatican. He could have lost his employment with the Sack of Rome in 1527. There was a demand for builders in Moscow, and he traveled there with the Pope's support.



Moscow in 17th century. Drawing by Apollinary Vasnetsov, 1922

The walls of Belyi gorod were built in 1590s by the architect Fyodor Kon. They existed un-til the end of XVII century. The walls of Zemlyanoy gorod appeared in 1590s, built in hurry just in one year during the Swedish war. They consisted of earthworks and wooden walls and towers. Miestchansky gorod was the part of the town outside the city walls. The part across the river from Kremlin is called Zamoskvo-rechye.

Provincial town

In 1712 Peter the Great founded the Russian Empire the capital in newly built Saint-Petersburg on the Baltic Sea coast. Except for a short period from 1728 to 1732 Saint-Petersburg remained the capital of Russian Empire until 1917.

In 1731-1732 in Moscow was surrounded by a barricade, Kamer-Kollezhsky val (“val” means “ramparts”). It was built by Kamer Collegium (tax authority) for internal passport control and taxing the cargoes. It had 16 gates. Its line is traced today by a number of streets called val. Kamer-Kollezhsky Val remained city border until 1917.



Map of Moscow in 1836.
Kamer-Kollezhsky Val is in red.

After the fire of 1812

In 1812 during Napoleon’s invasion to Russia has happened the most famous fire of Moscow history which destroyed three-quarters of the city.

After the fire Moscow was basically constructed from zero. In 1813 was established a *Commission for the Construction of the City of Moscow*. It launched a great program of rebuilding, including a partial

32. Garden ring (Russian: Sadovoe koltso), is a circular ring road avenue in Moscow, built on the place of former city ramparts surrounding Zemlyanoy gorod. In 19th century the ramparts were demolished and on its place were laid 25 meters wide streets paved with cobble stone. The distance between the houses sometimes was reaching 60m, so the owners of adjacent houses were obliged to fill it with the front gardens, that is why it is called “Garden ring”.

33. Boulevard ring (Russian: Bulvarnoe koltso), is literally a boulevard ring road in Moscow, built on a place of former White city walls. The ring was extended in 20th century and included some areas that previously were paved. This ring is not closed and only reaches Moscow River, the southern part of the city has never been added.

reconstruction of the city-center. The Commission issued a new master plan called “*Projected plan of the City of Moscow*”. For the first time in the history of the city inbuilt territories were mapped and divided into quarters. The walls of Zemlyanoy Val and Belyi gorod were completely demolished. They were replaced by *Garden ring*³² and *Boulevard ring*³³ respectively. The document declared that instead of walls should be build streets for carriages and pedestrians.

New document also ordered to demolish all the trading lines along Kremlin because it spoiled the view of the city. Remaining trading lines were rebuilt and put in order. The same period the stinky ponds of Neglinnaya River, situated on the place of current Aleksandrovskiy garden near Kremlin, were emptied. The river was put in tubes and is still running underground. In general, because of this intervention Moscow got more regular-shaped street net.



Map of Moscow in 1836.
Kamer-Kollezhsky Val is in red.

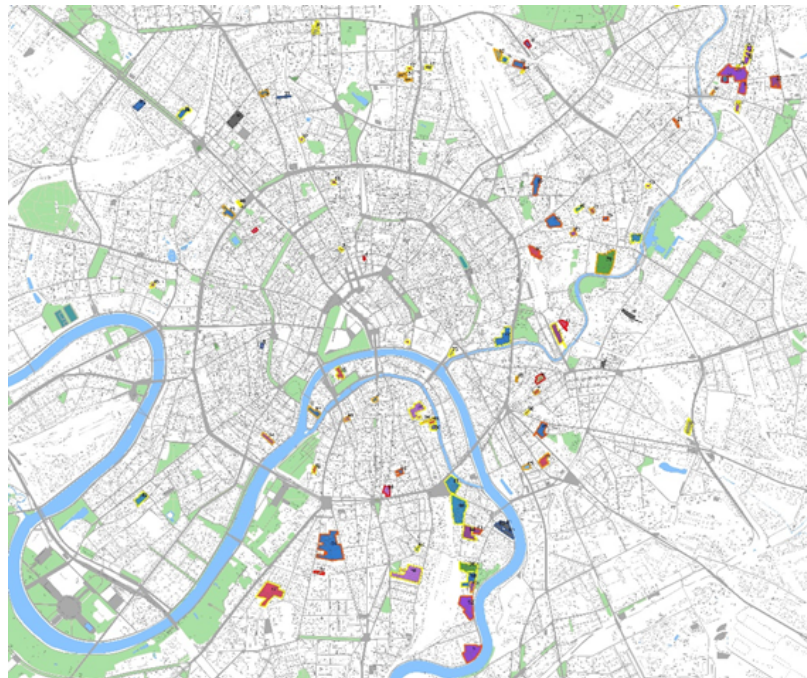
INDUSTRIALIZATION OF MOSCOW (MIDDLE OF 19TH-1991)

Empire period

By the second half of XIX century Moscow expanded quite significantly: the city’s population grew from 250,000 to over a million. It happened because the peasants in 1861 were set free and could move freely in search of work. Many of them came to Moscow to work on

its factories in textile industry. To host these people were constructed numerous revenue houses. New residential buildings and new factories located mostly between the Garden ring and Kamer-Kollezhsky Val, that is on periphery. By the beginning of XX century 2/3 of all industrial plants were located on outside the city center.³⁴

34 Anna Bronovitskaya, "Moscow city planning from Lenin to Luzhkov," in: The strategic master plan as a tool for managing the future. (Moscow: KB Strelka, 2014).



Industrial plants built in Moscow by 1916.

Many foreigners established their enterprises on the territory of Moscow. Their enterprises afterwards were renamed by the Soviet government in a revolutionary way. For example, there were the Moscow Metallurgical Plant "Serp and Molot" formerly known as Association of the Moscow Metallic Plant (Guzhon Plant), the Red Proletarian plant formerly known as The Society of Mechanical Works of the Bromley Brothers, Russian confectionery manufacturer Red October which was founded by Theodor Ferdinand von Einem, etc.

As it was mentioned before in chapter 1, the style of the factories of that period are very recognizable for their "brick style". Soviet period



Confectionery factory "Einem" in Moscow. General view. Lithography. End 19th century.

Soviet period

The Revolution of 1917 and the following Civil War caused decrease in the city's population and destruction of the city's economy. In 1918 Moscow became the capital of USSR, its international political importance increased. Not so much was done during the 1920s. But since 1923 the new government starts producing a series of masterplans for Moscow in order to convert it from a provincial town into the capital of the first social state. Thus, according to Sergey Shestakov's masterplan for Bigger Moscow issued in 1926, appeared a new type of building – worker clubs, the temples of socialism - representatives of Russian avant-garde, probably the only Russian invention in architecture design.

During the Stalin regime in 1935 was issued the most important master plan of the epoch – "General Master Plan of Moscow reconstruction". The new master plan was designed by Vladimir Semenov and Sergey Chernishev and considered a big reconstruction of Moscow. The document contained the strategy of city development for 10 years. It covered very different questions as re-settlement and development, planning of streets and quays, architectural decoration of buildings, production of computations of building, transport, water supply and sewage, sanitation, and many other topics.



General Master Plan of Moscow reconstruction, 1935

Because of the master plan of 1935 appeared the granite quays of Moscow River. The rivers were concerned as another route of communication, and thus should have a parade look such as wide highways

of that period. New districts unlike the historical center should be built using a rec-tangular grid. There were situated most important strategic military installations, storage facilities, municipal service infrastructure that are still working for Moscow. The master plan indicated to place in this new districts health resorts, pioneer camps - summer camps for children, and dacha – summer cottages for citizens. According to this master plan was built Moscow Ring Road, which should have decreased the traffic through the city. At the same period were planned the Moscow metro lines and defined the sites for the construction of the sky scrapers. Finally, in Moscow were defined industrial areas, where soon had appeared factories and plants.

According to the general master plan of Moscow reconstruction of 1935 it was planned to cut the city from one end to another by three radial roads of many kilometers long and 5 circular roads. Were also planned railway spans connecting train stations. Also the riversides of Moscow River and Yauza were given the role of highways, expanding their width up to 50m.

The master plan included the project of 400 meters' height Palace of Soviets as the culmi-nation of soviet high-rise construction. The palace was planned on the place of Cathedral of Christ the Savior. The original Cathedral built in 19th century was demolished and the construction start-ed.

Besides transforming city into a monument Moscow was intended to become the center of heavy industry. The industrial belt was in-creased and accompanied by house blocks near factories. To connect industrial districts with the city center where most of the population lived was con-structed an underground network. The new metro stations were designed as palaces; they were constructed very deep underground so that they could become bomb shelter in case of war. The new roads were designed extremely wide, but they were used mainly for public transport, because the car industry came later. Their scale should make an impression of a monumental city, but also make possible the transition of military equipment in case of necessity.



General Master Plan of Moscow reconstruction, 1935



General Master Plan of Moscow reconstruction, 1935

In 1940s during the years of Great Patriotic War construction and expanding of the city was stopped. Temporary the city became a fortress with a powerful industrial home front. Along the suburbs espe-

cially on the western side were positioned anti-tank fortifications and anti-aircraft ar-tillery.

After the war the construction of the General Plan of 1935 was part-ly changed. The Palace of Soviets was not built. In the 1960s-1990s the foundation pit was used as pool. But the other sev-en skyscrapers and two big projects – Moscow University and National Economy Achievement Exhibition (VDNKh) were built. Since that time the South-Western part of Moscow became one of its most prestigious part associated with Moscow State University. The university attracted other universities and research institutes.³⁵ Starting from Technical plan of 1957, masterplans lose their influence; they are designed mainly to legalize what is already there.

After the war population of Moscow grew significantly and people

³⁵ Bobkova, "Productive landscapes of Moscow: binding modernities," 2014.



General Master Plan of Moscow reconstruction, 1935



General Master Plan of Moscow reconstruction, 1935

mostly lived in commu-nal flats, 4 m2 per person, so the house crisis was the main concern for the government. Since 1950s industrial house building became high-volume. Nikita Khrushchev launched a big program of massive housing construction after 1957. It was possible because of the industrial development achieved in previous decades. The new housing provided very small flats but at least each family could have their own.

The integration of new dormitory districts was provided by the extended underground net-work. The periphery did not have other functions except for residential and was depended on the city center. Still the construction of housing was much faster than the construction of metro sta-tions, so these districts were not served adequately with the public transport.

The first house blocks were 5-storey, the next series were 9-12 stories and after 1970 they reached 14-22 stories. The increase of height caused increase of public space, because the distance between build-ings should be double of their height. These public spaces were not de-signed proper-ly. They were intended to become the urban centers but because of wrong scale they resulted in empty boulevards and squares, wasted lands in a huge number of Moscow periphery

In 1961 was opened ring road (MKAD) that used to be adminis-trative boundary of the city until 1980s when some of the outlying districts began to be joined.



Khrushchev's 5 storey house blocks.



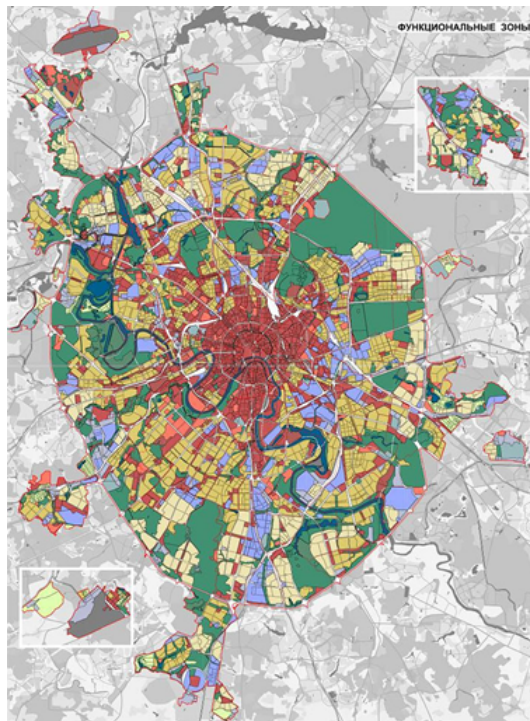
Contemporary house blocks

Deindustrialization, recent history (1991 to present)

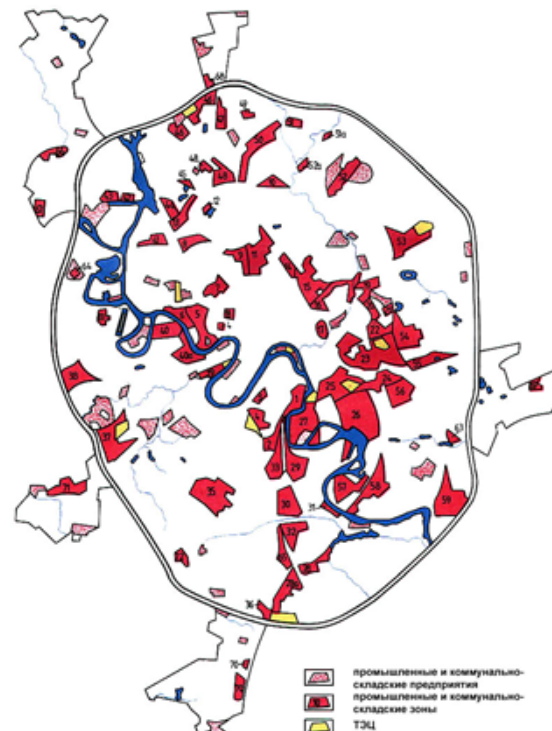
Rise of market economy

When the USSR was dissolved, in the same year Moscow became the capital of the Russian Federation. Since then market economy has emerged in Moscow, producing an explosion of Western-style retailing, services, architecture, and lifestyles. Building market became the main actor of the field: endless demand for shopping malls, office buildings and housing made construction building extremely profitable.

The new master plans did not have any influence on what was going on. The General Plan issued in 2010 only gave some very general directions but actually permitted to construct every-thing and any-



General plan 2010. Zoning plan.



Industrial sites on Moscow map

where.

Contemporary Moscow

In contemporary Moscow the urban fabric is highly fragmented. The production is mainly located in the city center, in the outer ring of Moscow (MKAD), in the area surrounding the Moscow State University and on the North-west towards the biggest airport Sheremetyevo.

The city center, well-served by public transport and accessible by car, became attractive for business that appeared in 1990s. The rent prices raised dramatically, the residents and lower level services were forced to move out, former residential buildings were converted into offices, the population decreased. Now about 62 per cent of the jobs are concentrated in the center, while 92 per cent of population lives in periphery.³⁶

Moscow periphery is poorly served with public transport even if the underground network is functioning at its maximum, the trains arrive each 40 seconds. Periphery remains mono-functional and people have to move each day to reach their jobs. The urban fabric of periphery does not have a human scale. The space between buildings is useless. People have to walk a lot to arrive to the services,

The economic change created a crisis of voids left by industry. Former industrial areas occupy 17 per cent of Moscow area. They are mostly concentrated along the railway ring road, mainly on the east of the city. The western part of the city is usually associated with better ecology and quality life, here are located the biggest universities and scientific centers, it follows that the upper classes prefer to settle here. Eastern industrial belt is the most deprived and problematic part of the city. In the future former industrial areas will be at close attention of the government and private investors because the housing shortage remains a problem for the city.



Ex-industrial area in Moscow

³⁶ Anna Bokova, "Moscow: diagnosis," in Project Russia n.3(57) (2010), pp. 76-80.

04

APPROACH: ANALYSIS OF TRADITIONAL URBAN FABRICS IN MOSCOW

As follows from the previous chapter, Moscow has always been a commercial city based on small scale buildings, medium density and empty spaces. Things changed in 19th century with the industrial revolution, and later during the Soviet period when the second wave of the industrial revolution has arrived together with the attempts of Stalin to turn Moscow into a monument. Historical Moscow was built for people while Industrial Moscow of 19th century and Soviet Moscow of 20th century was built for other reasons where the comfort of a human was less important.

People in Moscow prefer to spend their free time in the city center because the historical part of Moscow has preserved human scale buildings and distances, it is nice to walk here down the streets and to stay at squares. Furthermore, Moscow city center has an identity. It makes the city attractive not only for locals but also for tourists.

In such a way it can be assumed that a good reference for the new type of residential area in Moscow could become its historical part that refers to pre-revolutionary period. The first part of this chapter is dedicated to a research about historical Moscow urban fabric, for this reason were studied historical Moscow maps, traditional Moscow architecture and paintings and photos of 19th century.

It is obvious that it is not possible to turn back time and to build cities like it was used to a hundred years ago, but the goal of this thesis is to try bring back some important qualities of old city that everybody likes, but in a modern way. In order to do it, the first step is to figure out the positive values of historical Moscow. The second chapter describes the positive values of historical Moscow and explains how the reference is going to be applied to the project.

MOSCOW TRADITIONAL URBAN FABRIC

Khotev's Moscow map

In order to analyze the traditional urban fabric of Moscow was selected



“Atlas of Moscow metropolitan city” - a map compiled by state topographers headed by Aleksey Khotev, to the order of Moscow police chief, in 1852-1853. The map was published with the use of lithographic method on 63 separate sheets divided into 17 “police units” of the city sheets and compiled in an album.

This map was chosen for two reasons: firstly, because it was created in the middle of 19th century when the industrial revolution was at its initial phase and so it refers to traditional urban fabric; secondly because it is of a very good quality respect to other maps of this period. The map was designed in scale 1:3360 and reflected the smallest objects: it contains all the stone and wooden buildings, churches, parks and ponds.

The plan of each police unit consists of several pages where the domains are illustrated and numbered. The state and public buildings are hatched according to their material. There is an alphabetical index applied to the map, it contains all buildings of each of police unit and facilitates the search of the objects on the map.

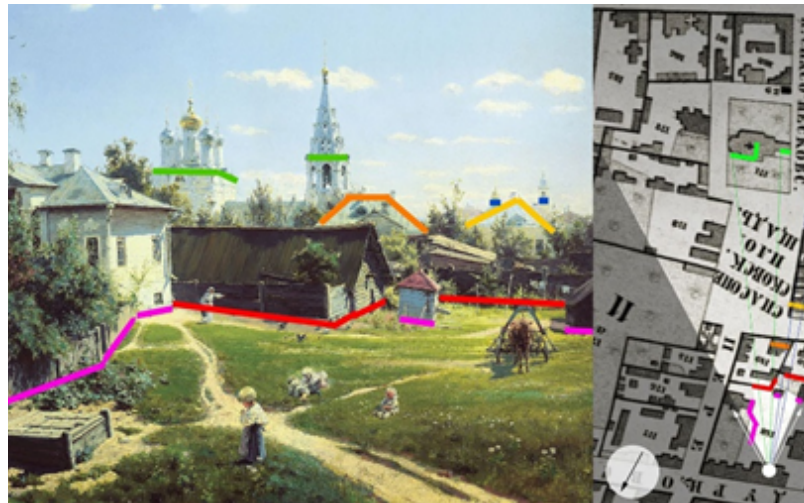
The next step was the selection of five different areas on Khotev's map in order to analyze the general character of urban fabrics. In such a way were selected an area located in the city center (Bely gorod), in semi-periphery (Zemlyanoy gorod), the area across the Moscow River (ZamoscvoRechie) and periphery (Lefortovo). It was supposed that these areas could be settled by different classes of people, it was important to find a global tendency and not particular cases.

In such a way all the selected parts illustrated the same pattern. Streets divided the city into quarters, the quarters in their term were divided into domains. Each domain was a private property and hosted

one-family house. Sometimes instead of a house there was a church which was a dominant in a district and defined its identity. Public spaces were the streets where people walked and carriages passed, and the squares. As Moscow was a commercial city, the public squares mainly were used for markets.

Photos and pictures of 19th century Moscow

On the photo is presented the comparison of the painting “Moscow courtyard” done by Russian artist Vasily Polenov in 1878 with Khotev’s map. The comparison was done by S. Eliseev (found on internet). The analysis gives the idea of how the whole Moscow could look like when Khotev was compiling his map.



Comparison of “Moscow courtyard” and Khotev’s map Picture by S.Eliseev

The next photo shows Moscow in the end of 19th century. The skyline consists of roof scapes and Churches. The picture illustrates also that Moscow does not have a regular street net, historically it has been developed in rings around Kremlin. This fact makes Moscow look chaotic, but picturesque.



Moscow in 1950s

Next photos illustrate Moscow streets in the beginning of 19th century.



Moscow in 1900s
Retrieved from <<https://www.vintage.es/2012/11/vintage-photographs-of-life-in-moscow.html>>

Moscow traditional housing

In order to understand what kind of buildings were located in that areas the typical housing of that period was studied.

“Izba” is the oldest and the most recognizable Russian traditional residential building. It is a wooden house with a patched roof that allowed the snow to fall down. Izba varied from one region to another, depending on local traditions and climate, but still it was present everywhere and Moscow is not an exception. The examples of izba still can be found in the villages all over Russia, also in Moscow region. In 19th century it was quite popular among the low level class, such as craftsmen who lived inside the city and peasants who lived in the countryside.

“Khoromy” is a wooden palace, a more sophisticated “izba”. In medieval times it was a residence for the tsar and aristocracy. The palace included living space and spaces for services. “Palaty” is also medieval palace, but made of stone. The word “palaty” derives from “palace”. This building type was also a residence for tsar, aristocracy and also churchmen. Often the upper part of the building was made of wood. Palaty are still present in Moscow built-up, in particular inside the monasteries. Khoromy and Palaty refer to XV-XVII century.

In 18th century with the rise of Russian Empire in Moscow appeared new mansions in classicism style settled by the emperor and the aristocracy. These mansions were of two types- city mansion, more compact, and mansion in periphery usually with a big garden and sophisticated masterplan. Now many periphery mansions are inside Moscow borders and make part of contemporary Moscow build up.

In the end of 19th century and until 1917 appeared new types of residential buildings, it was connected with industrial revolution. Appeared a new classes of successful industrialists, engineers and workers.

The manufacturers and successful professionals preferred to settle in the city mansions of a new, Art Nouveau style. A lot of these buildings are still present in Moscow city center, many of them now are used as embassies.

For other citizens in Moscow already since 18th century (but mainly since 19th) were constructed revenue houses. Often they were partly rented for commerce and small production in order to advertise the building. The revenue houses were of different levels – as for wealthy people like entrepreneurs; for middle income people like professors and teachers, bank workers, etc.; and for the lowest classes like workers. Again some revenue houses are still preserved. Revenue houses were first buildings of multifamily housing, when people did not have their own courtyard.



Russian izba (central region)



Russian izba detail (northern region)



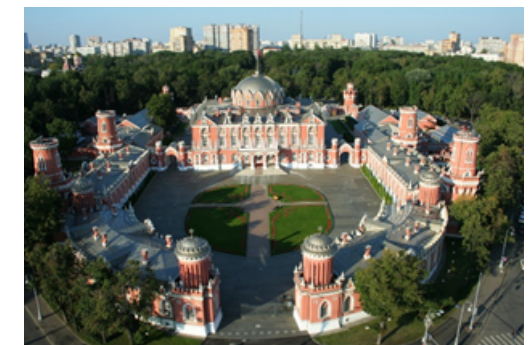
Khoromy in Kolomenskoe, Moscow



Palaty Romanovykh, Moscow



Batashev city mansion, Moscow



Petrovsky Traveling Palace, Moscow



Ryabushinsky city mansion, Moscow



Revenue house, Moscow

APPROACH

Human scale

Traditional Moscow like all the cities built before the industrial revolution had a human scale. Jan Gehl is comparing traditional cities with modern cities, noticed that modern cities were designed as if the architects were looking down from an airplane without concern about what is happening in a smaller scale.³⁷ That is true because even now in Moscow they teach students to do nice compositions instead of thinking about how people would feel in this build up. It influences on how does Moscow look like.

