

THE HAUSSMANNIAN MORPHOGENESIS

Written by William Dodin

Monitoring Group : Professor Huang, Professor Scartezzini and Peter Ortner.

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Introduction

For the subject of the Master Thesis, the idea was to continue the study with the computing tools that was done during the first year of Master with Professor Huang and to use it with a classic model of architecture such as Paris. This essay is the result of two different years of studies.

First a year of internship in the architectural firm based in Paris, Pierre et Cedric Vigneron Architecture. This company specializes in the housing in Paris and its suburb. It has a lot of experience in this field and working there was an excellent opportunity to find out about the architectural development of the city. If there is a real demand for new housing in the suburbs, for Paris on itself, the construction is quite complicated due to the strong cultural context of the city. Most of the creations of housing take place in the suburb. This part of the metropolis that has a different density, program, and context has more flexibility in the development of construction. Nevertheless, during that internship, the primary task that mayor and developer ask the company to do was to recreate the classical style of Paris -the Haussmannian one- in the suburb. For more than 40 years the architectural firm has been given the same mission, and they create a traditional style that they apply for a lot of their housing. The reproduction of a type offered the idea that a system can be designed with Haussmann work as a starting point.

The second part that has an impact on this thesis is the first year of Master spend with Professor Huang in the Singapore Studio at the EPFL. During that year, through the city of Singapore, there was the apparition of concepts such as the urban flow or the design of an architectural system. Different analyzes were made with the help of the computing tools. The parametric approach in this studio is not to be, in a way, the victim of the computer and follow what it can say. It is about logic and how the machine can help. In the end, the conception can be read by a computer, and it can create the architectural model. During that year the focus was on a contemporary city. In this thesis, we are going to show that the parametric approach can be used in a more classical city such as Paris.



The choice of analyzing Paris was made because of its history in the urban development. Nowadays this city appears as the central place of France, but for many centuries it was not developed. The Roman, for instance, did not consider Paris -Lutèce at that time- as an essential place. Charlemagne, the first emperor of France, used Aix-la-Chapelle as the capital of France. Many kings did not leave in Paris, such as Louis XIV who built Versailles from scratch to avoid the city. It is the French Revolution and Napoleon's family that gave it a new dynamic. The town was developed in less than two centuries. Many places and monuments already exist, but it is Haussmann that gave the urban shape of the city and the new typology of the housing. This essay will focus on the Haussmannian rules in urban design and architecture. The interest for the Haussmannian urban plan and buildings is due to several facts. First, it is an architecture that was designed as a system that can be developed with every sort of context. The system is set by a series of rules based on geometry and aesthetic. This approach is quite similar to the one in parametric architecture. The regulations of Haussmann will be shown and discussed in the aim to see if he had the idea of a model that can repeat and adapt in the whole city. The second fact is that Paris is a city that does not develop anymore, there is some architectural project, but they do not affect the city. The Haussmannian structure is already there, and it works quite well. With new concepts, such as the urban flow, the main elements of Haussmannian architecture will be described and will show why Paris can be considered as a modern city. In the end, this thesis will anatomize all the elements that compose the Haussmannian development and its impact on the contemporary metropolis.

The essay will be composed of different parts. The first one will be about the Grand Paris which the subject number one when it comes to the development of the city and its suburbs. In that part, the project will be discussed and its position. Should it follow the Haussmannian aesthetic and regulation because Paris has to stay Paris or should this development adapt to the different density of the suburbs and the new mobility?

For the other parts, the analysis of the Haussmannian Works, the disposition of the chapter is based on the books «Haussmann» by LAN Studio where it inventory lots of data. The difference with the book is that in this essay the Haussmannian logic is tackled. We will be interested in the designed system, not only the data. The three chapters will be the Boulevard, the Haussmannian Ilot, and the Haussmannian Architecture. In each of them, we will focus on their quality, their context, and their regulation. This structuration from large scale to a small element will facilitate the reading of the Haussmannian construction. In the end, the concept of a Haussmannian DNA, its limits, and how this DNA still got an effect on contemporary design will be tackled. The result of this study will be a project that will take place in the Parisian metropolis where computing tools will develop this Haussmannian designed system to complete contemporary issues such as climate, flows or density.