Contemporary Moscow has left its sense of human scale. Human scale is present only in the historical center, but the further from the center, the bigger the scale of the buildings and between buildings. In circumstances of housing shortage that Moscow is now passing through, it is extremely important to densify existing build-up instead of spreading the cities and adding more and more space.

Historical Moscow used to be a walkable city, designed for speed of 5 km/h: the distances were short, the streets were narrow. Modern Moscow is designed for cars and for speed of 60 km/h. It is important to bring back the possibility for people to have all necessary facilities in a walkable distance. In contemporary conditions it could be reached by creating dense built-up, designing pedestrian connections and building bike lanes.

In total human scale cities are able to generate communities and give a sense of safety because they are less anonymous; facilitate living in the city by reducing the distances; reduce stress by creating cozy spaces where people would enjoy being; use the land more efficiently.

Reduce car traffic

To reduce a number of cars it is important to work in several directions. First of all, it is necessary to develop public transport. Public transport now is one of the main concerns of Moscow authorities. In past years have been built a number of metro stations, was opened for people the railway ring road, the car traffic is being reduced in the city center. These measures are not very popular but they are inevitable.

Another way to reduce the number of cars is to make cities more compact, create bike routes and pedestrian connections, as it was already said.

Simple access of car sharing, bike sharing, etc. is also important.

Courtyards

Historical Moscow urban fabric was defined by private courtyards. Even now when it became impossible to have a garden in the city, Moscow citizens prefer to spend their time in the country side on weekends at least five months a year. Almost every family has a summer house in Moscow region.

It would be nice if the new housing would contain some elements of village living.

Commerce

One of the main elements of Moscow traditional urban fabric were city squares. Moscow used to be a merchants' city, so the main activity was on the markets. The Red square and the whole district beside it were dedicated to commerce. Commerce was also realized on the ground floors of some buildings.

In that way now Moscow is coming back to its roots, because commerce together with building sector are dominating in its economy. For this reason, it is important to provide some space for commerce, for example on the ground floors of some buildings as it was used to a hundred years ago.

Identity

Traditional cities were built by craftsmen for years, layer by layer. The modernists cities are all the same and constructed very quickly without concern about the city's identity. Historical Moscow had its identity, while contemporary Moscow does not have it. It is hard to say what exactly defines Moscow identity, because mostly every architectural element was brought here from abroad including churches, medieval palaces, wooden houses with sloped roofs, etc. – from Byzantine Empire, from Western Europe, from Northern Europe. Probably the combination of all these exported knowledge's and technologies combined with local landscape, climate and mentality gave to the city its own look, different from any other city.

Moscow is characterized by its irregular shape, that derives from the first wooden Kremlin. Italian architects that constructed later the stone Kremlin did not do it regular and symmetric like they did in Italy, they followed existing masterplan. Moscow was created with use of three elements – the River, the Hills and the forests. They defined how its look for the next thousand years.

Moscow skyline for centuries was represented by patched roofs of the houses and the towers and domes of orthodox churches.

At the beginning the main building material was wood, but since 18th century in order to avoid the fire the buildings were built of stone. The favorite color for façade in medieval times was combination of red walls and white details, later ochre and white. The factories of 19th century were not covered with plaster and remained of raw brick. In general, historical buildings were designed with attention to details comparing to prefabricated buildings of 20th century.

37 Jan Gehl, "Cities for people: A lecture by Jan Gehl." Youtube video, 1:00:04. Posted [May 2013]. https://youtu.be/KL_RYm8zs28.

38 Moscow General Planning Research and Project Institute, State Unitary Enterprise (*Gebplan Institute of Moscow*) is an organization that includes about 30 scientific, research, engineering and administrative divisions. It exists since Soviet period.

39. William V. Pokhlyobkin, *A history of vodka* (Moscow: Inter-verso, 1991)

40. Aleksandr Y. Pidzhakov, "Stages of the history of legal regulation of winemaking and wine drinking in Russia," in *Selected works* (Saint-Petersburg: Yuridichesky center Press, 2010), 257.

41. Pokhlyobkin, *A history of vodka*, 1991.

42. Boris Rodionov, *Polygar: Vodka that we lost* (Moscow: Zebra, 2009).

43. Bondarenko, "From the history of Russian alcoholometry," in *The questions of the history of natural science and technology*, n.2 (1999)

EX-DISTILLERY KRISTALL

Kristall distillery is located in the South-East of Moscow in district called Lefortovo. It occupies a territory of about 93 000m². It was dismissed in 2013 and still its destiny is not defined.

First part of the chapter is dedicated to the history of vodka in Russia. The second part is dedicated to the history and description of the Lefortovo district. The fourth part is telling the history of the Kristall distillery, based on a research produced by *Genplan Institute of Moscow*³⁸. The research included historical description and the actual state of the buildings. The fourth part describes two existing projects of reuse that have already been done for Kristall distillery. The last chapter is dedicated to the new project – "Kristall Village".

HISTORY OF VODKA INDUSTRY

Vodka originates from East Europe, there is a polemic between Russia and Poland about where it was firstly invented. The word "vodka" in various slavik languages means "water", for example in Russian "вода" (voda), in Polish "woda", the ending "ka" in gives it a pet form.

According to Pokhlyobkin the production of alcohol from bread appeared in one of monasteries in Russian Kingdom in 1440-1470.³⁹ Another expert, Pidzhakov believes that before XV century Russian Kingdom did not know distillation, while already in 1517 it was mentioned in historical documents that in Moscow they drink alcohol to resist the cold.⁴⁰

Before 1840-1860s vodka in Russia was produced mainly from rye, but by the middle of XIX century rye was used just in a half of production while the rest was produced of wheat and potatoes.⁴¹

Before the appear in Russia of alcoholometer, the strength of the water-alcoholic mixture was defined according to the annealing. If the half of mixture burnt out, the wine was called half-burn (polygar), its strength was 39 per cent and used to be a standard strength of vodka (since 1817 – recommended, since 1843 – official). Later when the strength of wine was measured by alcoholometer, it was decided to round it up to 40 degrees.^{42, 43}

The industrial revolution in XIX century needed mass production of almost pure ethyl alcohol that was used in chemical industry, in medicine and perfume industry. To respond this demand were designed special devices - rectification columns - able to produce industrially alcohol up to 96 per cent strength with a very high level of cleaning from natural impurities. In the middle of XIX century the rectification columns appeared in Russia. In that period Russian entrepreneurs started to produce so-called "table wine" based on pure alcohol mixed with water, that did not contain any impurities and that could be considered as an ancestor of modern vodka.

In 1890s Russian Government introduced the monopoly for strong alcohol beverages. One of the main arguments was that they took an obligation to produce only "pure alcohol" without natural impurities. As a result, since 1895 the monopoly spread all over the Empire. A group of scientists was commissioned to develop a technology for a "pure alcohol". Finally was created a technology of modern vodka production that is used until nowadays.

In 1914 in Russia alcohol was banned because of the war. The Soviet government that came in 1917 extended this ban up to 1924.

In 1936 in USSR was accepted the state standard according to which a pure mixture of water and alcohol got a name "vodka". What was previously called "vodka" got a name "vodka products". Vodka was divided into "vodka" and "vodka special" ("vodka osobaya"), the latter included some insignificant flavors that make the original vodka taste softer but do not suppress it.^{44, 45}

LEFORTOVO DISTRICT

Lefortovo district where Kristall distillery is located is one of the oldest Moscow districts. It is situated on Yauza River in the South-East of Moscow.

In XIV-XVII centuries in Lefortovo were located some villages beside the road leading to the east, and beside the Andronikov Monastery. The east of Moscow was considered more safe direction, so noble families preferred to settle here.⁴⁶ By the end of XVII century on the right bank of Yauza was located the German Quarter.

In XVIII century in Lefortovo and nearby were built a number of palaces for noble families including royal family. One of the palaces belonged to Franz Lefortov, so that the district was called after him.

In XIX century during the Patriotic war of 1812 (the war with Napoleon) the district partly burnt out but less than other districts of Moscow. In 1824 in service buildings of the royal palace here were located the barracks – "Red barracks" and Moscow cadet corp. In 1834 a significant part was destroyed by fire, so after that was created a special commission that started build up the district with stone buildings.⁴⁷

Soon started the industrialization of the district. In 1866-1868 was constructed Moscow-Kursk railway together with the workshops for trains. In 1881 was built Lefortovo jail. In 1883 Y.Guzhon founded here his metallurgic plant. To the south appeared a worker settlement

44. Rodionov, Polygar: *Vodka that we lost*, 2009.

45. V.Z.Grigoireva, *Vodka known and unknown: XIV-XX centuries* (Moscow: Enneagon press, 2007)

46. I.A. Rabortkevich, "The history of soldier's settlement Lefortovo," for Information agency "White wars," (April 8, 2006)

47 I.A. Rabortkevich, "Lefortovo as an object of cultural heritage: features of formation and development (End of XVII-1917)," Dissertation in historical science (Moscow: Electronic catalog of Russian dissertations, 2005).

“Dangauerovka”.

After the Revolution the district was added to Baumansky district. Already before the first world war here appeared the tram. During the war Lefortovo’s plants worked for the city and country defense. Since 1920s started active housing built-up. The old Dangauerovka was demolished and new five-story houses for workers appeared. They appeared also along the Enthusiastic highway. By the end of USSR epoch 65 per cent of the area was occupied by industry that contains 52 large industrial plants.⁴⁸

After the seize of USSR in 1991 the district was renamed back to Lefortovo and became an independent part of South-Eastern Administrative region of Moscow. It’s easy to imagine that after the deindustrialization all the former industries remained dismissed.

48. “District characteristic,” The government of Lefortovo district in Moscow, (September 14, 2010).

HISTORY OF KRISTALL DISTILLERY

Early history

The territory of Moscow distillery Kristall was situated on the lands that originally belonged to the Andronikov monastery of Moscow. During the end of XVII – first half of XVIII centuries, the lands of the monastery on the left bank of Yauza River were reclaimed actively for construction of palaces and country retreats for the upper class of aristocracy. Until the beginning of XIX century the territory of Moscow distillery Kristall used to be divided into northern and southern parts.



Comparison of the site in 1852 and in 2017

The southern part was granted to the general N.M.Leontiev in 1766. He set up a wooden country house, two fish ponds and a regular garden with greenhouses. In 1773 his heiresses sold this manor to the princess E.R.Dashkova. The princess owned the manor for 25 years. In 1798 she sold it with the same wooden house, ponds and greenhouses to the major’s wife E.V.Samarina. By 1806 this site passed to the prince A.B.Kurakin. In 1807 Kurakin’s manor and also a nearby empty space that used to be a silk factory of an Armenian V.Hastatov were obtained by prince N.G.Repnin for his infant daughter A.N.Repnina.

The history of the northern part that later became the core of the

target site is also traced mainly from 1760s. According to the inventory list of 1766 on the former lands of the Andronikov Monastery were also situated the country retreats of the baron I.A.Cherkasov and of the count P.N.Sheremetiev. In 1778 P.B.Sheremetiev sold his domain to the colonel’s wife M.N.Nechaeva. In 1785 and 1787 she enlarged this site by attaching two nearby vacant lots of baron I.A.Cherkasov. In spite of significant size these lands were not evolving, according to all the documents of the territory it was meant like vacant lots, often without even mentioning the owner. In January 1812 the son of M.N. Nechaeva, actual state councilor A.P.Nechaev, sold his mother’s “empty white land” to the priest of recently opened Vvedenskaya church A.P. Polubensky who in his term resold it in 1816 to V.A.Repnina, the wife of N.G.Repnin. So the northern part was attached to the Repniny manor.

According to the plan of 1817 in the southern part of the manor were located a pond, a garden and a house of complicated shape that somehow reminded U-shape. This was the house that remained from of N.M.Leontiev. Close to the border with the vegetable garden were situated the stables and stone greenhouses. The northern part of the domain that was obtained from the priest remained not built. During the reconstruction after fire the passage that continued western piece of Saltikovskaya street along the border of the possessions and coming through the site was demolished and the street obtained characteristic shape. In 1840 the Repniny manor was obtained by the citizens of



Comparison of the site in 1852 and in 2017
Khotevsky plan of Moscow, on the right: Yandex map (territory of Kristall distillery is in grey)

honor Alekseevi, who from 1828 were also owners of the Stroganov’s manor that is situated on the south border with Repniny’s manor. In 1864 S.Alekseev proposed a plan of profitable usage of the former vegetable garden lands: to divide it in pieces with small passages in between for the future building up and renting. This plan was declined by the town authorities and in the beginning of 1870s the domain was obtained by a trading advisor Vasily Kokorev, who decided to use former vegetable garden and the adjacent part of the land as a warehouse for goods.

In 1872 beside the eastern border of the land was constructed a stone warehouse building of 12 sections with two sections in each (Samokatnaya 4, building 7). To the west of the building were constructed two wooden warehouses with four sections in each (demol-

ished in 1889), both of them were provided with railways.

In the middle of 1870 Kokorev sold the eastern part of his possessions to the Ministry of finances and the western (stone warehouse building and a part of former vegetable garden) to the Northern insurance company. The Ministry of finances in its turn passed them to the Moscow warehouse customs, a branch of Ministry. Kokorev's wooden warehouses beside the railway also become the property of the customs. The Northern insurance company in 1877 made a small redesign of the stone warehouse: the central window frames on the second floor were expanded in all 12 sections.

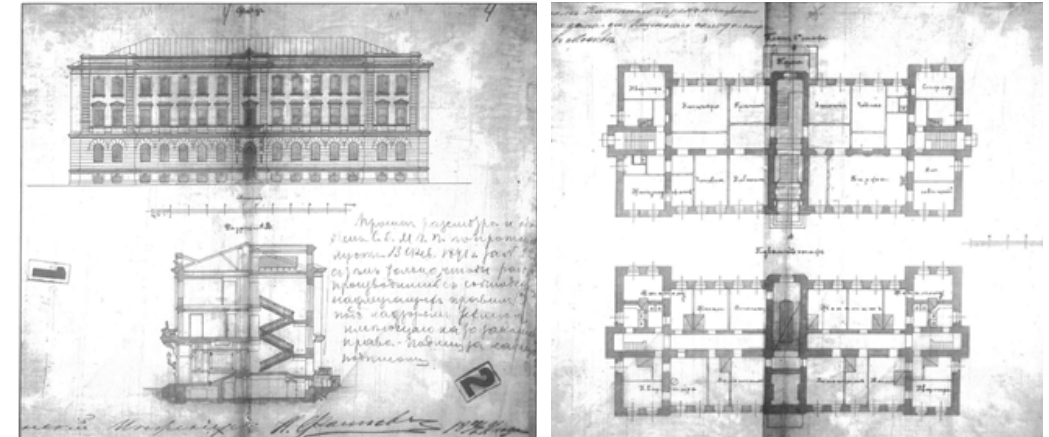
By the beginning of 1880s The Northern Insurance company also sold their lot with the stone warehouse building of 1872 to the Ministry of finances and they also included this piece into possessions of the customs. Since that time the buildings of 1872 were also called "Northern" custom's warehouses.

Phase I: Warehouse for alcohol

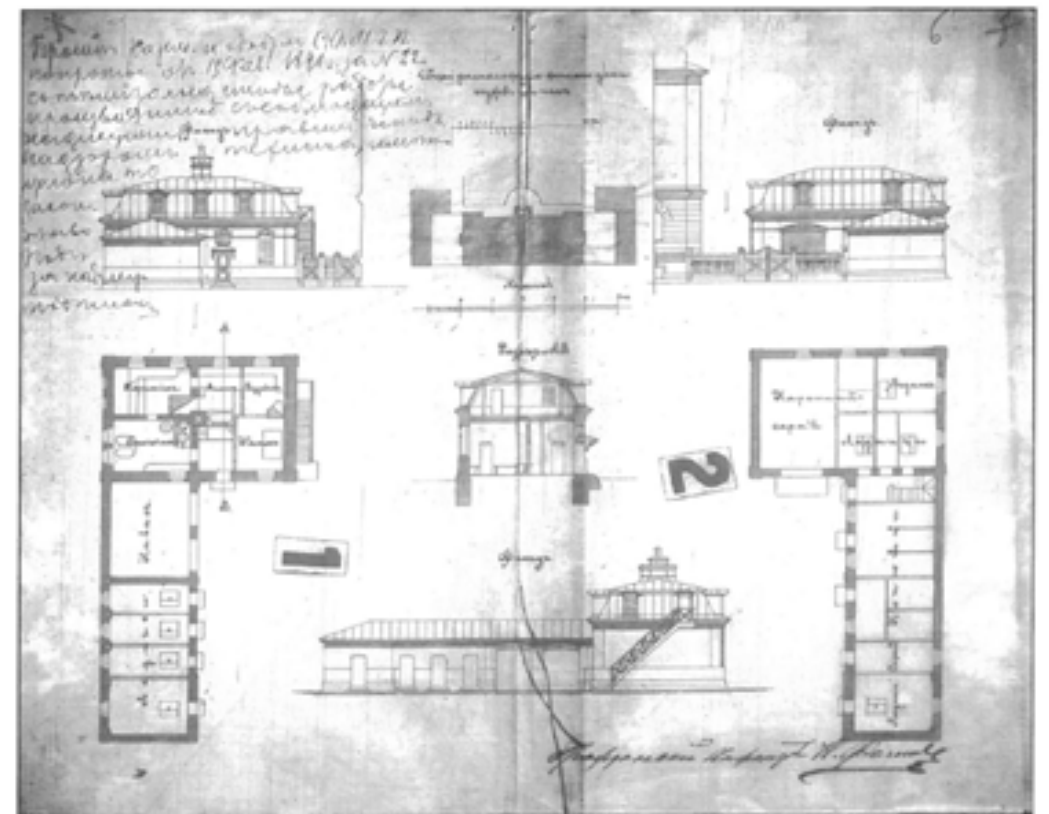
On the 4th of June 1890 the State Council on arrangement in Moscow of public stores for alcohol has obligated the Ministry of finances to build in Moscow a warehouse for alcohol at a public cost. This warehouse was intended to accept in deposit alcohol produced in distilleries of the central provinces of Russia. Ministry of finances proposed for the building the northern part of possessions of the Moscow custom's warehouses excluding the stone building of 1872. As a result, were formed the borders of the core of the site of interest.

The construction was managed by Moscow region excise office - a local branch of the Ministry of finances. They ordered the design project to the civil engineer Nikolay G. Faleev, an actual architect of Moscow region government. In the beginning of 1891 he accomplished the project of 3-level residential building for employees (Samokatnaya 4b, building 1), two flanking buildings for duties: southern (Samokatnaya 4b, building 27) and northern (Samokatnaya 4b, building 2), 1-2 level building for receipt and transfer of alcohol (Samokatnaya 4, building 32), 1 level machine building - "old" steam room (Samokatnaya 4, building 25), a building with double height space for cisterns with alcohol (Samokatnaya 4, building 14), ground floor levels for alcohol deposit (after the reconstruction became a part of building 1). Most of these buildings were accomplished in classicism eclectic style, typical for Faleev's early period of architecture. Up to the building for receipt and transfer of alcohol was laid a branch of Kazanskaya railway.

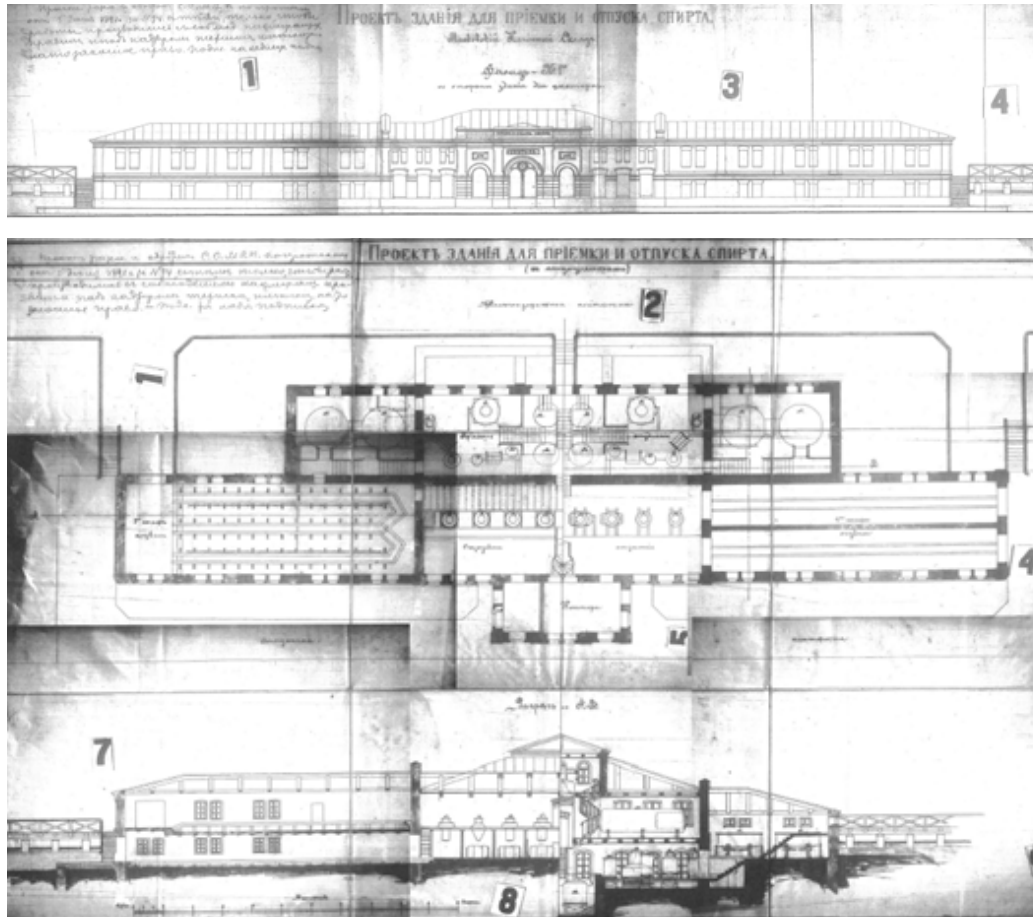
By the autumn of 1892 the construction was finished. The construction was supervised by construction committee of the Moscow region excise office. The member of this office was nominated a chief of the warehouse.



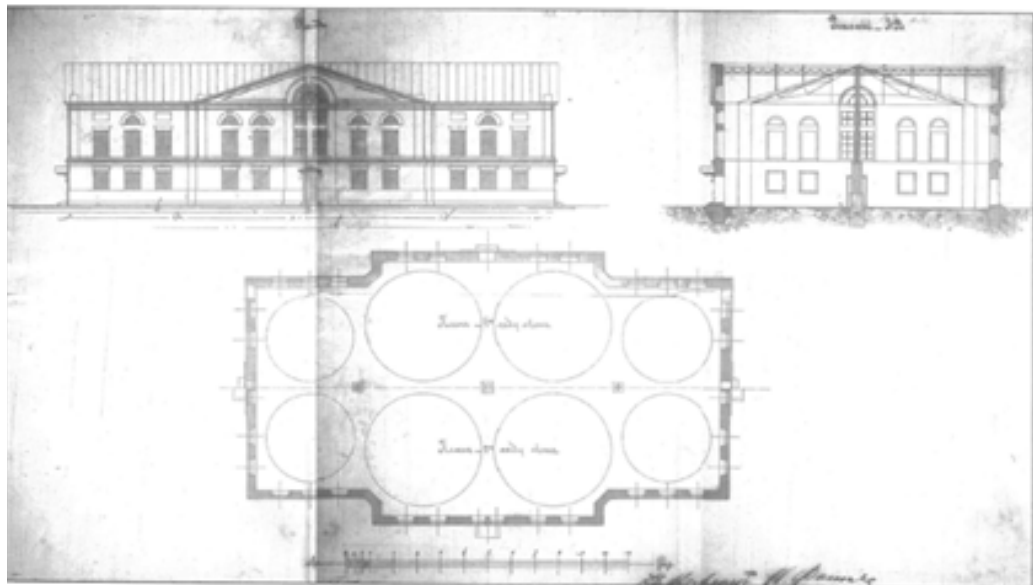
The project of residential building
By civil ing. Faleev, 1891



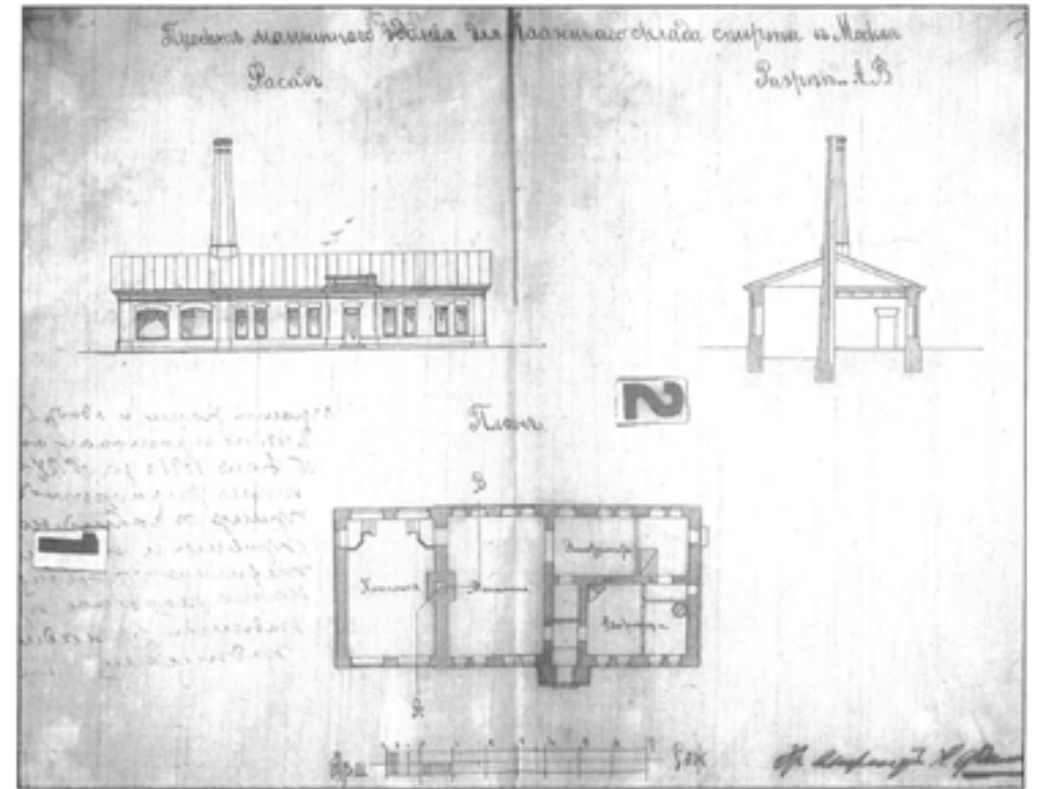
The project of the two flanking buildings for duties
By civil ing. Faleev, 1891



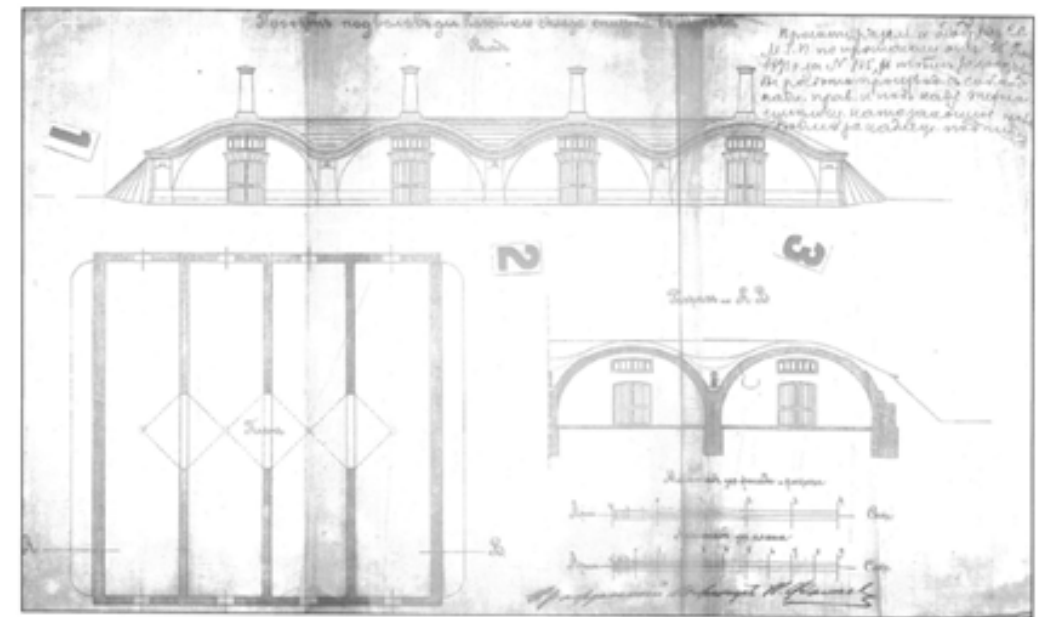
The project of the building for receipt and transfer of alcohol
 By civil ing. Faleev, 1891



The project of the for the building for cisterns with alcohol
 By civil ing. Faleev, 1891



The project of the machine room ("old" steam room)
 By civil ing. N.G.Faleev, 1891.



The project of the floor levels for alcohol deposit
 By civil ing. Faleev, 1891

Phase II: Factory

In 1894 on the territory of Russia was gradually introduced the monopoly for wine. In 1898 it was spread to Moscow and Moscow province. The monopoly for wine included cleaning of alcohol, wholesale and retail of hard liquor. For this purpose, it was decided to organize a system of state wine warehouses, where will be concentrated alcohol production, purification of alcohol that was produced in-place or gained from private producers, production of vodka and vodka trade.

As a result, "Moscow state alcohol warehouse" was redesigned for "Moscow state warehouse for wine №1" that actually was not a warehouse anymore but a factory. The master plan for the new factory signed by Faleev was approved by the technical-constructional inspection on the 22th of December 1899. Faleev also designed main buildings of the second phase of the construction including the main building (Samokatnaya 4 building 1). It had quite a complicated shape.

The core of the composition was the central four-level part, which had a square shape with two bevel-edged corners that faced to the custom's warehouse. In the central part were situated the stair cases, workers dressing rooms and some other utility spaces.

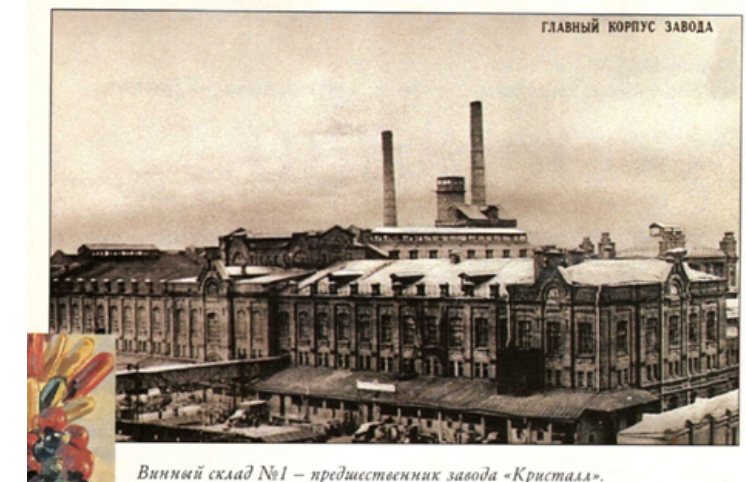
From south and north to the central building were flanking two three-level buildings, creating an extended volume lined across the eastern border of the land. The central, the northern and the southern parts of this volume from the side of the main façade were emphasized by risalits and attics with saddle-back roofs.

In the northern part on the ground floor of the main warehouse was located the warehouse of the glass dishes, on the first floor beside the railway platform was realized the receipt of empty dishes from the town, on the second was the warehouse of the end product, on the third the washing department, sometimes the whole block was called washing department.

In the southern part of the main building adjacent to the central part on the ground floor was warehouse for dishes, on the first floor beside the railway was department of wine release to the towns, on the second floor was the warehouse of the end product, on the third - filling of the end product. To the southern part of the main building was attaching the rectangular volume of the canteen.

The duty office extension was connected with the northern risalit of the main building by a two-level integration constructed above the passage. The duty office was facing by its body end façade to the red line of the Novoblagoslovennaya Street. In the ground floor of the duty office were the barracks for single and married lower orders. On the first floor – the receiving room of the doctor, the Swiss wardrobes including the study room of the chief of the warehouses.

To the central stair case from the west was attaching the highest part of the volume – five-level filtration department that included a laboratory, classifying section, packaging section and locksmith workshop in the inferior levels. From the west it was attached by a 4 level rectification department. This block was situated closely to the block of the alcohol cisterns, constructed during the first phase.



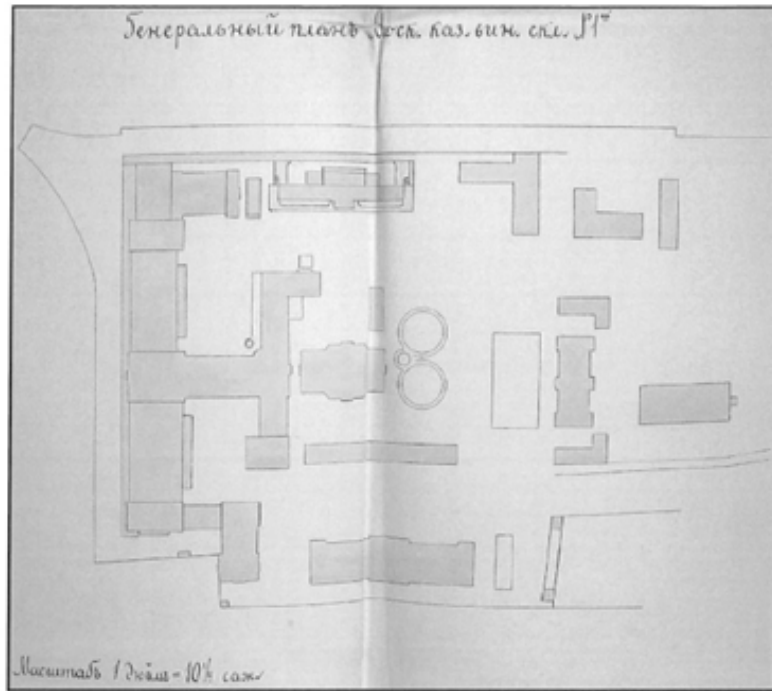
Moscow state warehouse for wine n.1: main building, postcard
Arch. civil ing. Faleev, 1891

From the south to the rectification block was joined one-level building for the steam machine ("new" steam room), besides was built a high brick pipe. Initially it was intended to attach to the steam block a smithy, but finally it was decided to place it as a separate volume that grew up a little bit on the west and later became a part of the denaturation department (Samokatnaya 4, building 2).

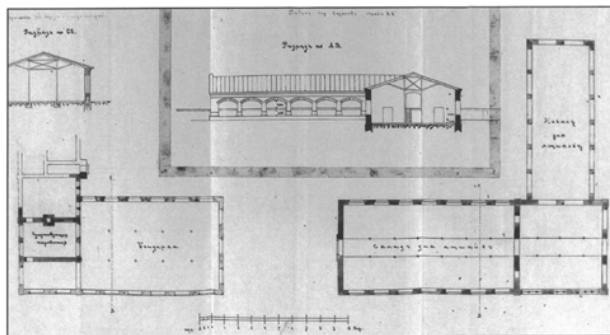
The floor finishing of all the ground floors of the warehouse were asphalt.

At the same time during this phase was constructed an L-shaped barn for cooper's workshop and a shed for boxes (Samokatnaya 4, building 4) that was placed to the west from the building for receipt and transfer of alcohol along the southern border of the domain. Furthermore, was designed an L-shaped goods shed along the northern border on the place of later building for the coal factory (Samokatnaya 4, building 11). But finally the goods shed was built up in a rectangular shape on the other place (Samokatnaya 4, building 13).

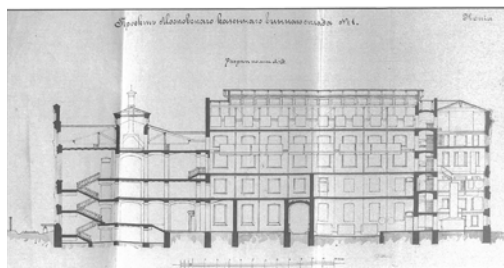
The drawings of the main buildings accomplished during this phase of the construction as it was already told were signed by Faleev. But the supervision for the construction was passed to the civil engineer V.A.Velichkin who was previously mentioned in some documents as a "constructor of the warehouse". The construction contract took upon himself a hereditary honorary citizen E.E.Gubonin who also supplied ornamental stone named "tarussky marble" for the finishing of the basements of the buildings. The brick for the construction was supplied by the largest in Moscow region brick factories of Katuyar, Yakunchikov, Voronin, Milovidov. Concrete works (the organization of the concrete blocks for the columns in the filtration department) was accomplished by the Excise Company of the concrete works. During the construction was used the equipment and iron materials supplied by Moscow factories, the cases were equipped with a ventilation system, local canalization and steam heating.



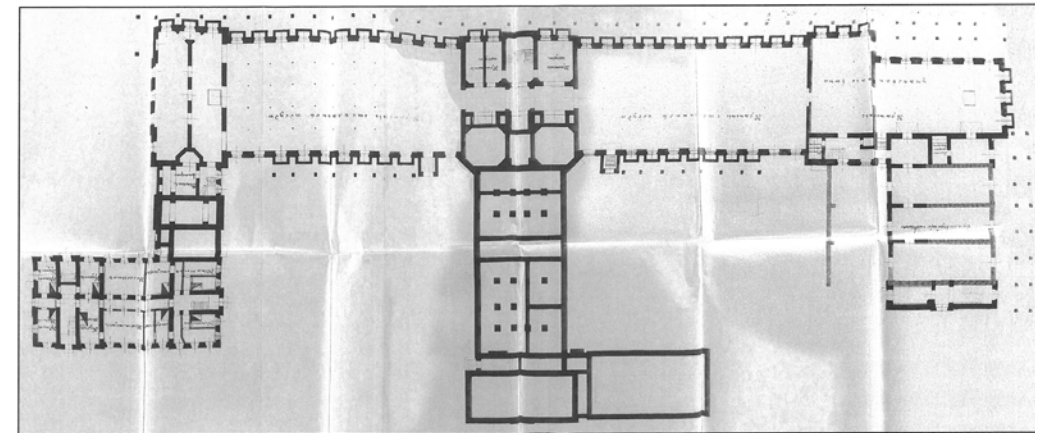
Master plan of the site of Moscow state wine warehouse n.1
By civil ing. N.G.Faleev, 1900



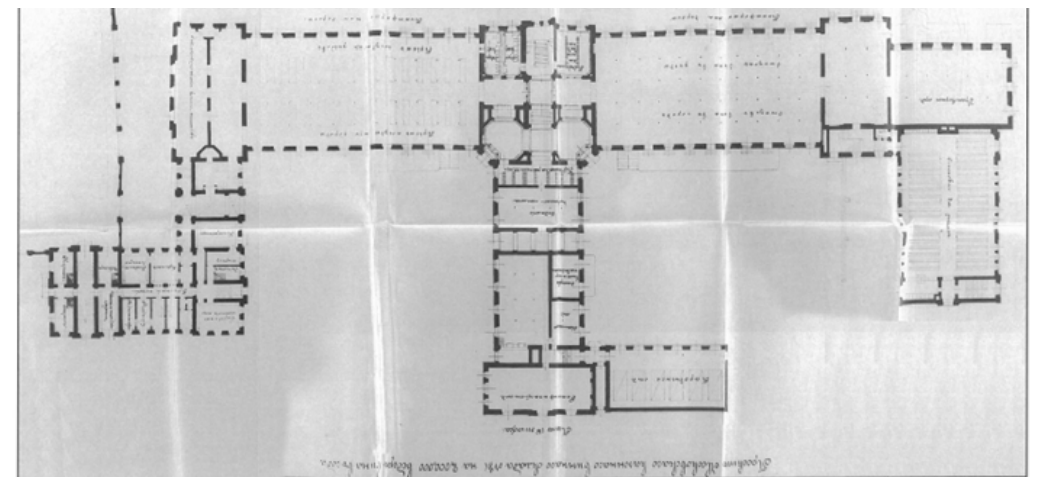
The project of the cooper's workshop and a shed for boxes
By civil ing. N.G. Faleev, 1891



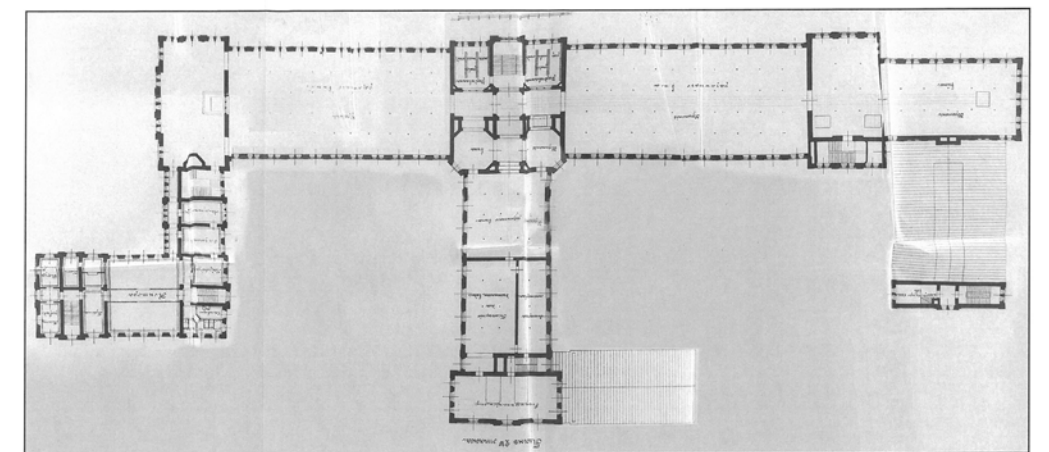
The project of the main block of Moscow state wine warehouse n.1
Section, by civil ing. N.G. Faleev, 1900



The project of the main block of Moscow state wine warehouse n.1
Plan of underground floor, by civil ing. N.G. Faleev, 1900



The project of the main block of Moscow state wine warehouse n.1
Plan of ground floor, by civil ing. N.G. Faleev, 1900



The project of the main block of Moscow state wine warehouse n.1
Plan of first floor, by civil ing. N.G. Faleev, 1900

Further development

In the end of 1902 the goods shed (Samokatnaya 4, building 13) was built above with a second floor.

The functions of the state warehouse №1 were expanding and soon there was a need for new buildings. The main was 3 level block of the coal factory, that took a place of initially planned goods shed along the northern part of the domain (Samokatnaya 4, building 11).

Between 1901 and 1909 to the block for the “new” steam room were joined the building of electric power plant, steam heater, was constructed the second smoke pipe, 6 level building for the water tower near the artesian well. Also here was a stair case and coal elevator. The project of the tower was designed by V.A. Velichkin.

To the case of filtration department was from the north was attached a 3 level block for rectification department, as a result the western part of the main block got a T shape. Also were constructed the circular stone buildings for the cooling cisterns of the rectification department. At the same time was expanded the building for the old steam machine (Samokatnaya 4, building 27), here was also placed an apartment and a joiner’s shop.

In 1908 was constructed the biological station for the sewage cleaning, closer to the bank of Yauza. At the same time was constructed 3 level building of the laboratory, located to the west from the main part of the domain, were organized artesian well and pumping station on Yauza and a wooden bridge across the river. Jobbing was mainly accomplished by the chief of the warehouse I.N.Kovrigin. Following his project were made the windows in the steam department.

In 1904 the domain of the warehouse as well as all the eastern district of Moscow suffered from a strong storm, that destroyed the Annengovskaya grove. Here were knocked out few hundred windows.

Initially the domain was developing inside the borders of the alcohol warehouse, but in 1900s were added two parts along the eastern border from the custom’s domain in order to improve the conditions for receipt and discharge of the good from the railway platform. On the added part of the land later were built the circular brick cisterns (Samokatnaya 4, building 30).

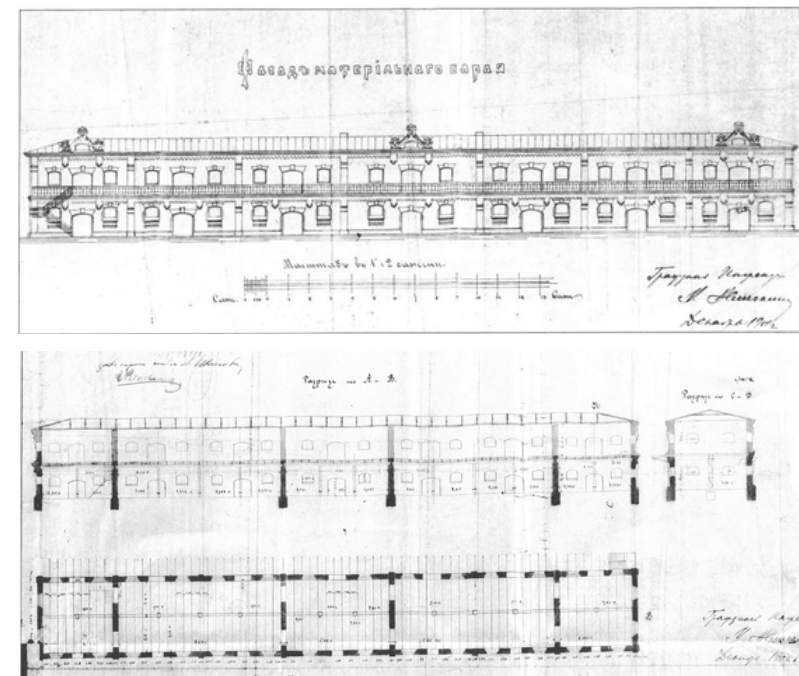
Up to the warehouse was laid a branch of Kazanskaya railway, passing through the domains of the custom. The railway had two extensions, passing to the main building where was issued the final product and to the building for receipt and transfer of alcohol, where was accepted the alcohol coming from other factories.

In 1909-1911 the building of the smithy was radically redesigned and built over with a second floor for denaturation department (Samokatnaya 4, b.2). In 1911 were done some works on organization of the iron post near the cooling cisterns and a roof above the rectification department. In 1914 was constructed a new fence along the domain of the custom. In 1900s was buried the pond in the western part of the site.

From the October 31th 1914 in Russia for the period of the I World war was singed a “dry” law. The production of alcohol abrupt-

ly decreased. The alcohol was issued only for medical and technical needs. Wine trade significantly decreased. It led to a kind of cut pack of the activity of the State warehouse for wine: in 1915 only a part of buildings conserved its former functions, many rooms and blocks were inactive, part of the rooms of the main building (in the northern and central parts) were used as chambers for the military hospital.