I

Grand Paris

LE GRAND PARIS



The subject of the Grand Paris has been one of the most critical topics in Paris over the past years. Started in 2008 by the French President Nicolas Sarkozy in the idea to organized the development of the Parisian metropolis. The idea to connect Paris to the surrounding villages was already appearing in the Urban Plan of 1965 by the I.A.U.R.P¹, a French organization. Even more, Napoléon III, during the Haussmannian's work, wanted to extend Paris to the East to reach Marne-la-Vallée and to the West to Saint-Germain-en-Laye, both composed now the suburb. Haussmann stopped his idea because of the difficulties he already had to negotiate with some small villages that will compose the Paris of today². The Grand Paris is an idea that already existed at the beginning of the Haussmannian work.

One can say that this new organization of the city as a metropolis is going to be completely different from the work of Haussmann in the 19th century. Also, Paris is strongly linked to its cultural and historical aspect. The architecture and the urbanization of the city make it one of the most popular in the world. The project of the Grand Paris has to deal with these two positions.

1 *Agrandir Paris*, Loic Vadelorge

2 *Haussmann*, Michel Carmona

Paris & the Grand Paris

In 1853, the French Emperor, Napoléon the Third and Eugene Haussmann the new Prefect of Paris started a plan for Paris. Haussmann was asked to “aerate, unify and embellish the city”¹. One of the reasons the emperor wanted this new project was the fact that diseases were developing in Paris. Napoleon III had been living in London for three years, he was clearly influenced by its urbanization and the response of the city to improve the public hygiene². A new



Figure 1.01 : Paris in 2017.

architectural movement the «hygienist» had a theory that urban development has an impact on the spread of diseases. The emperor was influenced by this new idea and decided to re-draw Paris.

One of the other reasons was the rebellion and manifestation of Parisian people that cannot be shut down because the streets of Paris were perfect to create a civil insurrection. Actually, streets were too small for the battalion to progress in the city³.



Figure 1.02 : Paris in 2017 without Haussmann breakthroughs.

Flow and hygiene were one of the principal issues in Paris in the 19th century. In order to respond to this task, the Baron Haussmann starts to draw a new plan of Paris with major breakthroughs in the dense neighborhood that composed the city. These voids were supposed to solve the problem of the density of Paris that was around 35'000 hab./m² and could be up to 100'000 hab./m² at some places⁴.

At the end, a new architectural language was created with the apparition of the Boulevard and the Ilot. Through this new grammar, Paris was transformed in the desire of aesthetic, unity and monumentality.

1 *Atlas du Paris d'Haussmann*, Pierre Pinon
2 *Haussmann*, Michel Carmona
3 *Atlas du Paris d'Haussmann*, Pierre Pinon
4 *Atlas du Paris d'Haussmann*, Pierre Pinon

Even with this effort to create voids, Paris is still nowadays one of the densest city in the World¹. In France, Paris represents 30% of the national GDP²; the Parisian metropolis is the first economic place in Europe³. These facts attract more and more people to come to the region of Ile de France -which is the region of the Parisian Metropolis- and it needs to set a plan for its development. The Grand Paris is the response to the fact that the gap between Paris and the suburbs or the rest of the metropolis is too significant in term of accessibility, mobility, and development. The idea is to use the attraction of Paris and to spread it into the urban area, to facilitate the development of the rest of the metropolis. One can say it is more a project of development of the outside of Paris than the city on itself.

The city is detached from the rest of the metropolis. A word is used the «Intramuros» for Parisian inhabitant and the «Extramuros» for the one living outside the city. Even if some cities in the western part of the metropolis such as Neuilly Sur Seine or Boulogne Billancourt reach the same level of development as Paris, the suburb is still seen as an antechamber of the central city. The project of the Grand Paris is to develop these cities and to help them to become more independent.