During the war former shed for goods (Samokatnaya 4, b.13) was adapted for production of urotropine – raw material for explosive substances and formalin, that was used in medicine. On the second floor were located the laboratories.



The project of building above with a second floor of the goods shed
Дrawingы, 1901

Soviet period

After 1917 in the Soviet period the factory was nationalized and got a name “Moscow state distillery number 1”. In 1923 the restrictions for the production and sale of alcoholic drinks were took off. According to the inventory list of 1924 all the main buildings and machines were in a good state. Already by the autumn of 1923 the factory was producing 50per cent of the volume that it produced before the war.

By 1924 the block of the canteen was redesigned for a club. In 1927 the coal factory was redesigned for club (Samokatnaya 4, b.11). Between 1927 and 1930 was extended the building of the denaturation department (building 2), that conserved its former function. Without changing the façade, the architect found a matching architectural interior space organization with elements of decoration in style of soviet classism. In 1930 the first level of a former formalin and urotropin

factory was resigned for the garage, the second floor remained for laboratories. In 1934 the southern part of the main case, occupied by the liquor department was enlarged by a 4 story building including already existed on the site lower volumes, like a glacier (project of M.Ershov). In accordance with the master plan of 1935 to the south from the territory of the factory along the Kazanskaya railway was intended to lay a big park line, another new street – the passage from Volochaevskaya street was designed as a western border of the domain.

In the middle of 1930s the western part of the domain with the residential building and laboratory was separated for collocation of the Institute of alcohol industry. In the end of 1930s to the factory was attached a former building of the warehouse of the custom office (building 7) that was redesigned for the dormitory of the factory. At the same time were constructed concrete constructions of the coupled tanks.

During the Second World War besides the traditional production the factory produced dry alcohol, the bottles for wine and vodka were filled with the “Molotov cocktail” – a bottle based improvised incendiary weapon. Despite the bombings (July 22 1941 during the massive attack of German aviation the main building was in burnt), by the use of selfless work of the workers the production of the inflammable product was taken to the assembly line. For the work during the Second WW the factory was awarded with a flag of the state defense committee.

During the period following the war the buildings were subjected to numerous restructurings according to the industrial needs. In 1958 was constructed 3 level building of the dish warehouse (Samokatnaya 4, building 3) by architect S.G.Gulamiryanz. In 1960s was attached a 2 level extension to the south-eastern part of the main building and one level extension along the eastern façade (the long one).

In January 1987 the factory gets its contemporary name “Kristall”. In 1993 was registered a public corporation “Moscow distillery “Kristall” and its trade mark.

Actual state

The factory was dismissed since 2013 when the production was moved to the Moscow suburbs. Instead it was decided to create here a new residential quarter. There have been already several projects for the site redevelopment, but still none of them was constructed.

The site remains dismissed. Partly it is rented for offices, workshops and cafes. Next follow two most important proposals for the site.



Photo by Evgeny Mikhailov

EXISTING REUSE PROJECTS

BADR 5, 2014

In 2014 BADR 5 designed a sketch project for Kristall distillery reuse. The project was of a significant invasion level and requested 200 million dollar of investments. It included demolition of a part of buildings (including brick cisterns on the south of the site); construction of new buildings up to 9 level height and new transport system including a huge underground parking.

The remaining buildings were: the main building (n.1), the community club (n.11), the building for cisterns with alcohol (n.14), the workshops (n.4 and n.27), the building for receipt and transfer of alcohol (n.32), the garage (n.13), the gate building (n.9).

The new buildings appeared chaotically: sometimes above the existing building (n.4), sometimes were attached to the existing building (n.4, n.1), sometimes in between the existing buildings. They were designed different in order to create a vision of a historical city where the buildings did not appear all together. They say that as reference they took architecture of Northern Europe (Keln and Hamburg) and Russian art nouveau.

The transport system included both development of public transport and infrastructure for cars. The public transport was accomplished though the tram line that was supposed to lay down on the place of a former railway line and extend up to the other bank of Yauza, to do it was proposed to construct a bridge for tram and pedestrians. For cars it was intended to construct 2 level parking for 1800 parking lots, furthermore in order to do the territory car-free BADR 5 proposed to permit the access only for residents, while the transit road should pass underground.

In 2014 in Russia was a crisis, probably for that reason the project that demanded such big investments was not realized.



"Kristall city" aerial view
By BADR 5



"Peas square"
By Nowadays

Nowadays + Arenas Basabe Palacios, 2015

In 2015 there was another attempt to reuse Kristall distillery, this time the invasion level was minimal. It was supposed to clean the territory, demolish some extensions that spoiled the view and use the buildings without changing them, but to concentrate on the design of public spaces. There was launched an opened competition for public spaces for the Kristall distillery. Probably it was intended as a temporary decision that should also advertise the site. The winners were a consortium of a Russian studio "Nowadays" and a Spanish studio "Arenas Basabe Palacios".

They proposed a step by step development of the site, based on its internal resources. The architects supposed it was better to create not a finished "rigid" project, but a "flexible system" and "algorithm for changes". A part of their concept was to develop a catalog of urban furniture, produced from various industrial elements found on the site.

Furthermore, in order to give an image to each space, they figured out a series of somehow "theatrical" spaces, each one with its own identity, and invented fantastic toponyms for each of them. Thus their idea was to invest more effort to the "immaterial changes", "symbolic things" on the initial stages, so that they would launch the processes attracting the resources for the capital construction.

The presentation was designed in post-digital style and was highly appreciated by architectural community in Russia and abroad. For instance, was published on Archdaily and on Koozarch (on-line platform specialized in post digital architectural presentations).

Nevertheless, this project also remained only in paper, the reason is not very clear.

KRISTALL VILLAGE PROJECT

The project starts with evaluation of the existing buildings state in order to find out which buildings should be preserved. For this reason, were done two diagrams: first is a chronological scheme based on the historical research about the building; second is a diagram of official heritage status of each building.

Based on these two diagrams it was decided which buildings could be demolished without significant damage to the site and which buildings must be preserved. The demolished buildings in general are not part of the original complex, but the later interventions done in the soviet period or recently. The exception was done only two buildings: one of the two buildings for duties and the “old” steam room, both constructed during the first phase by Faleev. These buildings make part of the original complex but they have been changed so much that are not recognizable anymore and don't have much importance.

Comparing to the project of BADR, this project preserves more existing built-up because it preserves also the brick cisterns (building n.30). It is not very clear when they were constructed, because according to the memorandum produced by Genplan Institute of Moscow they were constructed somewhere in the beginning of 1900s, while in the research they say that the buildings refer to 1930s. For the current project it was decided to leave them.

The next step was to study these buildings and to produce all drawings for each building such as plans, sections, elevations and finally axonometric views. The final result of the research was the 3d model of the whole site and surroundings.

As it was already explained in chapter 4, the reference for design is Moscow traditional urban fabric. The main goal for design were: the human scale, low car traffic, courtyards, commerce and identity.

The first step is to reach the human scale on the site. The complex of Kristall distillery makes impression of a monument, in order to make the site more human scale it was decided to cut pieces of existing buildings so that one building was divided into several buildings. The new buildings of comparable size are located in the remaining space. All buildings are provided with a courtyard.

The new buildings are of two types, A and B. Type A buildings have apartments on the ground floor, and a private garden on the side opposite to the entrance. The garden belongs to the ground floor apartments. This type of house locates in periphery. Type B buildings do not have apartment on the ground floor, instead there is commercial space. In this case the garden locates on the same side with the entrance and belongs to the whole condominium. This type locates in the center of the site. The existing buildings were designed similar to the new buildings so that also they are of A and B type.

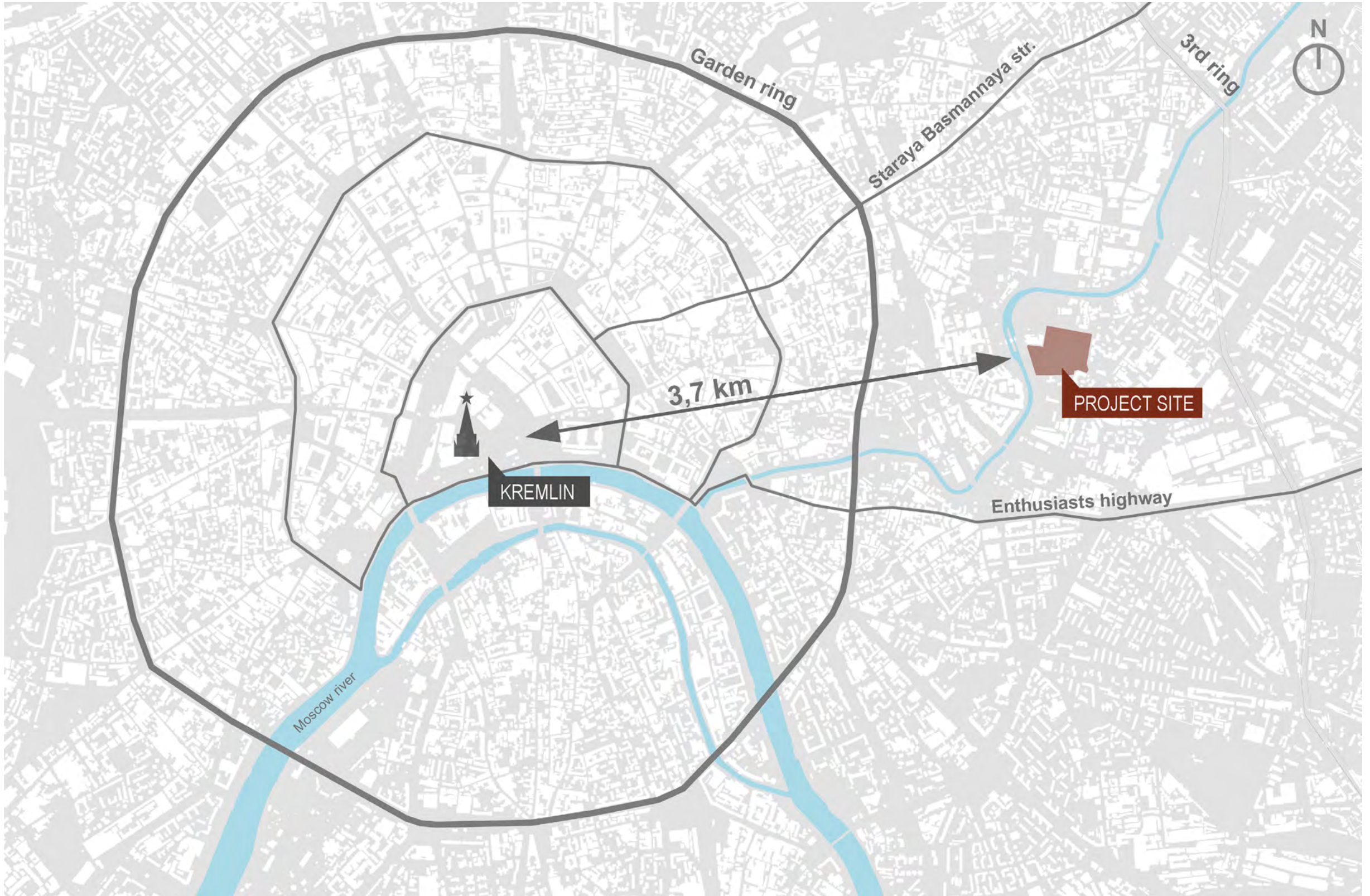
Furthermore, the new buildings, both A and B types are divided into 3 types that consider their size. The standard size that is used mainly in periphery where there is no other build up is 20 m by 15 m. In order to infill the voids between the existing buildings and to mix better old and

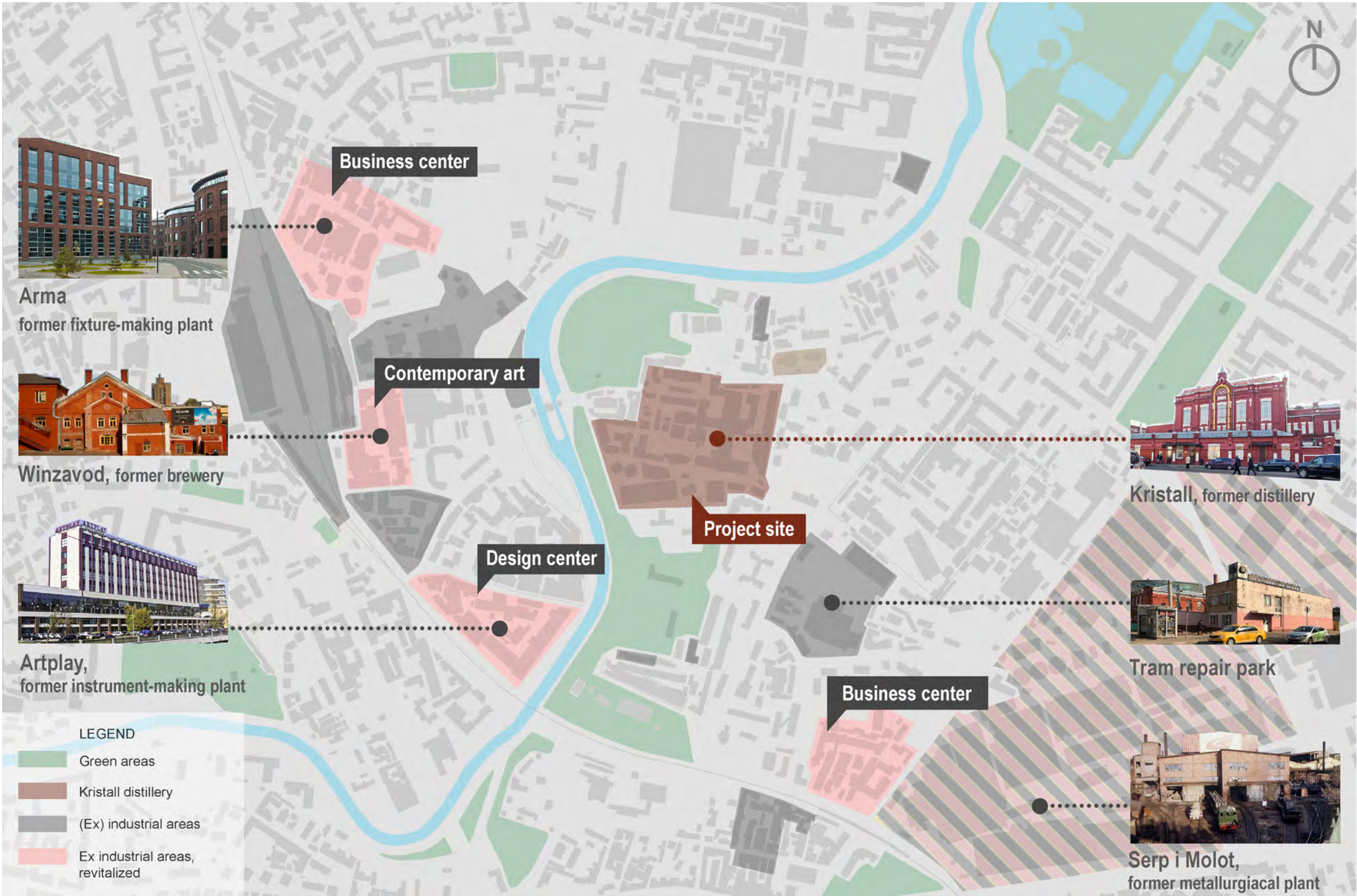
new were designed smaller buildings that are 15 by 15 and 8 by 15 m.

In order to give an identity to the new buildings it was decided to use as a reference the traditional Russian architecture and the existing buildings of the site. The new buildings have patched roof that lets the snow fall down, and porches that keep warm. This features are similar both to Russian traditional architecture and to the existing buildings. The chimneys of the new buildings remind the battlements of the existing buildings. The 20 by 20 m type has a mansard similar to those of the existing buildings; one of its parts is higher than the other, that refers to the water tower of the original buildings, but also this diversity is typical for Russian traditional architecture. Finally, the material that is used for the façade is also brick but of a slightly different color respect to the original buildings.

There are five types of apartments in the new buildings. One-room apartment of 32.1 m², two-room apartment of 51.9 m², two-room apartment of 52.8 m², three-room apartment of 66.4 m² and another three-room apartment of 88,2 m². Most of the apartment are one-side, except for three-room apartment of 66.4 m² that is double-sided. The number of double-sided apartments is reduced because the buildings have windows only on two sides while the lateral sides are designed without windows. It was done in order to have a possibility to infill them in narrow spaces between existing buildings and to locate them close to each other in order to make the built-up more dense.

To reduce car traffic it is intended to develop public transport. For this reason, it was decided to implement a new tram line on the place of former railways and the bridge for tram and pedestrians to connect the site of Kristall distillery with the right bank of Yauza, as it was proposed by BADR 5 studio. On the other side of Yauza is situated an important transport hub - Kursky railway station and there are located other two very important sites – Artplay design center and Winzavod museum of contemporary art. Both these sites host the artistic community and are quite vivid quarters. Furthermore, were designed bike routs and parking. At the same time parking space was reduced down to minimum with the idea of future sustainable development.



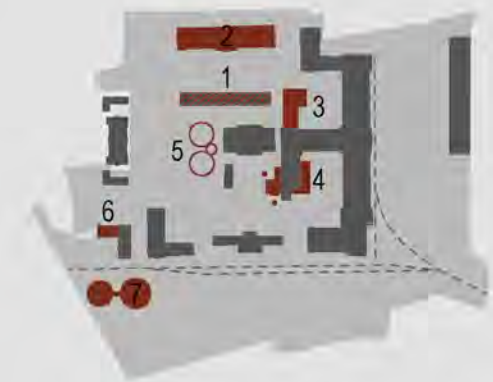
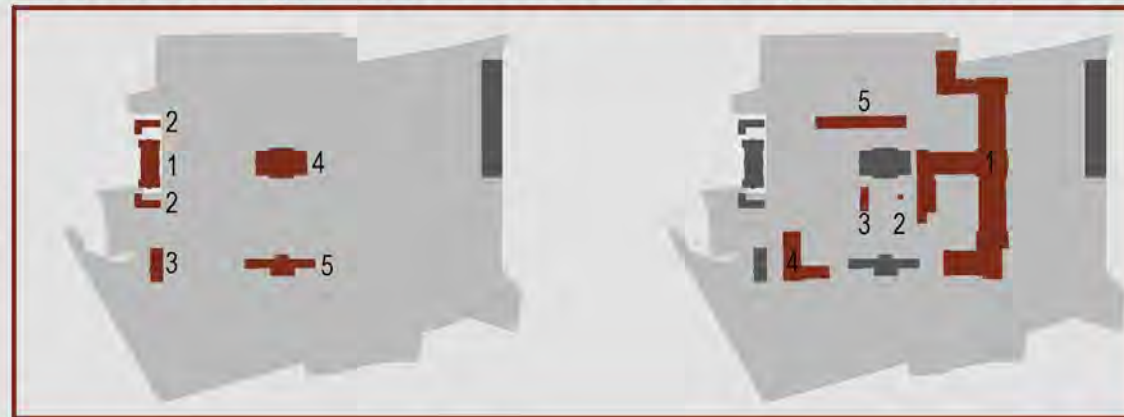




The core buildings were constructed in this two phases by ing. Faleev



Monopoly for wine



1870 - 1877
1. stone warehouse; 2. two wooden buildings, provided by railways.

1891-1892
Phase I, ing. Faleev
1. residential building; 2. buildings for duties; 3. "old" steam room; 4. cisterns with alcohol; 5. receipt and transfer of alcohol; ground floor levels (not defined)

1899-1901
Phase II, ing. Faleev
1. main building; 2. pipe; 3. smithy; 4. cooper's workshop; 5. shed for boxes

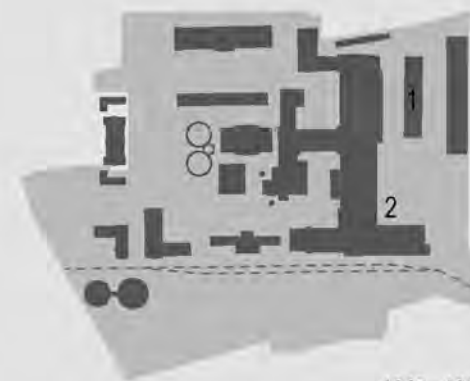
1901-1909
1. shed for goods: 2nd floor (1902); 2. coal factory; 3. rectification department; 4. electric power plant, steam heater, 2nd smoke pipe, water tower (by V.A. Velichkin); 5. cooling cisterns; 6. extension of "old" steam room; 7. brick cisterns.



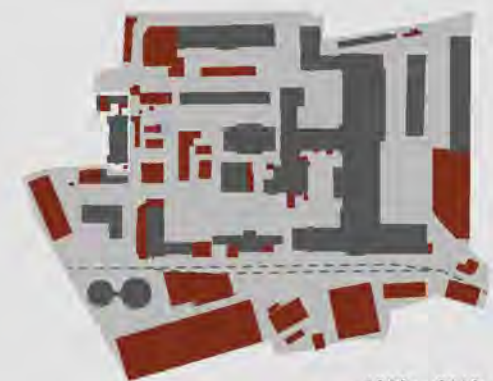
World War I,
Revolution, Civil War



World War II



USSR failed



1909-1914
1. smithy was redesigned; was added 2nd floor for rectification dep. (1909-1911); 2. fence (1914); 3. redesigned for urotropin factory; pond buried

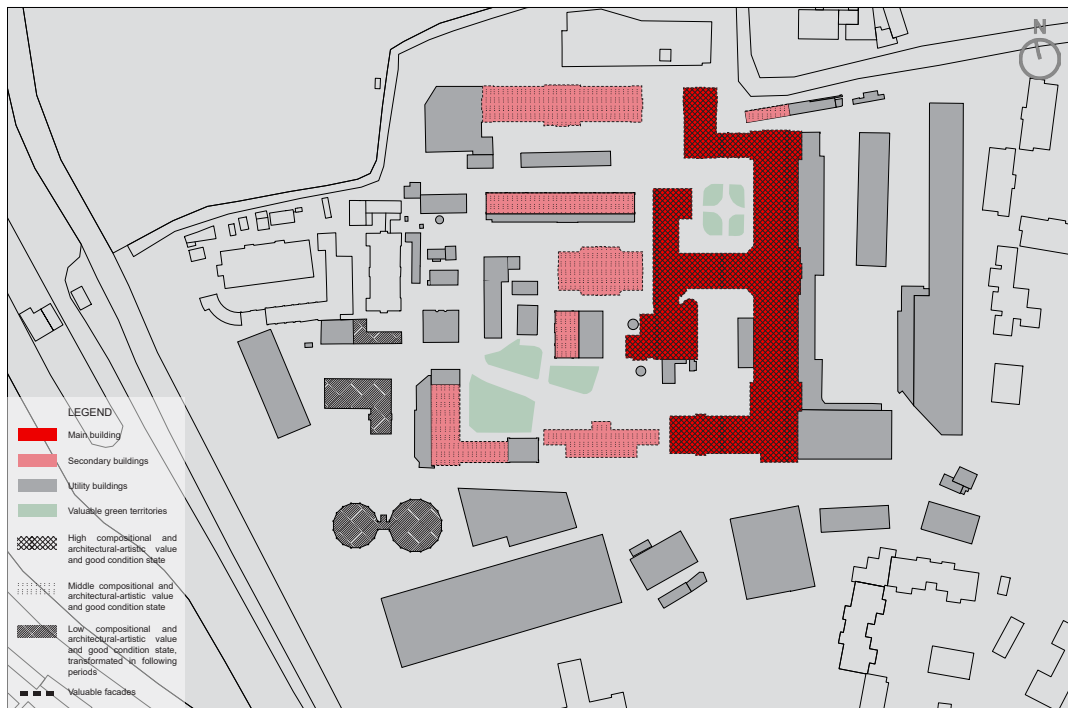
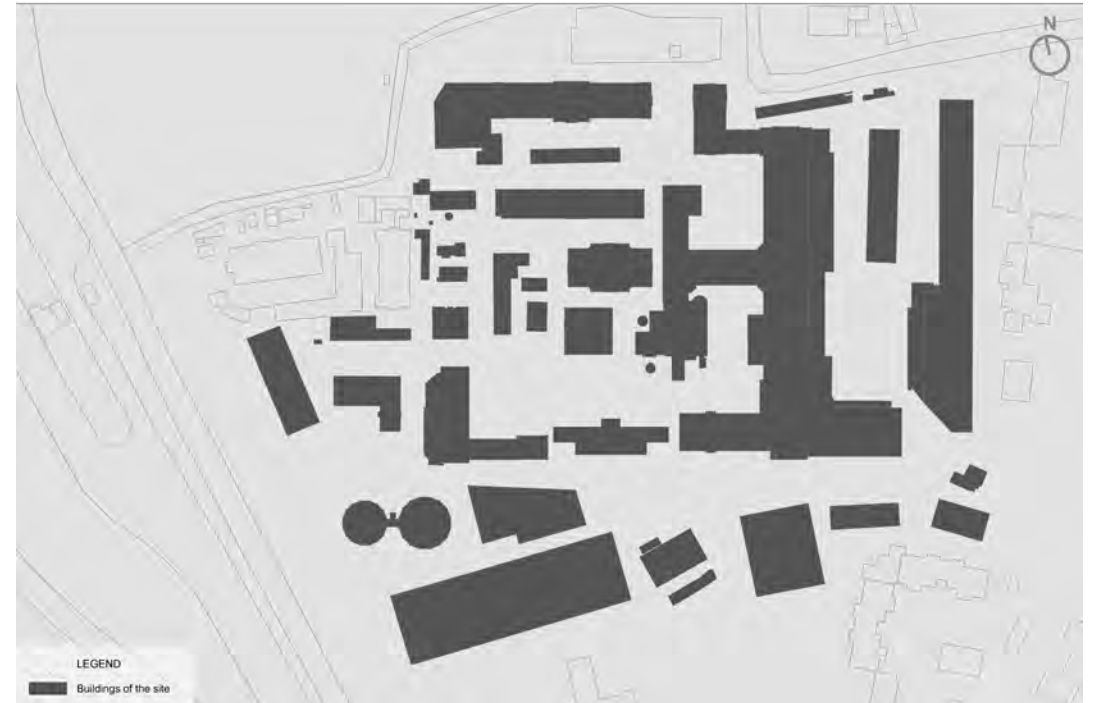
1923-1935
1. coal factory redesigned for community club (1927); 2. redesigned for garage; 3. redesigned interior; 4. 4-level extension of liquor department (by M. Ershov); 5. redesigned for a dormitory for workers.

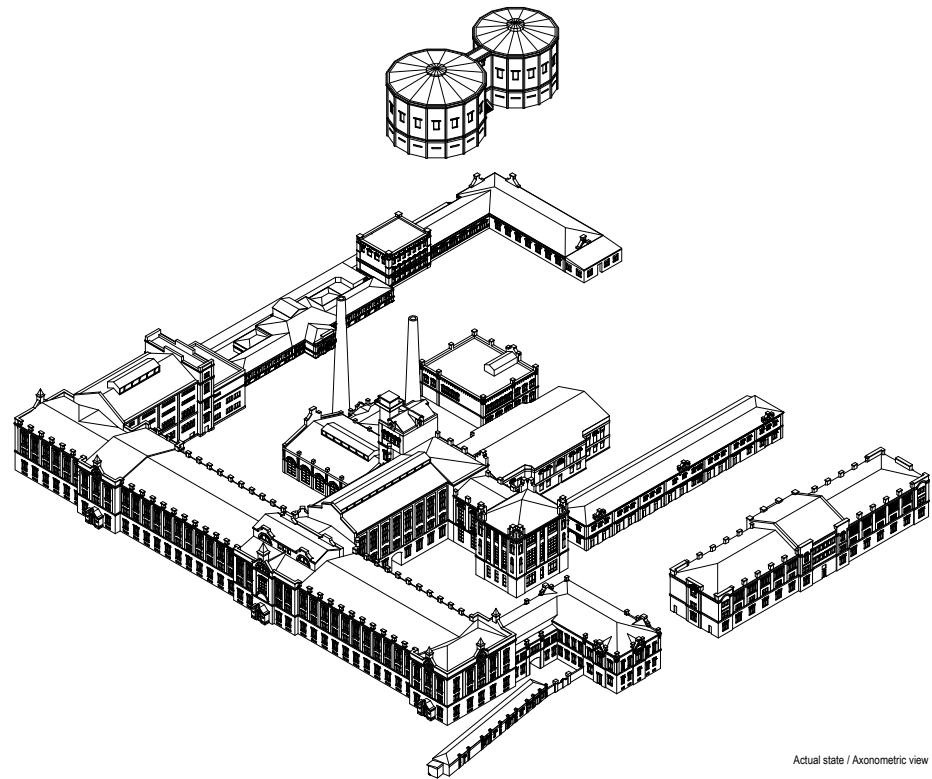
1945 - 1960
1. dishwashing department (1958); 2. extensions to the main building.

1960s - 2018
(various extensions)

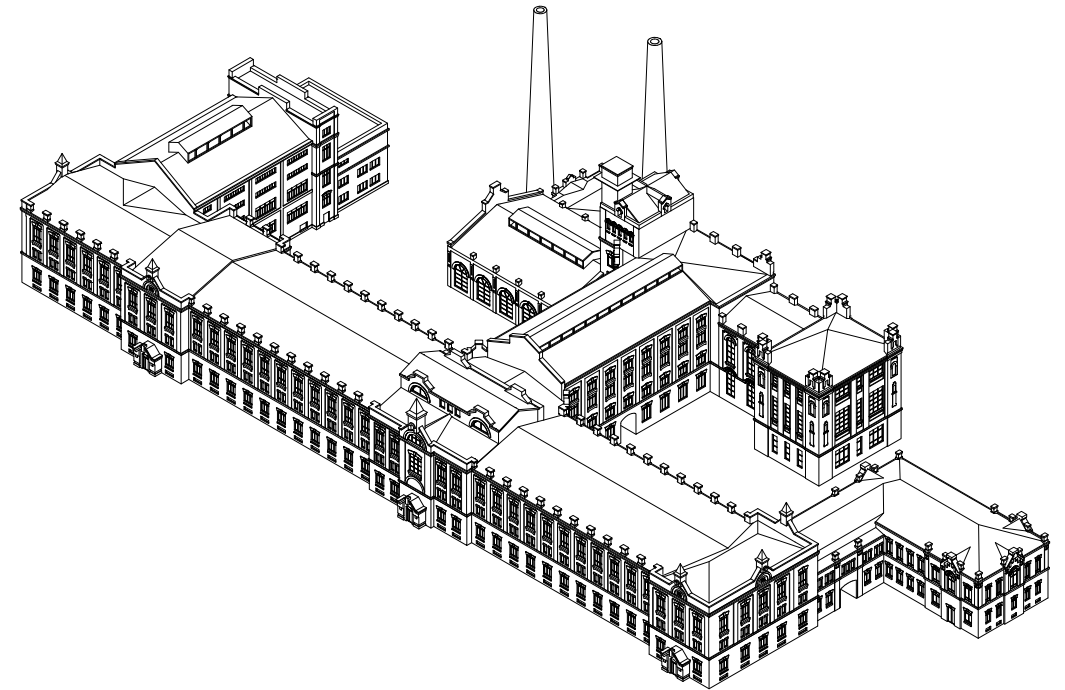
LEGEND

- Existing buildings
- New buildings
- Actual site border

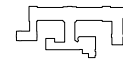
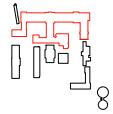




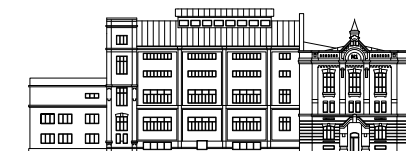
Actual state / Axonometric view



Main building / Axonometric view



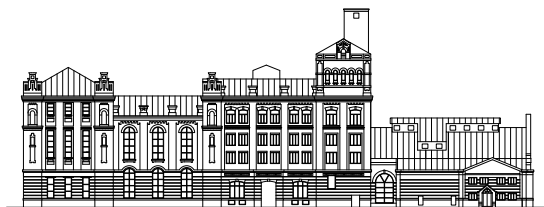
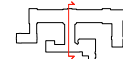
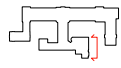
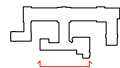
Facade 1-1' / Scale 1:200



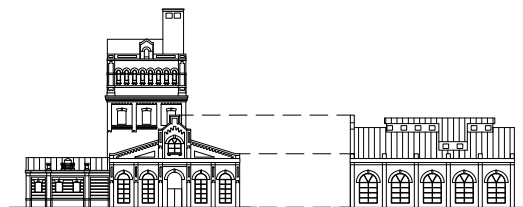
Facade 5-5' / Scale 1:200



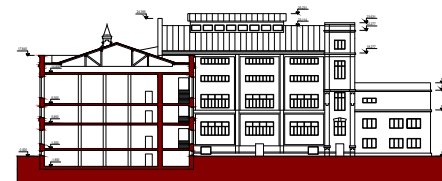
Facade 4-4' / Scale 1:200



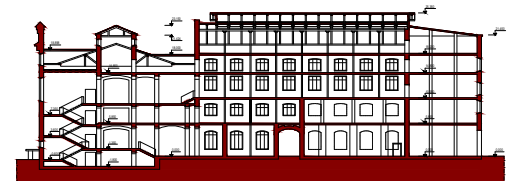
Facade 2-2' / Scale 1:200



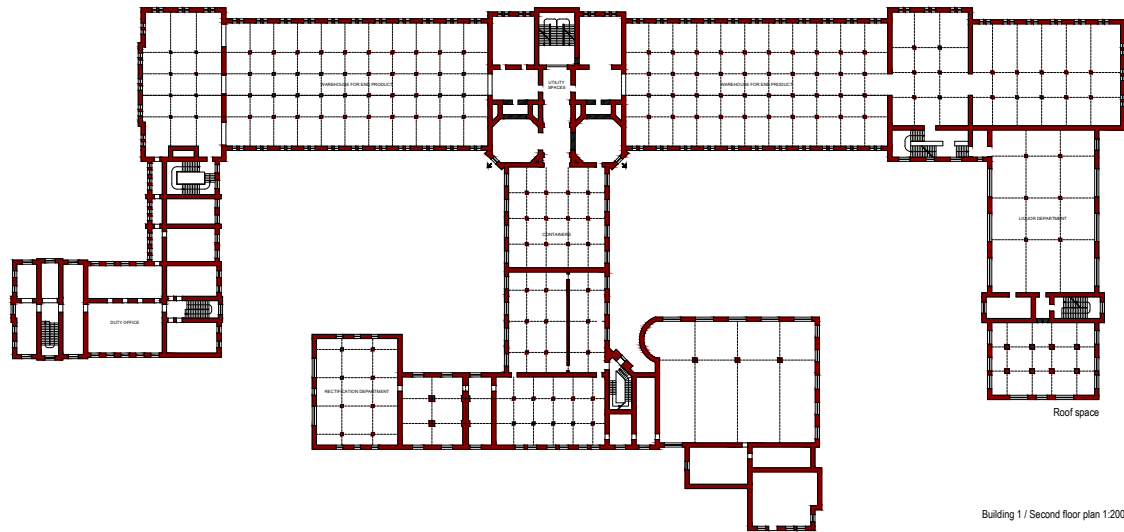
Facade 3-3' / Scale 1:200



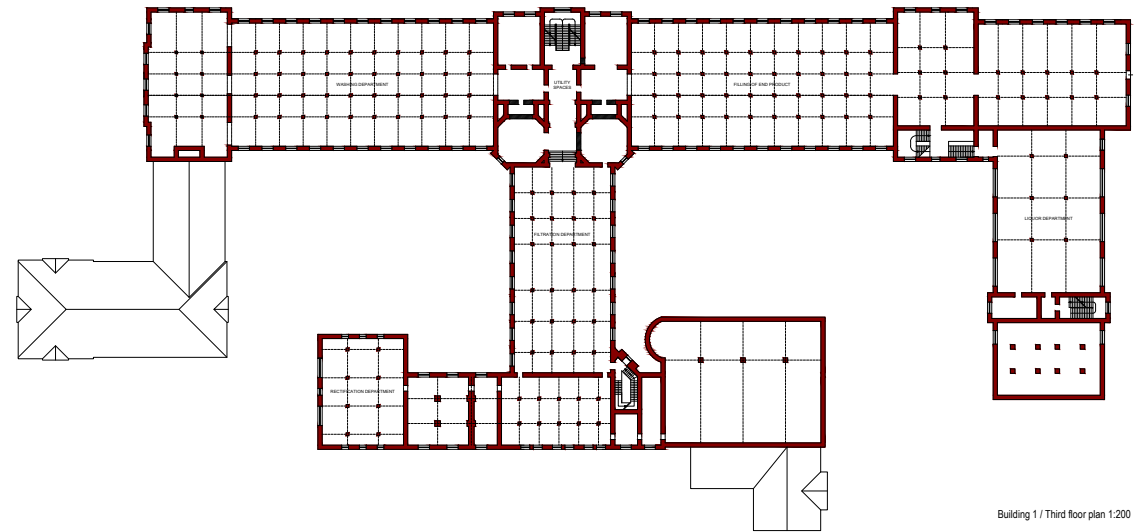
Section B-B' / Scale 1:200



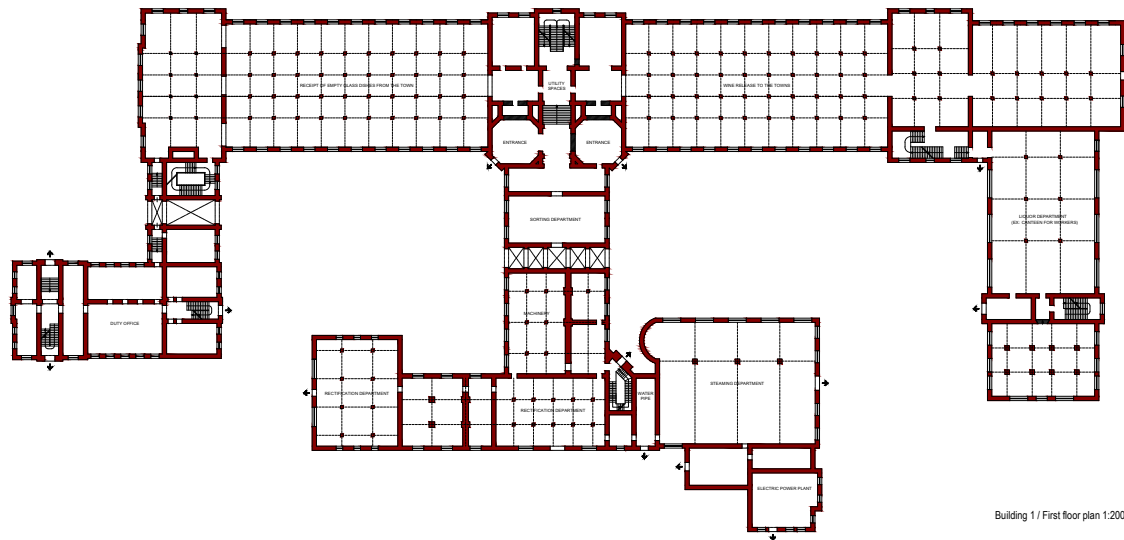
Section A-A' / Scale 1:200



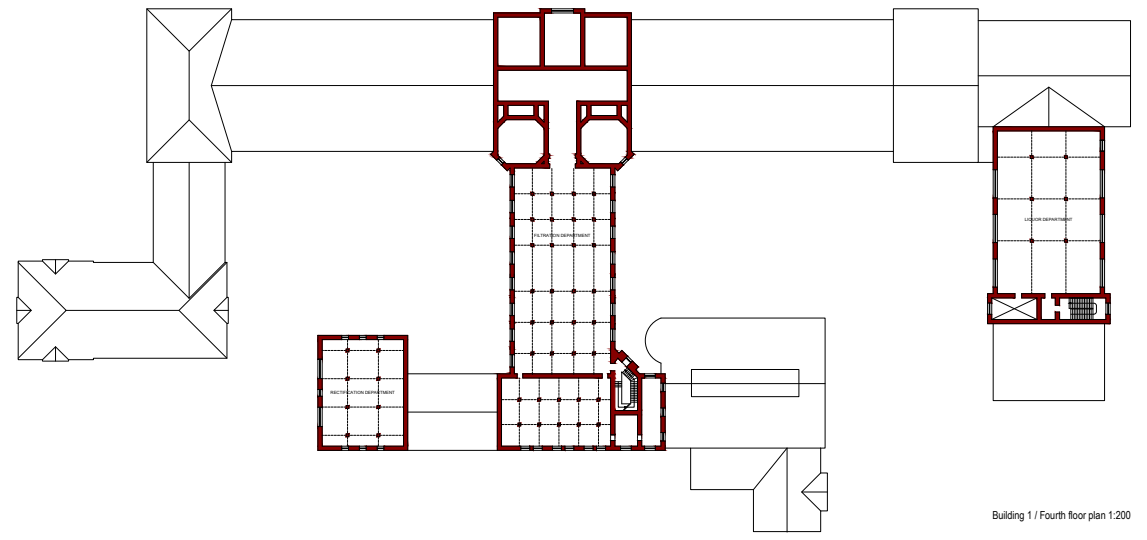
Building 1 / Second floor plan 1:200



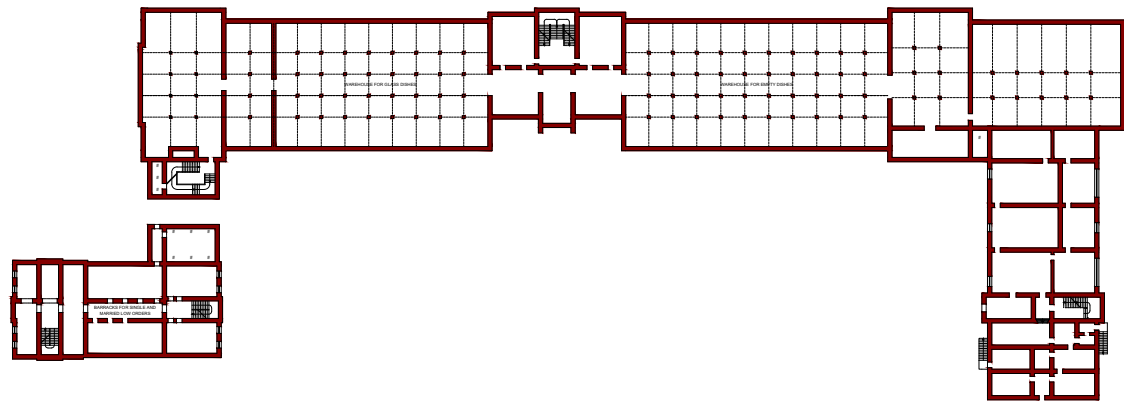
Building 1 / Third floor plan 1:200



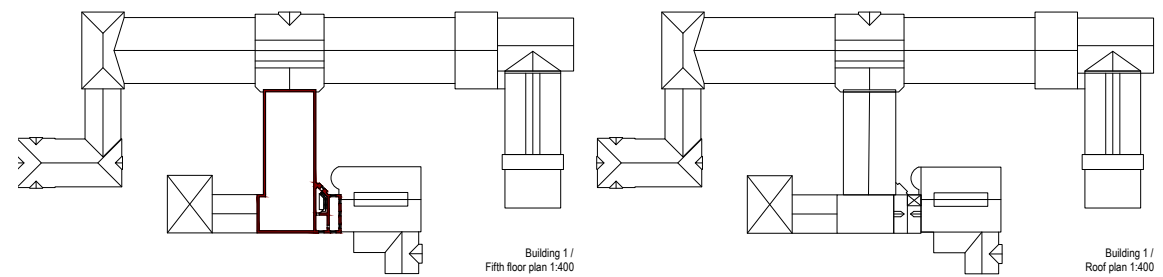
Building 1 / First floor plan 1:200



Building 1 / Fourth floor plan 1:200

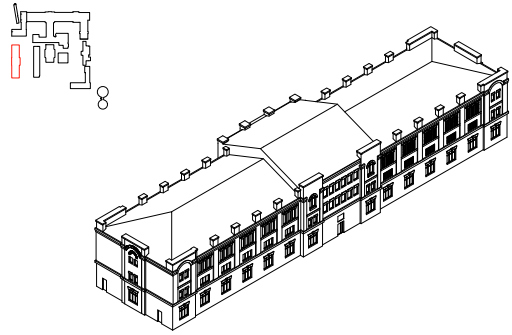


Building 1 / Underground floor plan 1:200

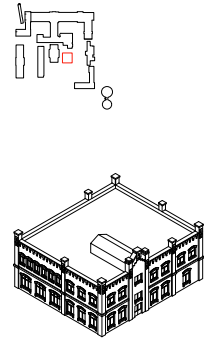


Building 1 / Fifth floor plan 1:400

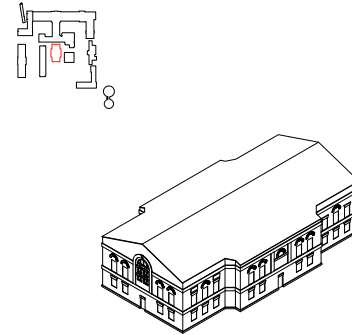
Building 1 / Roof plan 1:400



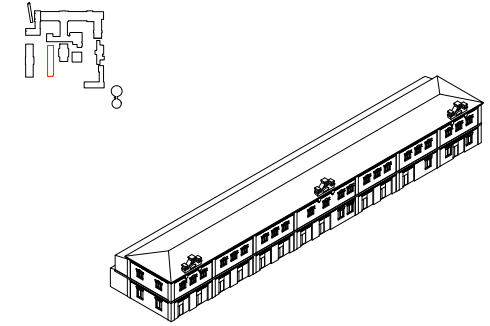
Building n.11 / Axonometric view
Scale 1:200