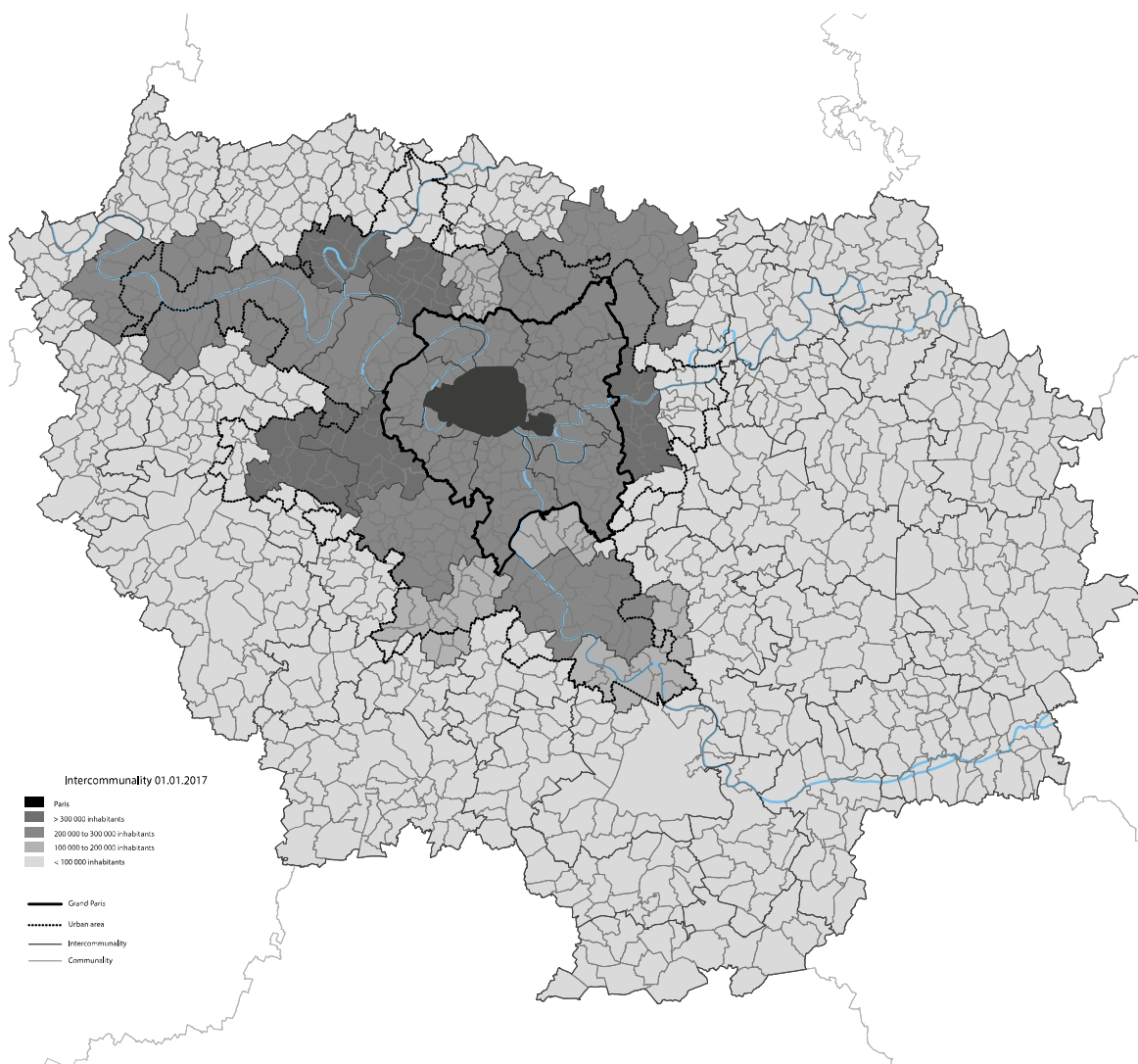


Figure 1.03 : Ile de France and Grand Paris

1 https://fr.wikipedia.org/wiki/Densité_urbaine
 2 Insee
 3 *Deplacement dans les Villes Européenne*, APUR



Paris a Global City.

Like New York, Tokyo and London, Paris is one of the «World Cities». This definition involves a modern development turned toward mobility, density, and durability.¹

This term was used first by the sociologist Saskia Sassen in her book, *The Global City*. The conditions to be defined as a World or Global cities are :

- Home to major stock exchanges and indexes
- Influential in international political affairs
- Home to world-renowned cultural institutions
- Service a major media hub
- Large mass transit networks
- Home to a large international airport

The development of Paris is linked to the development of the urban area which has a great potential.

Paris is one of the densest city in the world, compare to the other «Global Cities» of London, New York, and Tokyo². The small size of the French city explains this difference. This particularity creates a problematic in the development of the metropolis. There is a significant step to go from a dense city like Paris to the town that composed its suburbs. The final project is to have a homogenization of the density between the suburb and Paris. At the same time, the Grand Paris also want to develop cultural and economic activity in the whole metropolis. Paris is a Global City but without the metropolis. If we take into consideration the entire urban area, it gathered almost 11 million people. It represents the most populated place in Europe but only the 31st in the World³.