Building n.2 / Axonometric view
Scale 1:200



Building n.14 / Axonometric view
Scale 1:200



Building n.13 / Axonometric view
Scale 1:200



Building 11 / Facade 1-1'
Scale 1:200



Building 11 / Facade 3-3'
Scale 1:200



Building 2 / Facade 1-1'
Scale 1:200



Building 2 / Facade 2-2'
Scale 1:200



Building 14 / Facade 1-1'
Scale 1:200



Building 14 / Facade 2-2'
Scale 1:200



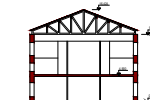
Building 13 / Facade 1-1'
Scale 1:200



Building 13 / Facade 3-3'
Scale 1:200



Building 11 / Facade 2-2'
Scale 1:200



Building 11 / Section A-A'
Scale 1:200



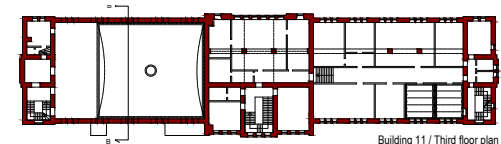
Building 2 / Section A-A'
Scale 1:200



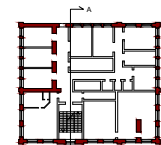
Building 14 / Section A-A'
Scale 1:200



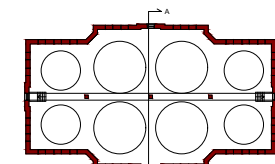
Building 13 / Facade 2-2'
Scale 1:200



Building 11 / Third floor plan
Scale 1:200



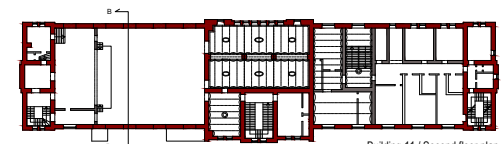
Building 2 / Second floor plan
Scale 1:200



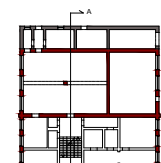
Building 14 / Second floor plan
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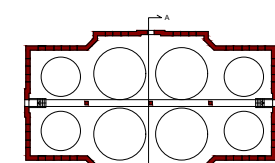
Building 13 / Section A-A'
Scale 1:200



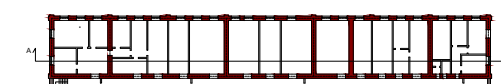
Building 11 / Second floor plan
Scale 1:200



Building 2 / First floor plan
Scale 1:200



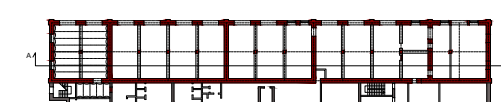
Building 14 / First floor plan
Scale 1:200



Building 13 / Second floor plan
Scale 1:200



Building 11 / First floor plan
Scale 1:200



Building 13 / First floor plan
Scale 1:200



Building n.32 / Axonometric view
Scale 1:200



Building n.4 / Axonometric view
Scale 1:200



Building n.9 / Axonometric view
Scale 1:200



Building n.30 / Axonometric view
Scale 1:200



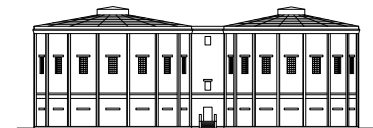
Building 32 / Facade 1-1'
Scale 1:200



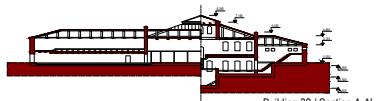
Building 4 / Facade 1-1'
Scale 1:200



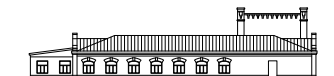
Building 4 / Facade 1-1'
Scale 1:200



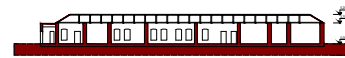
Building 30 / Facade 1-1'
Scale 1:200



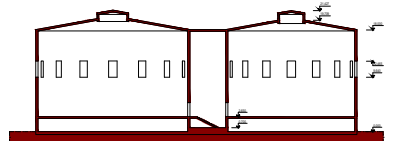
Building 32 / Section A-A'
Scale 1:200



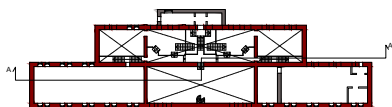
Building 4 / Facade 2-2'
Scale 1:200



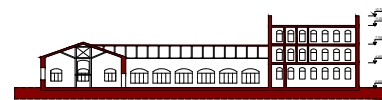
Building 4 / Section A-A'
Scale 1:200



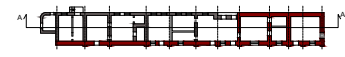
Building 30 / Section A-A'
Scale 1:200



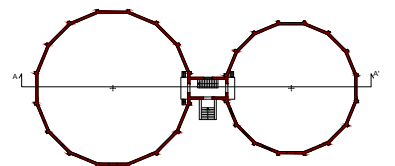
Building 32 / Second floor plan
Scale 1:200



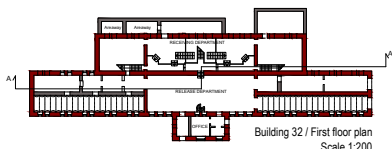
Building 4 / Section A-A'
Scale 1:200



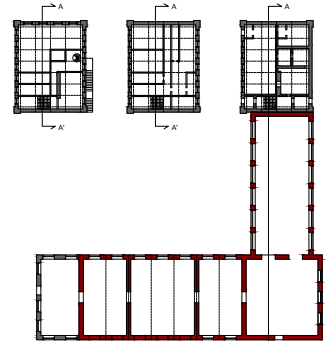
Building 4 / First floor plan
Scale 1:200



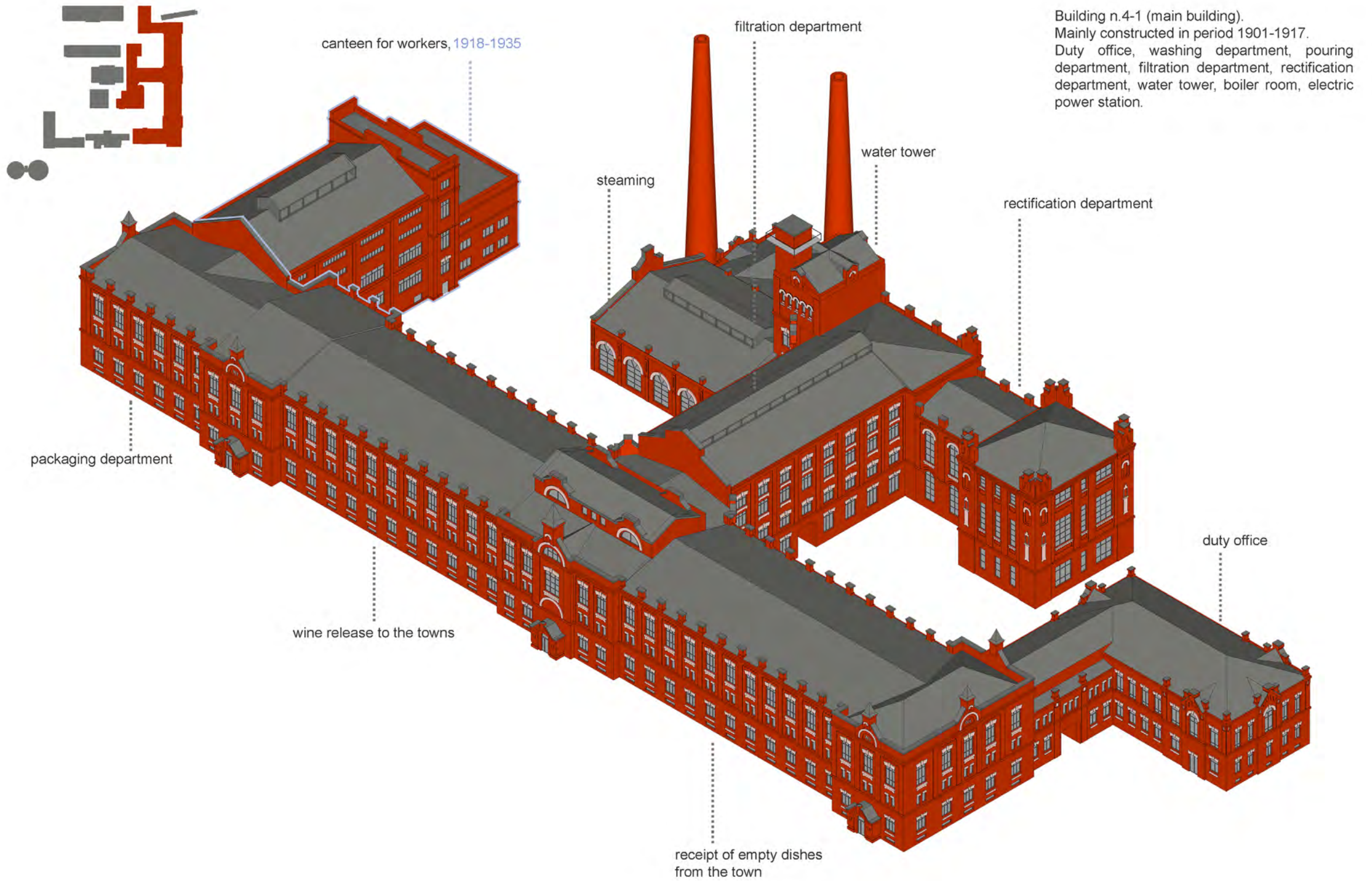
Building 30 / First floor plan
Scale 1:200



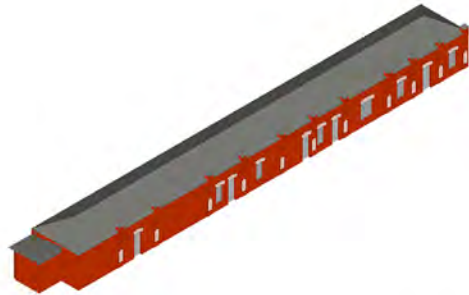
Building 32 / First floor plan
Scale 1:200



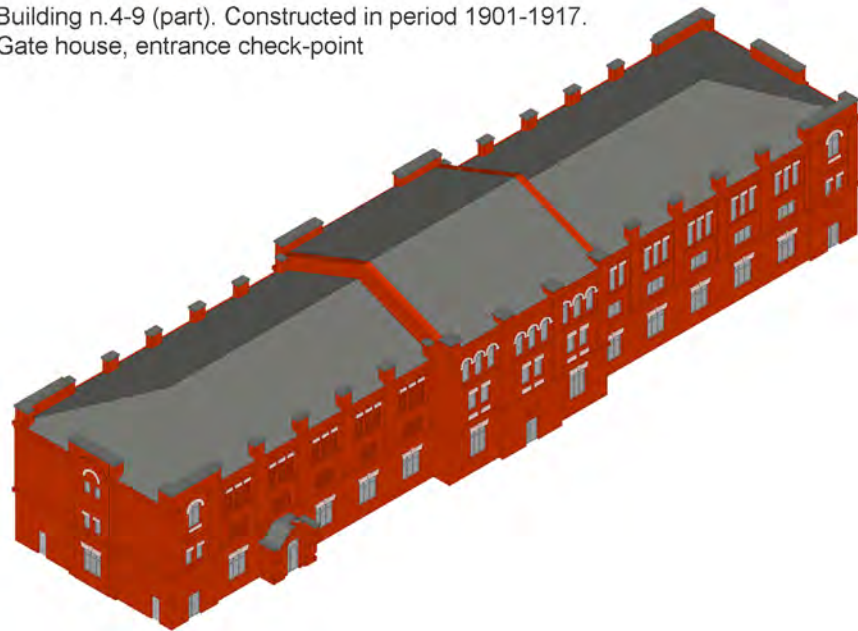
Building 4 / First floor plan
Scale 1:200



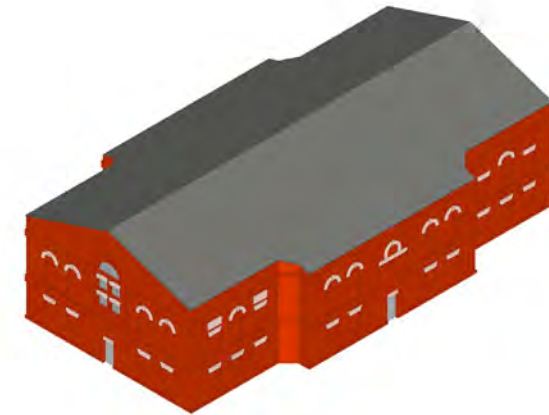
Building n.4-1 (main building).
 Mainly constructed in period 1901-1917.
 Duty office, washing department, pouring department, filtration department, rectification department, water tower, boiler room, electric power station.



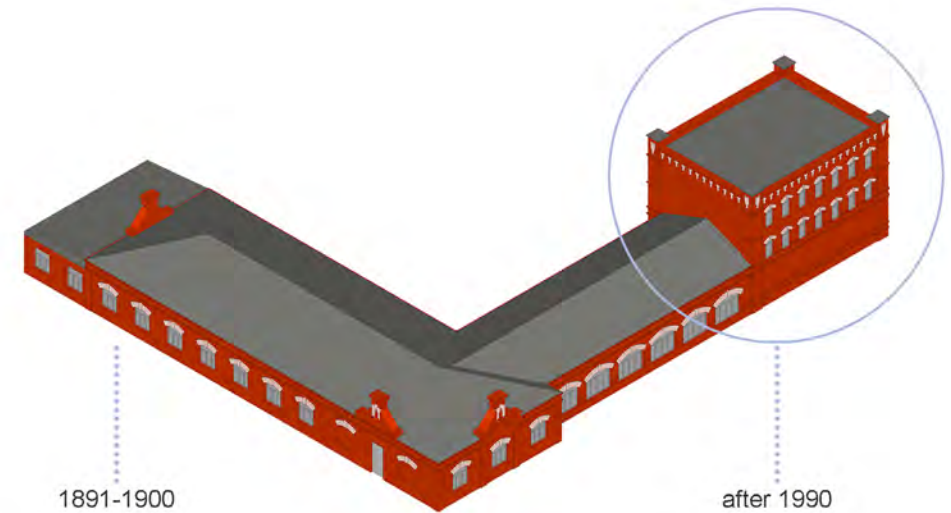
● Building n.4-9 (part). Constructed in period 1901-1917. Gate house, entrance check-point



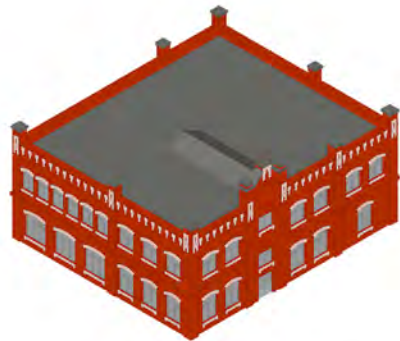
● Building n.4-11. Constructed in period 1901-1917. Coal factory; later: club, shop and administration.



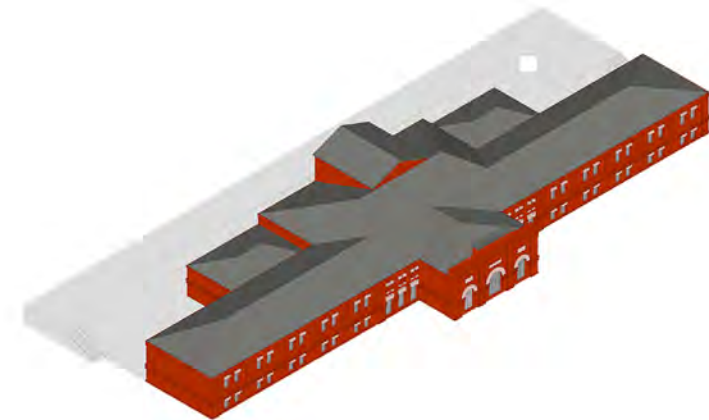
● Building n.4-14. Constructed in period 1891-1900. Warehouse for alcohol.



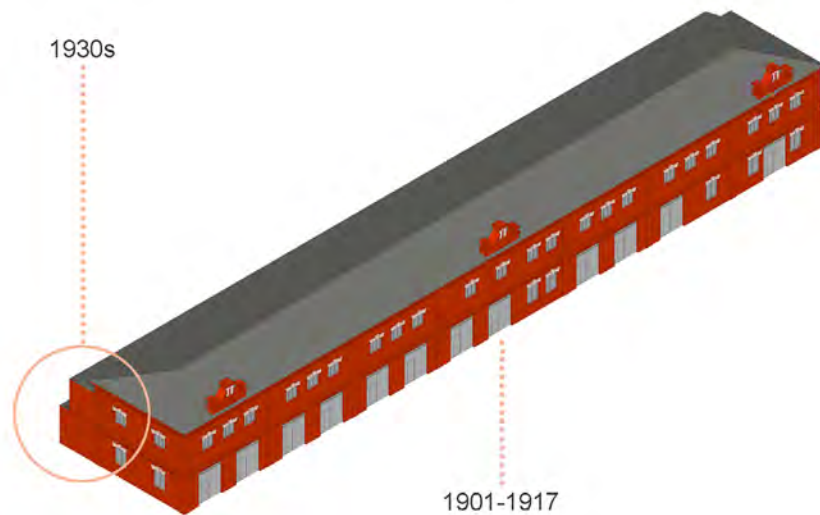
● Building n.4-4. Firstly constructed in period 1891-1900. Mechanical workshop; later: production workshop.



● Building n.4-27. Firstly constructed in period 1901-1917. Steam house, machine house; later: workshops



● Building n.4-32. Constructed in period 1891-1900. Building for receipt and transfer of alcohol.

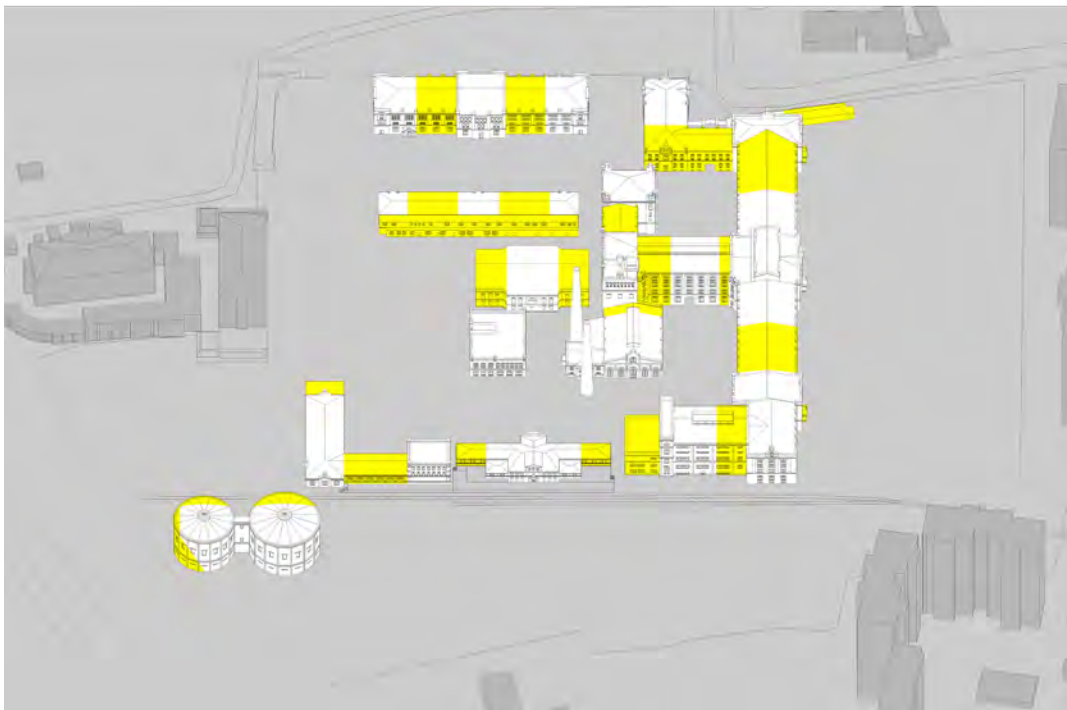
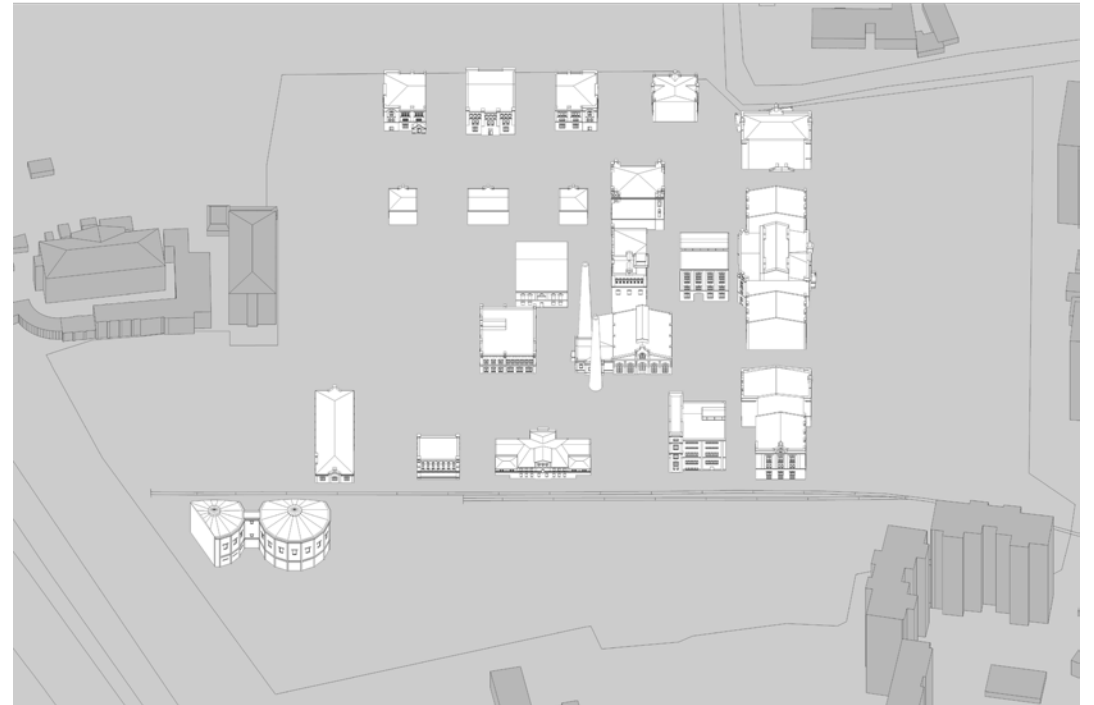


● Building n.4-13. Firstly constructed in period 1901-1917. Shed for goods; later: garage, laboratory.

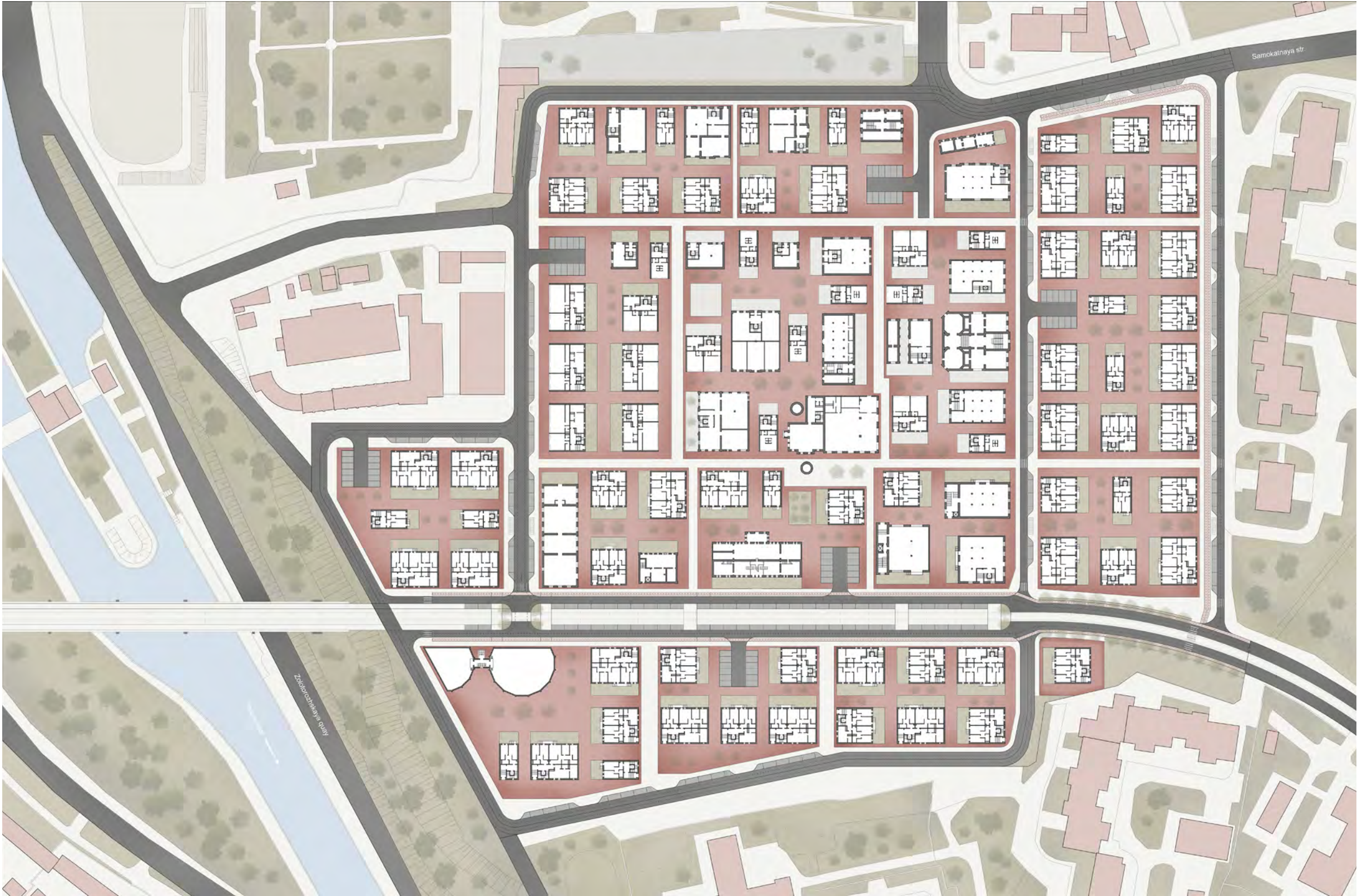


● Building n.4-30. Constructed in period 1918-1930. Deposit of fuel and reserved stock of alcohol.





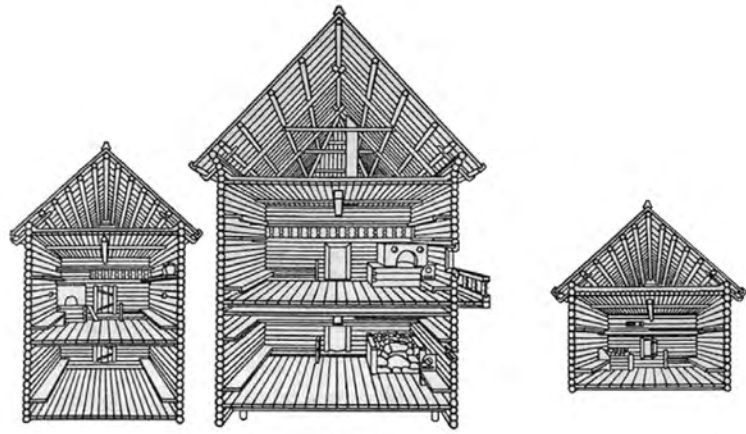




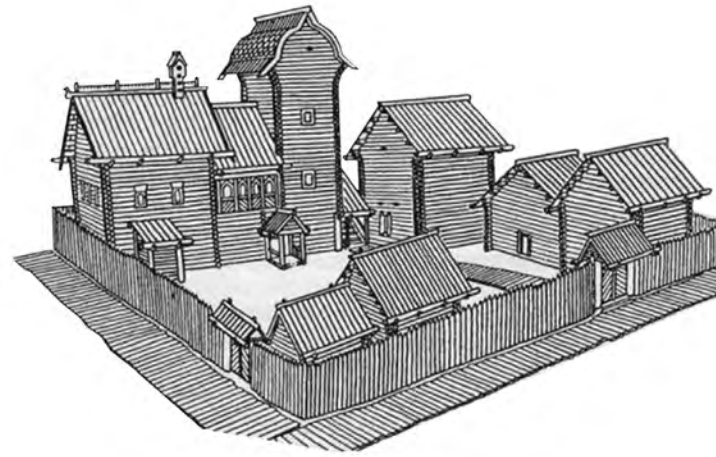




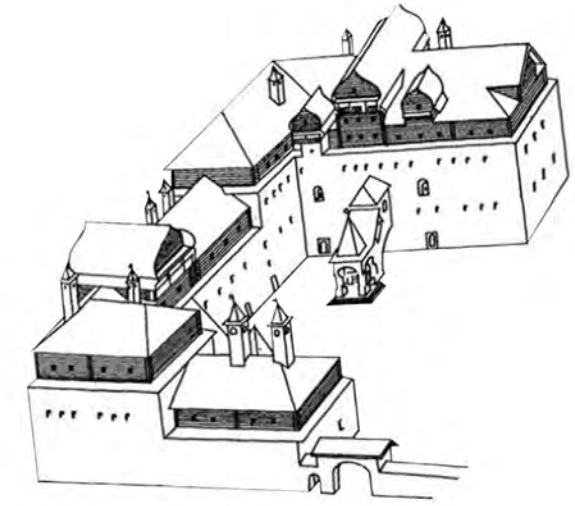
RUSSIAN TRADITIONAL ARCHITECTURE



'Izba' - family house



'Khoromi' - wooden palace



'Palaty' - stone palace

RUSSIAN CONTEMPORARY ARCHITECTURE



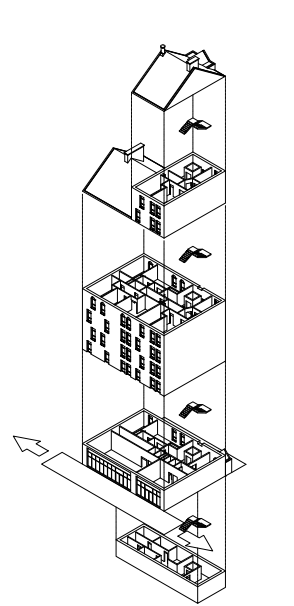
House in Pribylovo / AB CHVOYA
Pribylovo, Russia



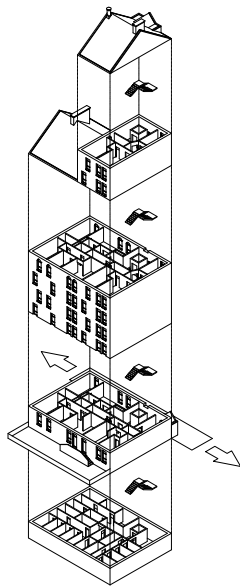
Shatura house / Le Atelier
Shatura, Russia



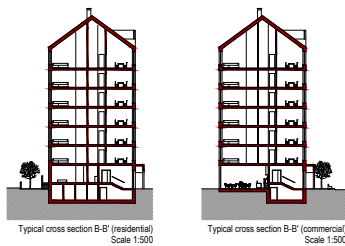
VolgaDacha House / Bureau Bernaskoni
Krasnoyarsk, Russia



House 20 - Type A / Exploded diagram

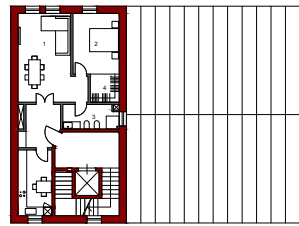


House 20 - Type B / Exploded diagram

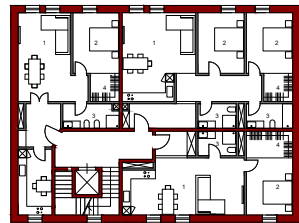


Typical cross section B-B' (residential) Scale 1:500

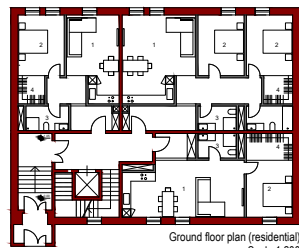
Typical cross section B-B' (commercial) Scale 1:500



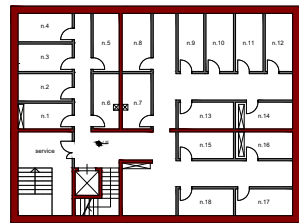
Floor 5-6 plan Scale 1:200



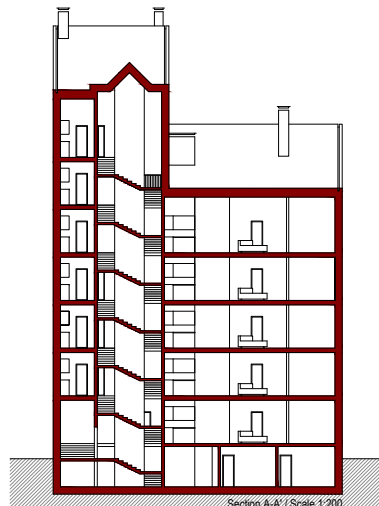
Typical floor plan Scale 1:200



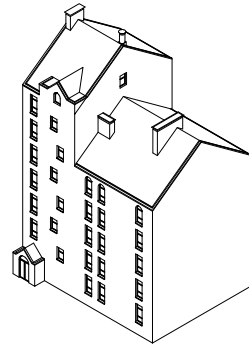
Ground floor plan (residential) Scale 1:200



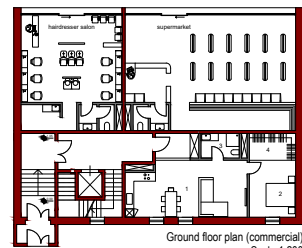
Underground floor plan Scale 1:200



Section A-A' / Scale 1:200



House 20 / Axonometric view

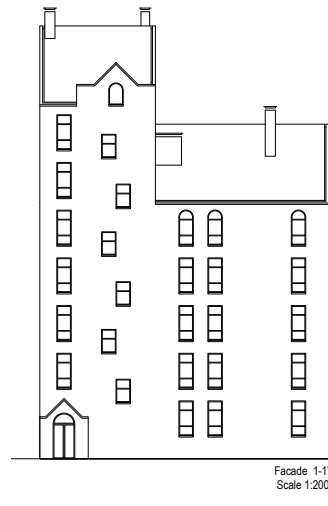


Ground floor plan (commercial) Scale 1:200

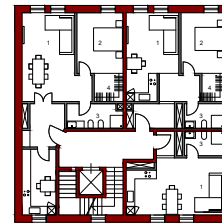


Facade 2-2' Scale 1:500

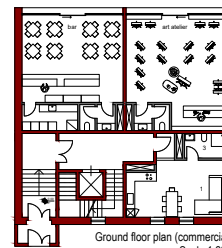
Facade 2-2' Scale 1:500



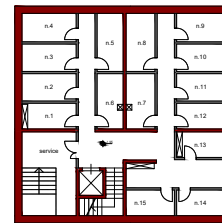
Facade 1-1' Scale 1:200



Typical floor plan Scale 1:200



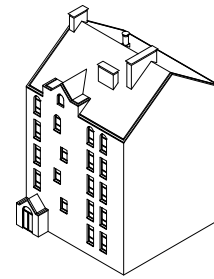
Ground floor plan (commercial) Scale 1:200



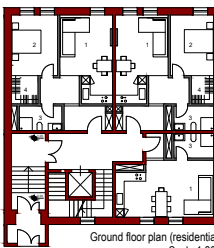
Underground floor plan Scale 1:200



Section A-A' / Scale 1:200



House 15 / Axonometric view

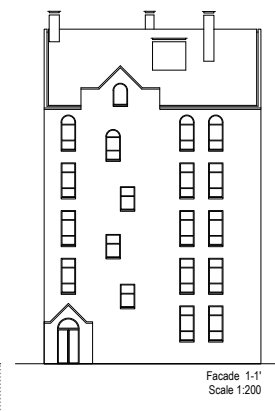


Ground floor plan (residential) Scale 1:200

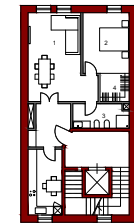


Facade 2-2' Scale 1:500

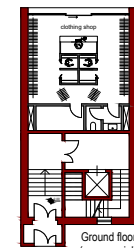
Facade 2-2' Scale 1:500



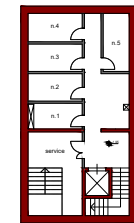
Facade 1-1' Scale 1:200



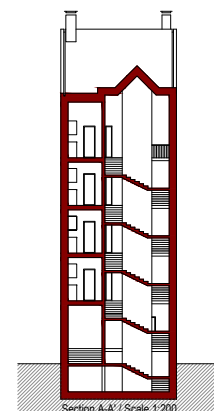
Typical floor plan Scale 1:200



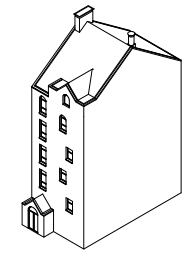
Ground floor (commercial) Scale 1:200



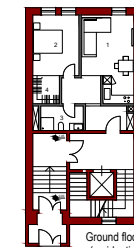
Underground floor plan Scale 1:200



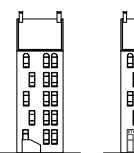
Section A-A' / Scale 1:200



House 8 / Axonometric view

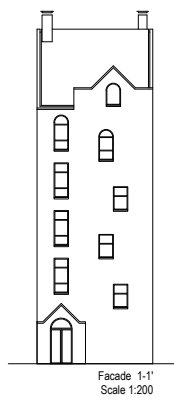


Ground floor (residential) Scale 1:200



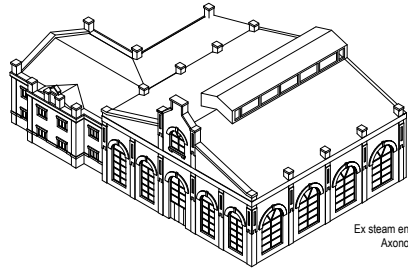
Facade 2-2' Scale 1:500

Facade 2-2' Scale 1:500

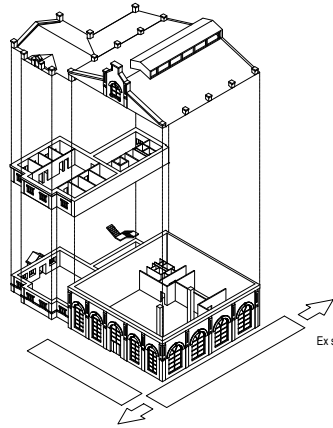


Facade 1-1' Scale 1:200

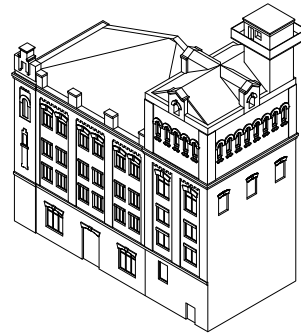
- 1. Living room
- 2. Bedroom
- 3. Bathroom
- 4. Dressing room



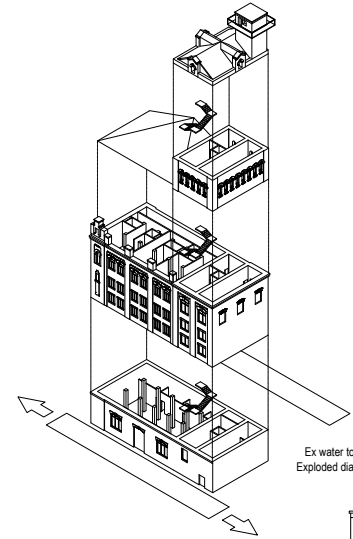
Ex steam engine room / Axonometric view



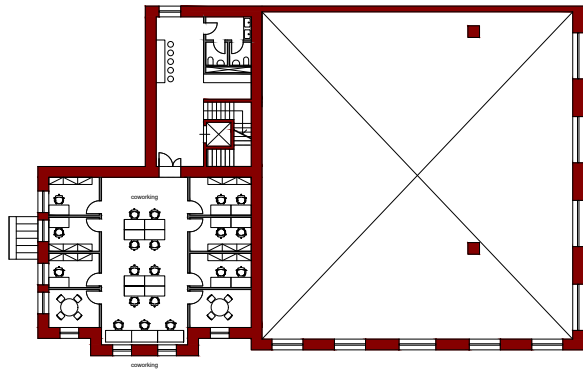
Ex steam engine room / Exploded diagram



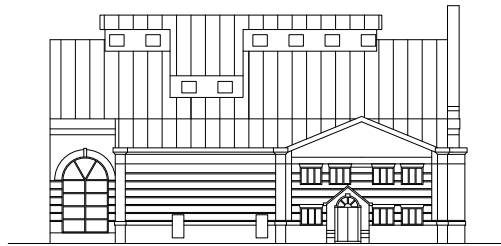
Ex water tower / Axonometric view



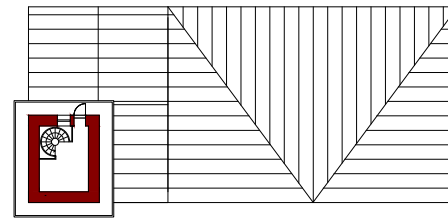
Ex water tower / Exploded diagram



Ex steam engine room / First floor plan 1:200



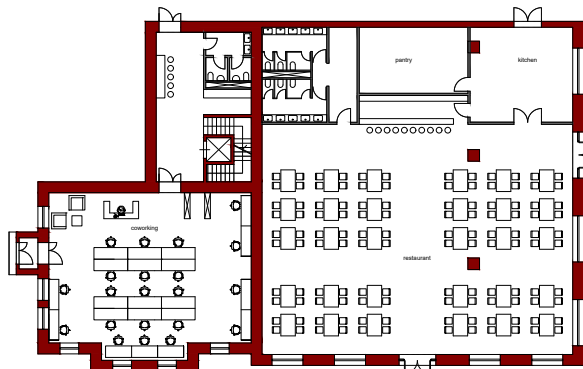
Ex steam engine room / Facade 2-2' / Scale 1:200



Water tower / Fifth floor plan 1:200



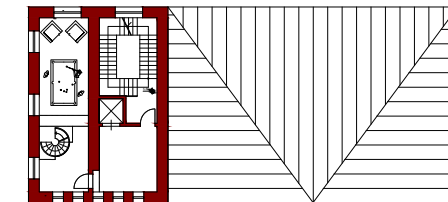
Facade 1-1' / Scale 1:200



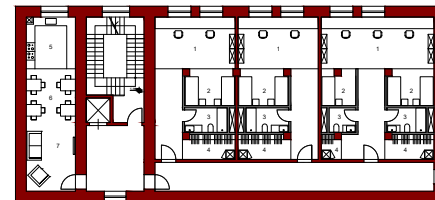
Ex steam engine room / Ground floor plan 1:200



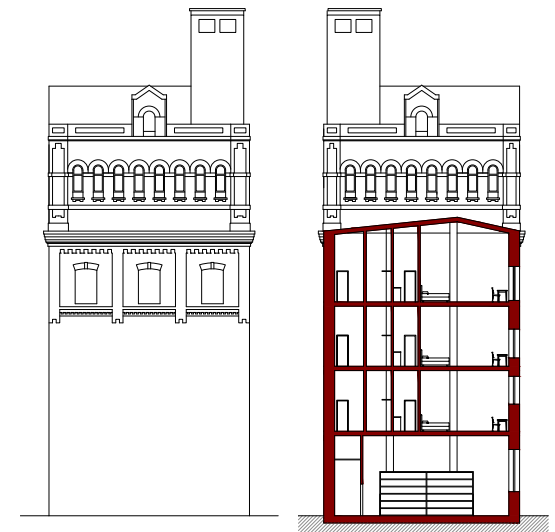
Ex steam engine room / Facade 1-1' / Scale 1:200



Water tower / Fourth floor plan 1:200

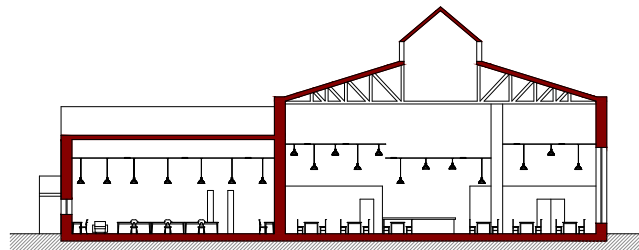


Legend: 1.Studying space 2.Sleeping space 3.Bathroom
4.Dressing room 5.Kitchen zone 6.Dining zone 7.Relax zone Water tower / Typical floor plan 1:200