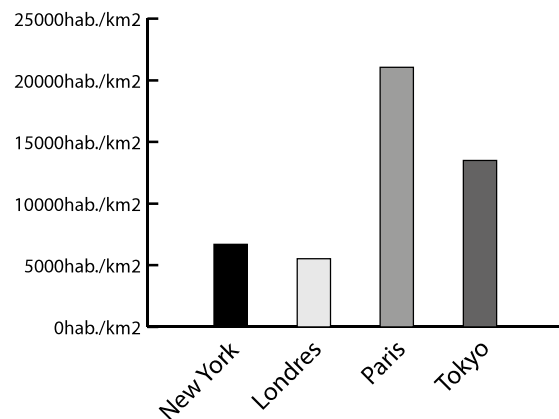


Figure 1.04 : Density of Global Cities

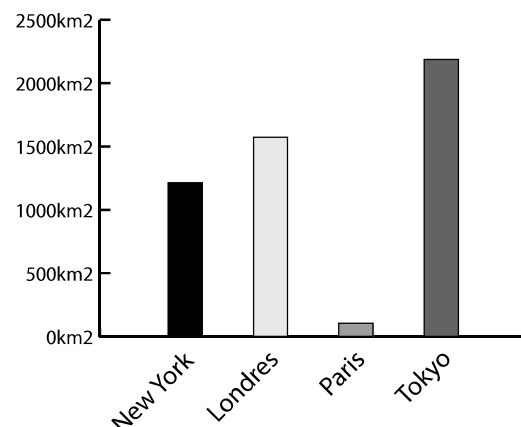


Figure 1.05 : Superficy of Global Cities

1 *The Global City*, Saskia Sassen

2 Insee

3 <http://www.demographia.com/db-worldua.pdf>

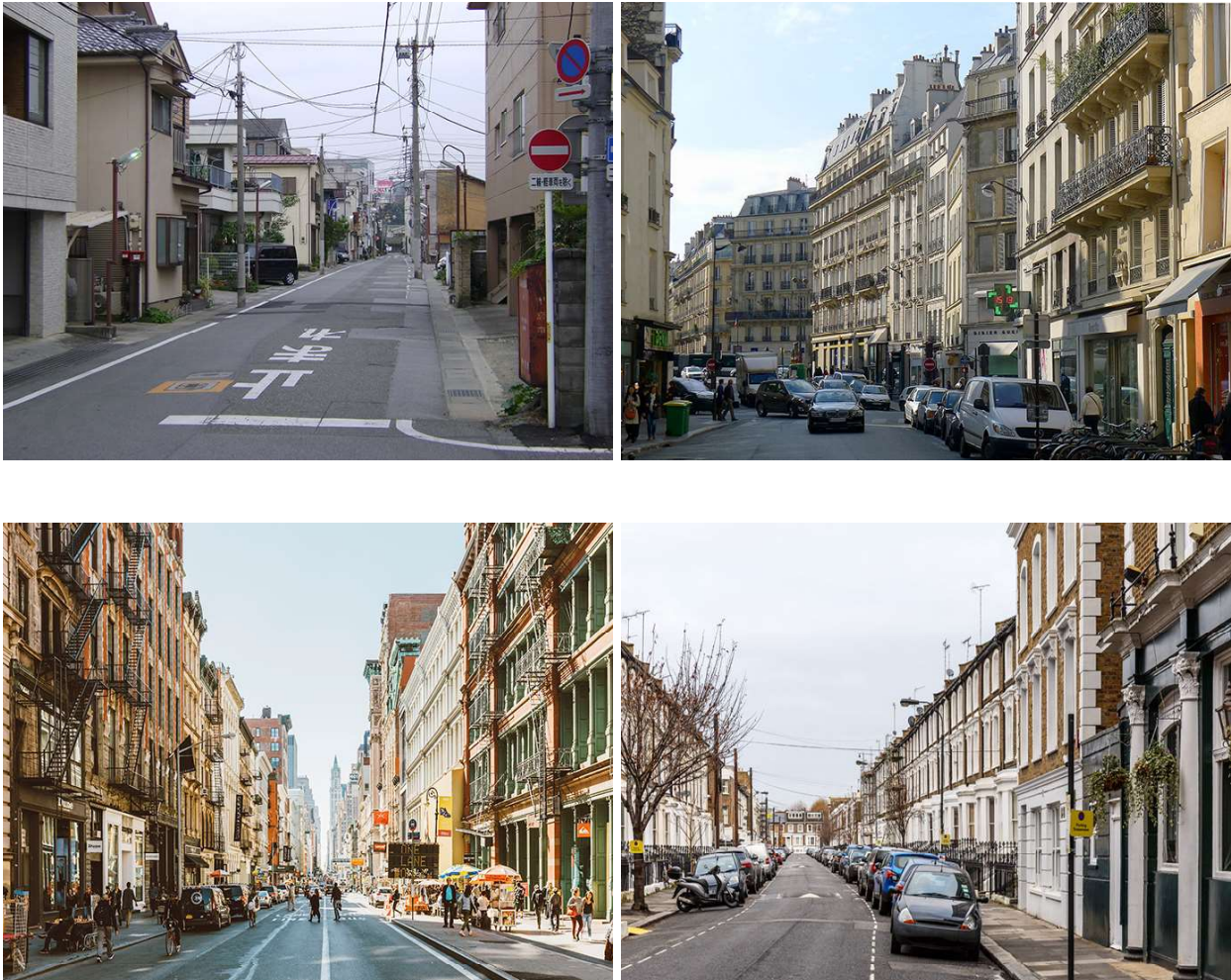


Figure 1.06 : The «Global Cities» in pictures.

Paris is a world known city because of its particular identity which is the link to its history, more precisely by the Haussmannian era that transformed the city. If the city wants to extend, the new metropolis has to follow the same urban rules.

The globalization is a movement that tries to unitize the world. We eat the same food, speak the same language, watch the same movies, listen to the same music etc... At the opposite global cities are remarkable cities that possess their own identity¹. In Paris, the architecture of the city is iconic not only because of the various monuments but also because of its urban typology. Everybody can recognize a Parisian street from a picture. The same goes for the city of London, New York, and Tokyo. On the opposite globalization also means an uniformization of the architecture with the glass towers that appear all around the World for instance. The unicity of the Parisian metropolis depend on the ability to continue this architectural unity.

The issue is then to know if it is possible to develop the Grand Paris without using the same rules as Haussmann that create the identity of the city. Considering the axes of this project, mobility, and density, Haussmann Works can seem old-fashioned. In fact, the development of the Grand Paris is quite similar to the one of Paris during the middle of the 19th century.

1 *The Global City*, Saskia Sassen

Ile-de-France	Grand Paris	Paris
12M inhabitants	7M inhabitants	2.2M inhabitants
5.7M emplois	3.9M emplois	1.1M emplois
1 409 pers/km ²	8 589 pers/km ²	21 067 pers/km ²
11 984 km ²	814 km ²	105 km ²

Figure 1.07 : Key numbers

Some cities in the west of Paris, such as Boulogne Billancourt, Neuilly Sur Seine, and Levallois are already developing in that direction. For instance, there are four cities which are denser than Paris in France and they are all located in the Parisian suburbs¹. These towns are not linked together but they are set like satellites that serve Paris. The archipel and the Grand Paris try to connect them.