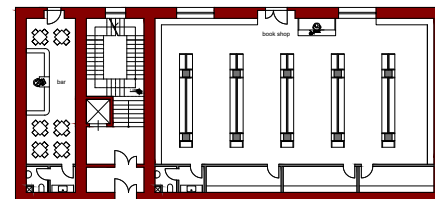


Facade 2-2' / Scale 1:200

Section A-A' / Scale 1:200



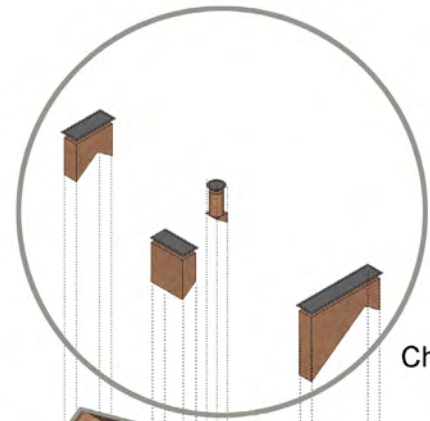
Section A-A' / Scale 1:200



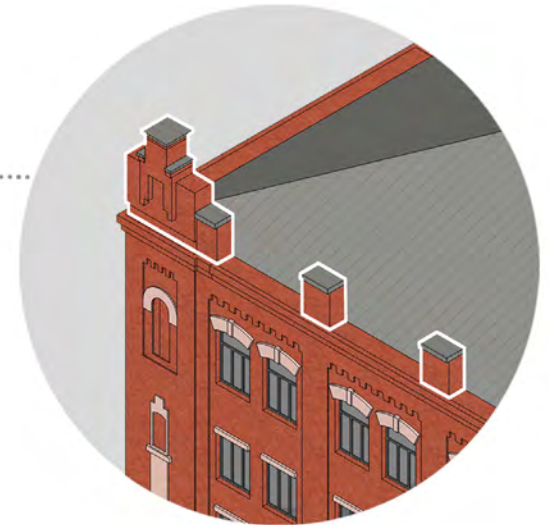
Water tower / Ground floor plan 1:200



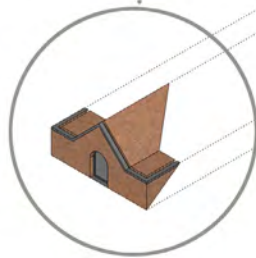
Mansard



Chimneys



Battlement

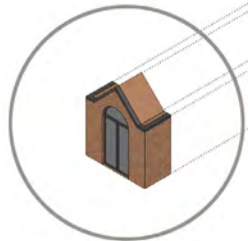


TOWER

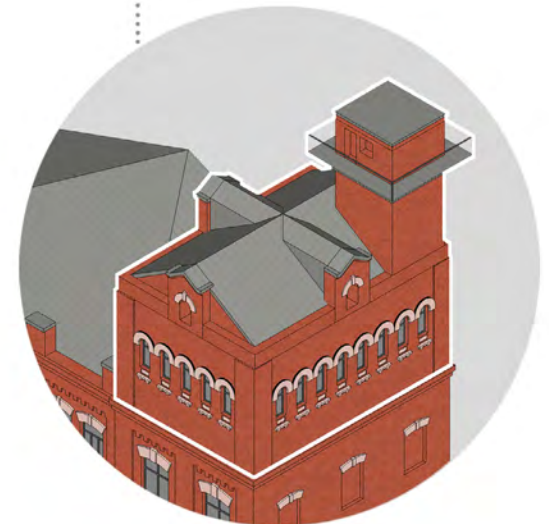
PATCHED ROOF



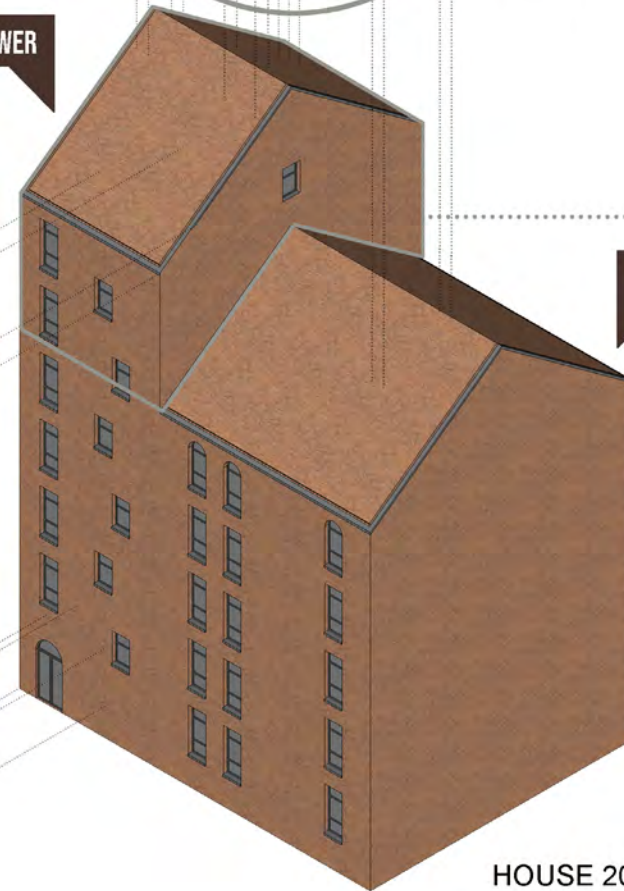
Porch

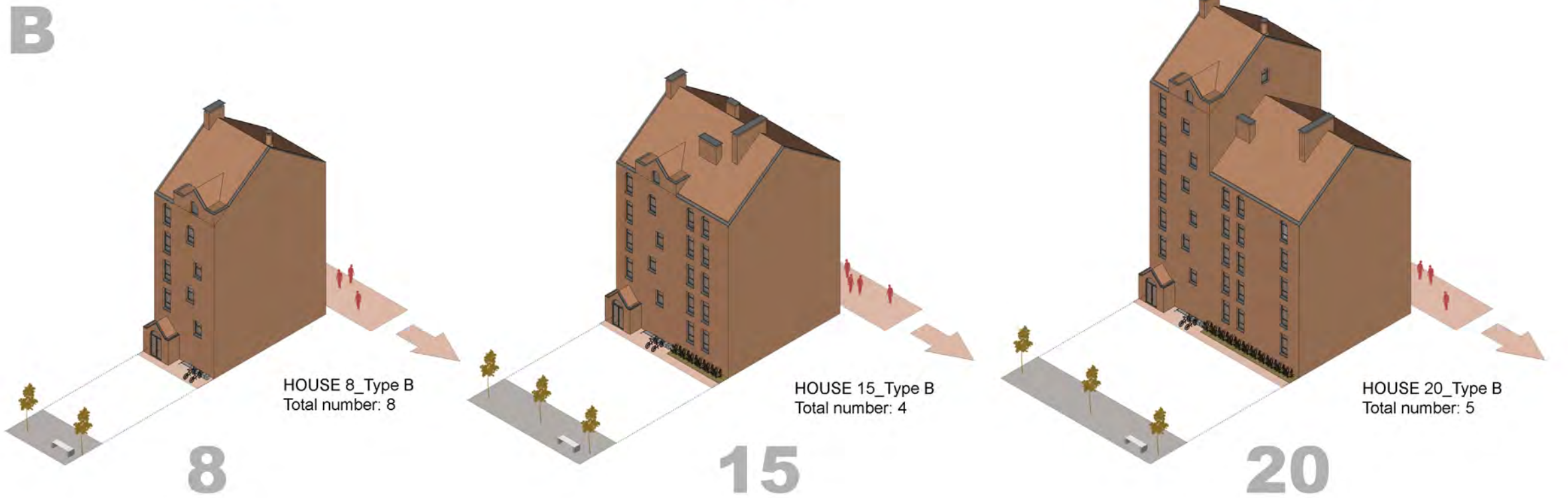
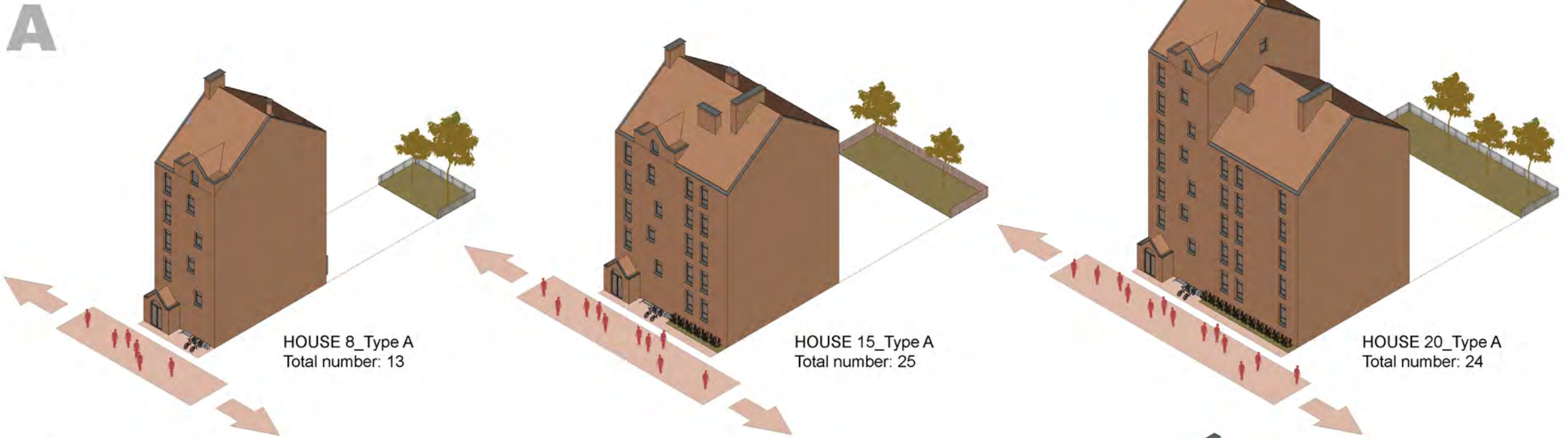


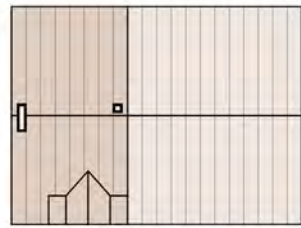
HOUSE 20



Water tower







Roof



Typical floor (5-6)



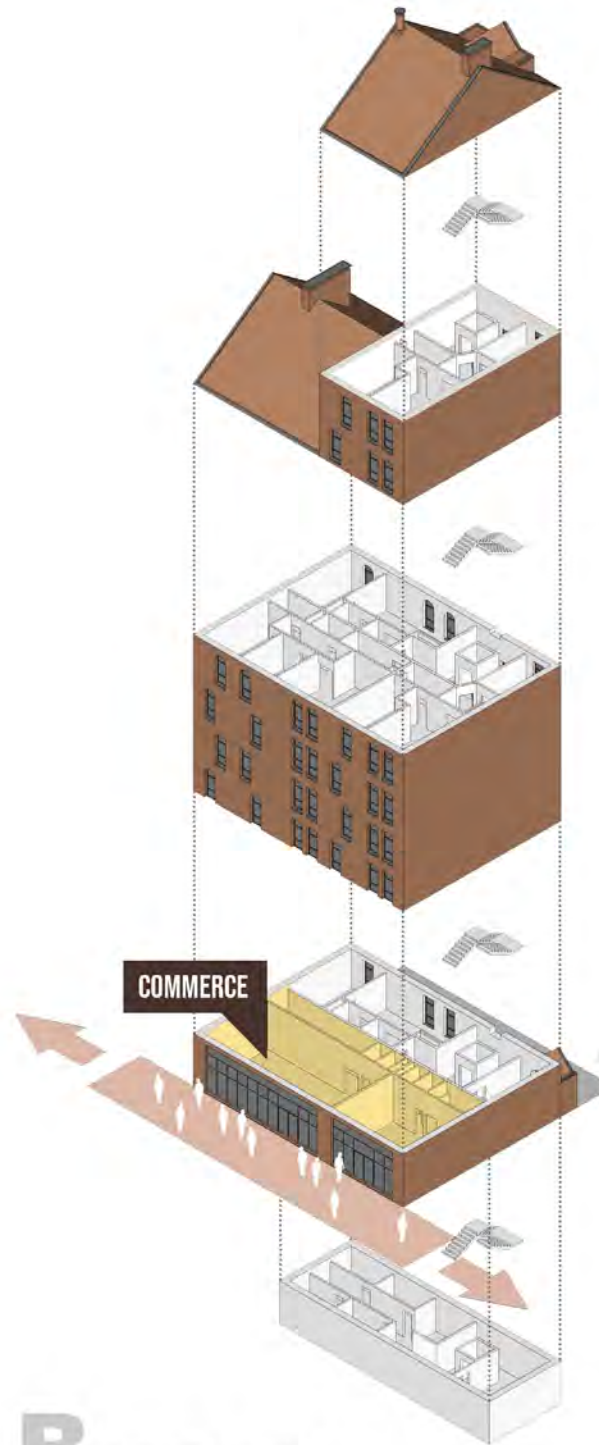
Typical floor (1-4)



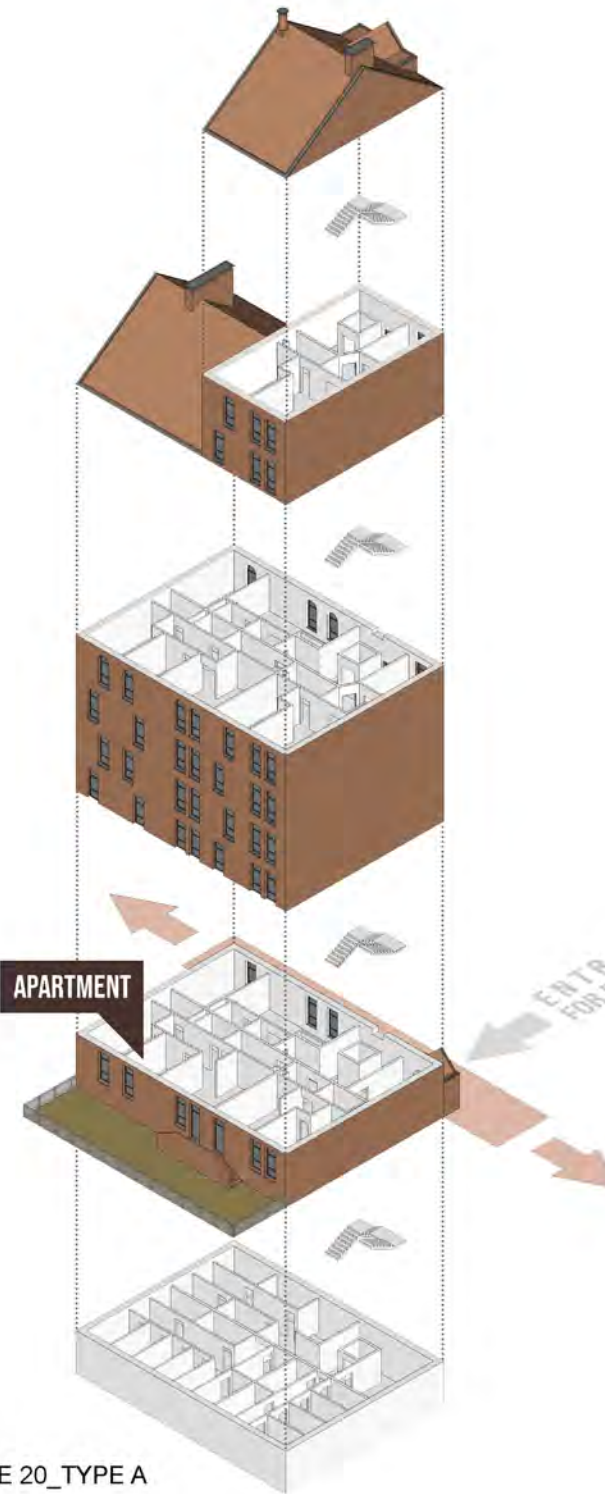
Ground floor



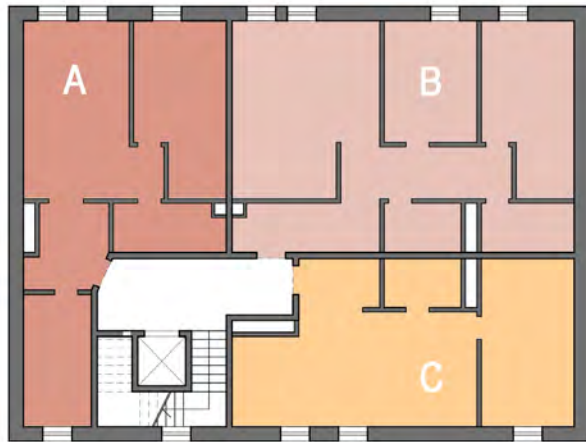
Underground floor



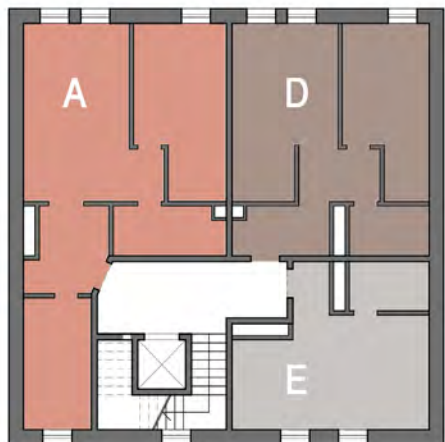
B HOUSE 20_TYPE B



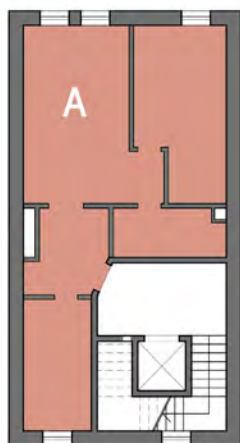
A HOUSE 20_TYPE A



HOUSE 20, typical floor
Apartment area 207,4 m²



HOUSE 15, typical floor
Apartment area: 150,4 m²



HOUSE 8, typical floor
Apartment area 66,4 m²



A Three-room apartment
Area: 66,4 m²
Total number: 316



B Three-room /apartment
Area 88,2 m²
Total number: 140



C Two-room apartment
Area 52,8 m²
Total number: 140



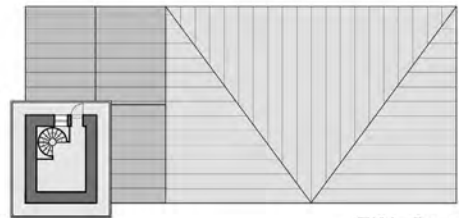
Two-room apartment
Area 51,9 m²
Total number: 203

D

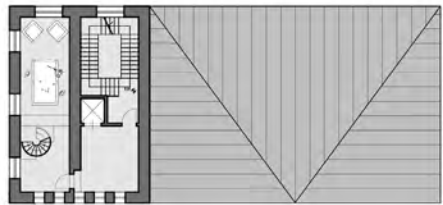


One-room apartment
Area 32,1 m²
Total number: 116

E



Fifth floor



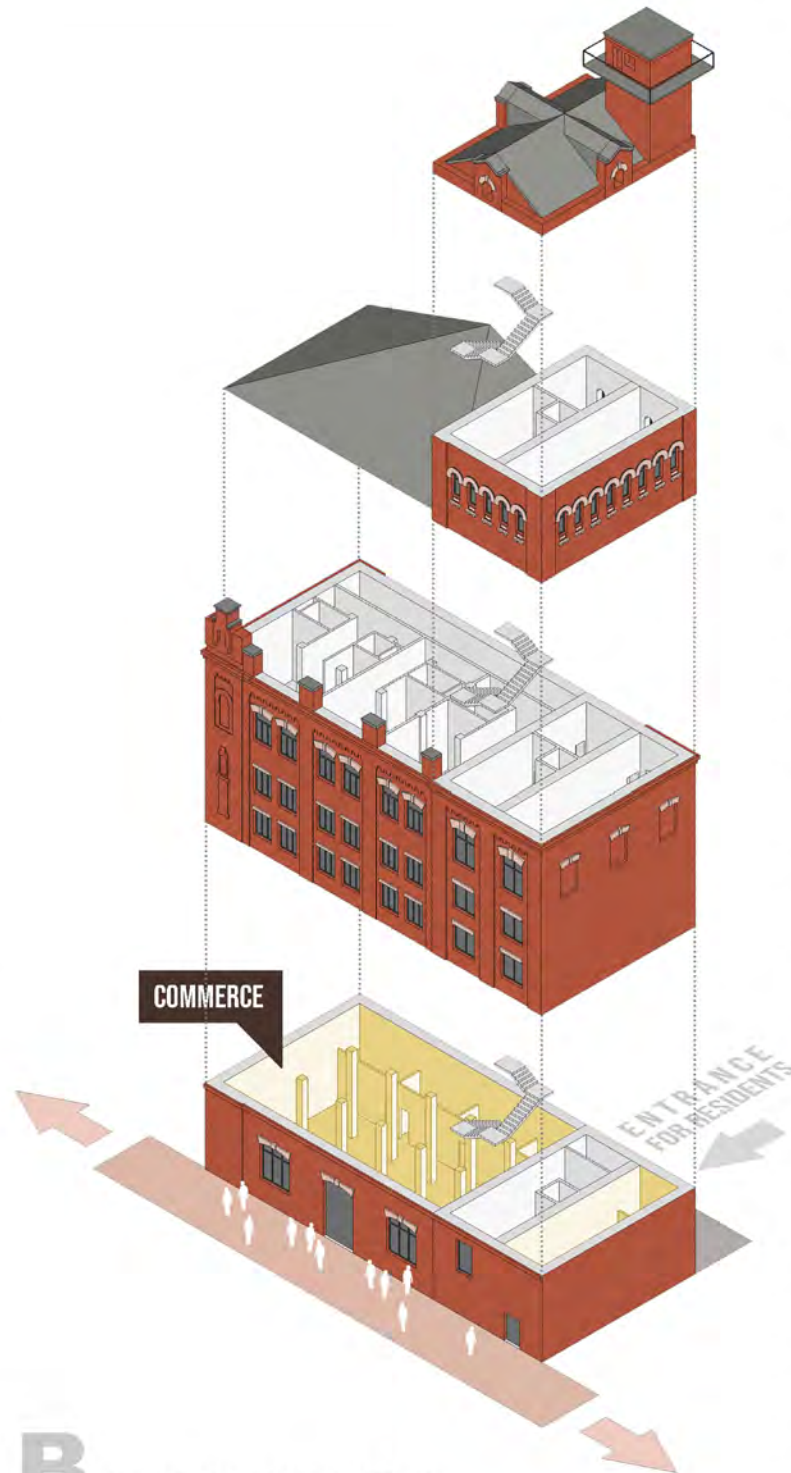
Fourth floor



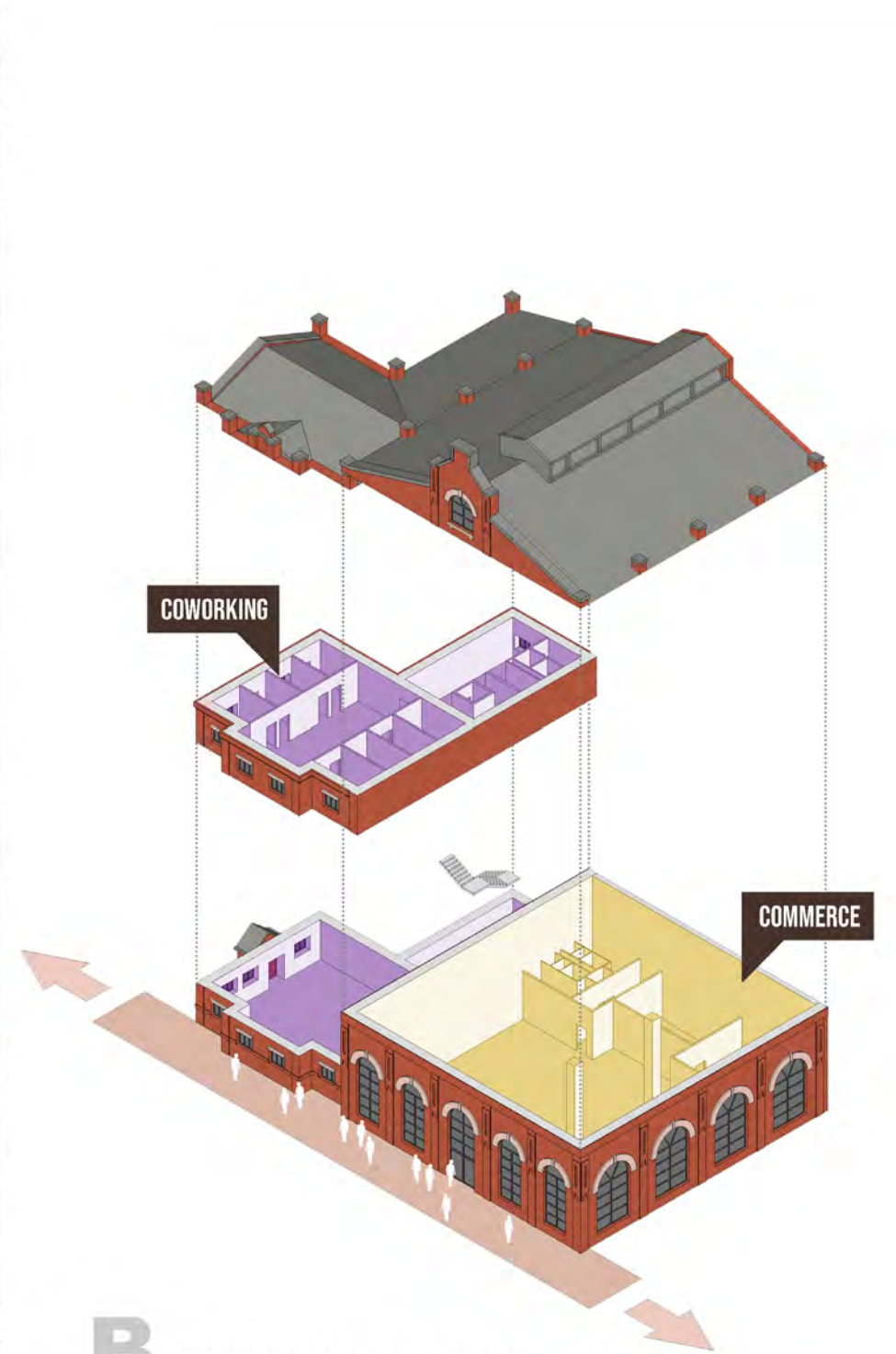
Typical floor



Ground floor



B EX WATER TOWER_TYPE B



B EX STEAM ENGINE ROOM_TYPE B





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