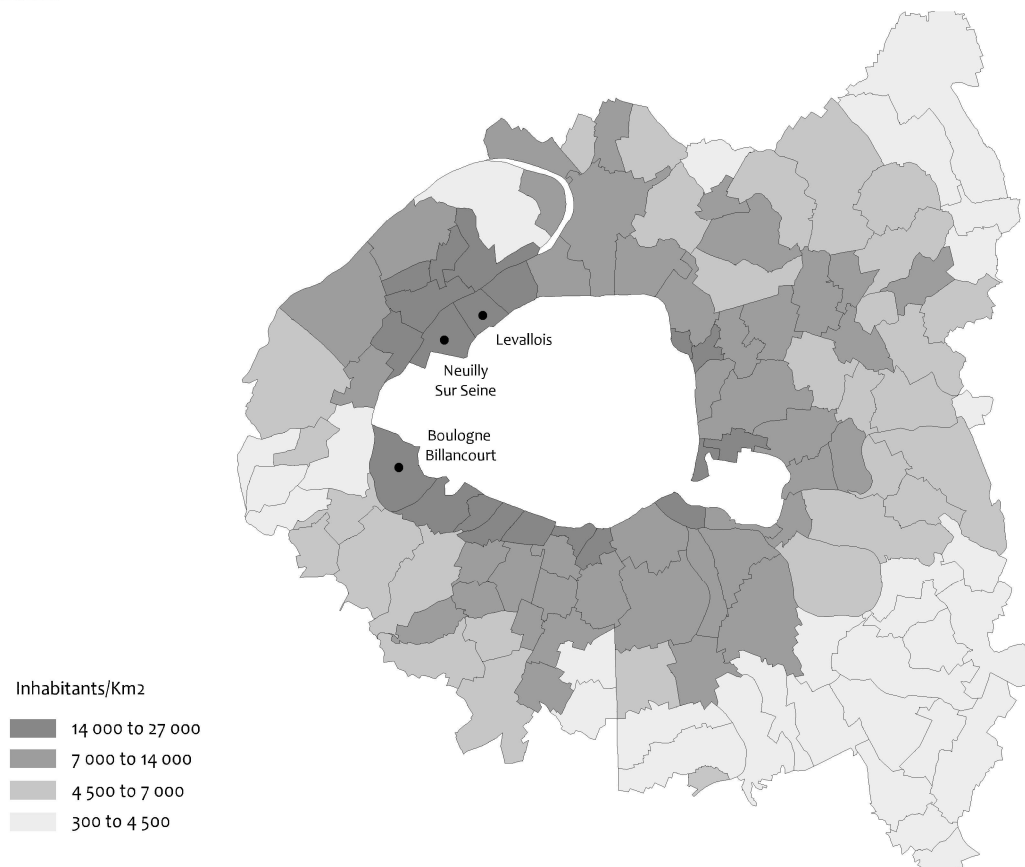


Figure 1.08 : Density of the Grand Paris

The Grand Paris's objective is to create 70'000 housings per year. Nowadays, the amount of constructions is only 43'000 per year². The number of 70'000 actually represents the real amount that is necessary of the population, the fact that all people live longer and that more and more people live alone, like the divorced person, raise the number of housing applicant. The difference with the development of Paris by Haussmann is the fact that the city was already full and the main issue was to aerate the city³. The Grand Paris is more a development from empty to full. That is why one can say that the Haussmannian philosophy cannot be used here. At the same time in the 19th century, the center of Paris was full at the opposite to the villages that were annexed to create the city. The same system can be used. The difference is that subway and railway replace the Boulevard as the main infrastructure for the flow.

1 <http://france.ousuisje.com/villes/classement/densite.php>

2 *Abécédaire de la Future Métropole du Grand Paris*, APUR

3 *Atlas du Paris d'Haussmann*, Pierre Pinon

Mobility in the metropolis

The most iconic aspect of the Grand Paris project is the construction of new subway and railway. The public transportation can be classified into different categories such as the bus, the subway and the train. These last two are the ones that are used to connect Paris to its suburb. Today Paris has fourteen subway lines and five RER lines which is the regional train. The underground stations are mostly inside Paris and the RER is used to connect the city to the rest of the metropolis. This infrastructure is really saturated nowadays, for instance, the line A of the RER is used by more than one million passengers, it represents the same amount of persons per day using the high-speed train in France¹.

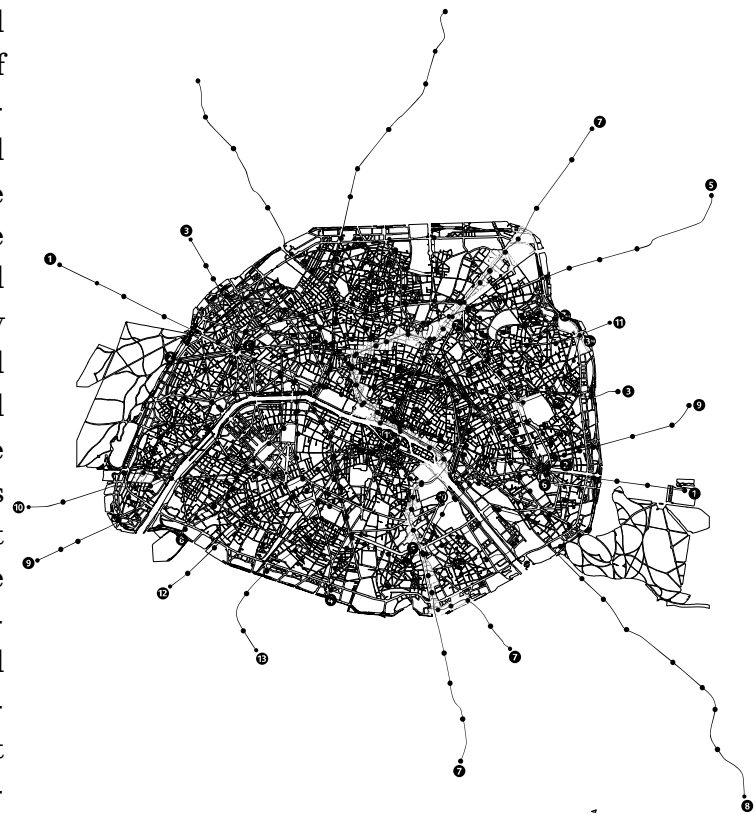


Figure 1.09 : Subway lines in Paris.

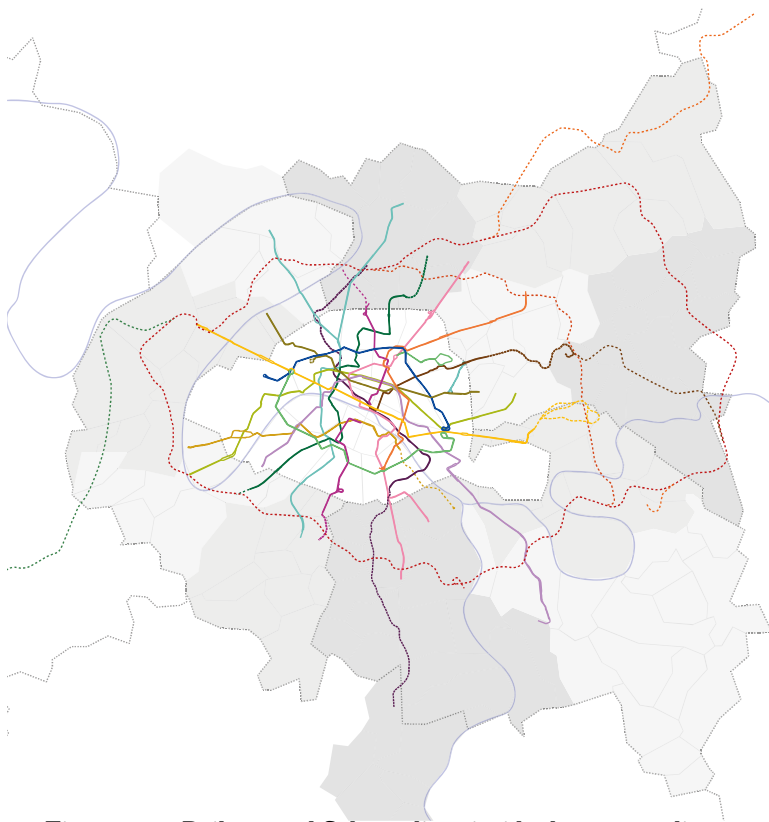


Figure 1.10 : Railway and Subway lines inside the metropolis.

These railways need and will be modernized and four new subway lines will develop in the outside of Paris in the Project of the Grand Paris². The new subway lines will be loops that goes around Paris. They will have an impact on the development of the metropolis. It will be close to the new public transport. In terms of urbanism this lines will not have the same impact as the Boulevard with Haussmann. If a parallel can seem in the fact that boulevard and railway are two ways to transport people as fast as possible from a point A to a point B, the impact that they have on the shape of the city is totally different. The subway will connect some key points of the suburb but this urban development will not have the same physique impact. It will not shape the metropolis as much as the Boulevard did for Paris.

¹ Abécédaire de la Future Métropole du Grand Paris, APUR

² Abécédaire de la Future Métropole du Grand Paris, APUR

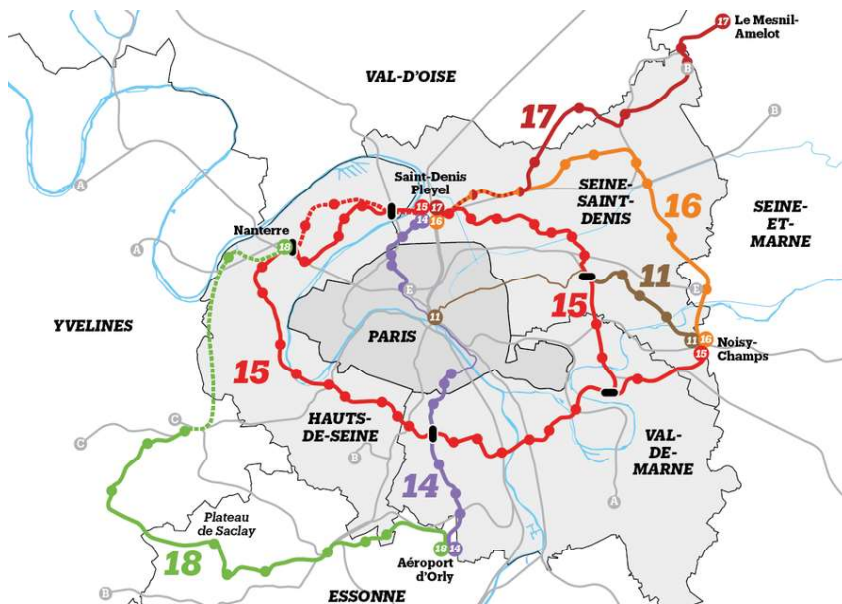


Figure 1.11 : Plan for the new subway lines.

In the projection of the new subway lines, it is clear that it is made for the suburb. The loops connect the rest of the metropolis together. These will be undergrounded and for those who are not it represents a noise pollution. In a way, the news lines cannot be seems as a linear urban element but as a punctual one.

If the main urban element of composition for Haussmann was the Boulevard, the modern

replacement is the highway. The development of the mobility is also linked to the car. The road axes were developed during the aftermath of the Second World War¹. The «Périphérique» is the most iconic project, a ring that surrounds Paris. The Boulevard of the Marechaux already has the same role as a way to goes around Paris without getting in it. The government wanted a highway in order to have a faster car flow. This superposition of Boulevard and highway shows the differentiation in use of this two types. The rest of the major roads, outside Paris, they connect this peripheric highway to the rest of the cities close to Paris. Some roads are cutting into two pieces the town that they cross like Nanterre. The aim of the Grand Paris is also how fast flow infrastructure can be replaced or connected better to the suburbs. After the middle of the 19th century, lots of highways were constructed as a symbol of modernity. Nowadays the wish of continuity in the Parisian landscape imply a change of the use of the highway. It can not anymore be a line that does not connect to its context.

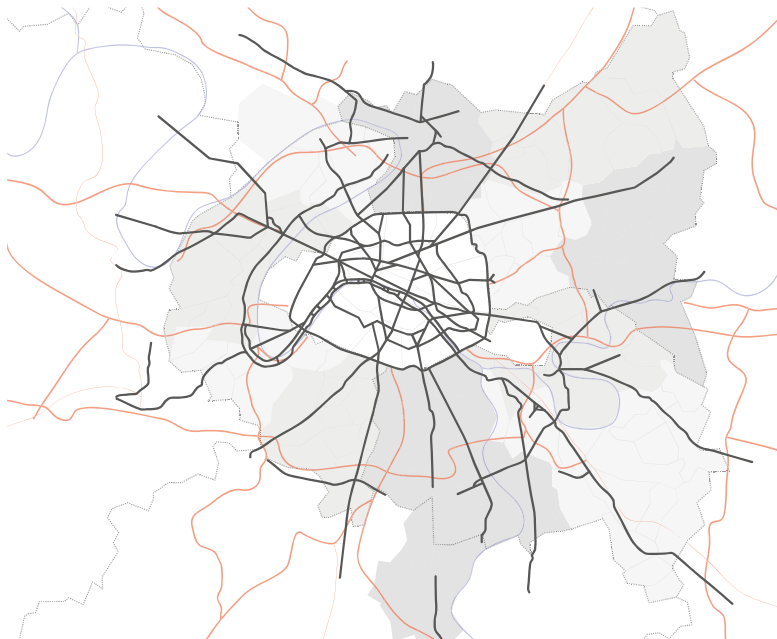


Figure 1.12 : Major road of Parisian metropolis.

The Boulevard and the Avenue of Paris are consider as important as the regional or national road that composed the metropolis. Some of the Avenue of Paris are as large as an highway. The only real difference is the material that is used and the sidewalk. The roads can form new axes of development. For now, they are just seems as a place with noise pollution. The architecture can have an effect on those urban lines like for the Boulevard. The road of the metropolis can

switch to Boulevard and Avenue with a better pedestrian access.

¹ Paris Contemporain, Simon Texier

Urban Development

Another differentiation between the development of Paris during the middle of the 19th century and the project of the Grand Paris is the direction of those two. For Napoleon III it was about beauty, unity, and practicability whereas the Parisian Metropolis will be more design for efficiency, economy, and durability.

The fact that Haussmann was supported by a strong and non-democratic power is absolutely fundamental in his work. It was possible for him to destroy a whole neighborhood, the Grand Paris try to keep as much as possible of what already exists. The approach is in that sense different. The context is more important in the Grand Paris¹.

Furthermore, if Haussmann wants to connect Parisian people through the Boulevard and the public place. The purpose of the Grand Paris is to connect the housing to the working places. The key point is now the business district, the airport, and the railway station.²



Figure 1.13 : Attractive Urban area of the Grand Paris

1. La Defense: the business center of Paris. It is a major financial place.
2. Pleyel: a center of fashion, cinema, music, and television.
3. Le Bourget: second business airport in the world.
4. Descartes: a place of innovation specialize in the durability.
5. Roissy-CDG: another airport with lots of center of expositions
6. Villejuif-Evry: represents 60% of the pharmaceutical companies
7. Saclay: the French «Silicon Valley»

¹ Paris Contemporain, Simon Texier

² Abécédaire de la Future Métropole du Grand Paris, APUR

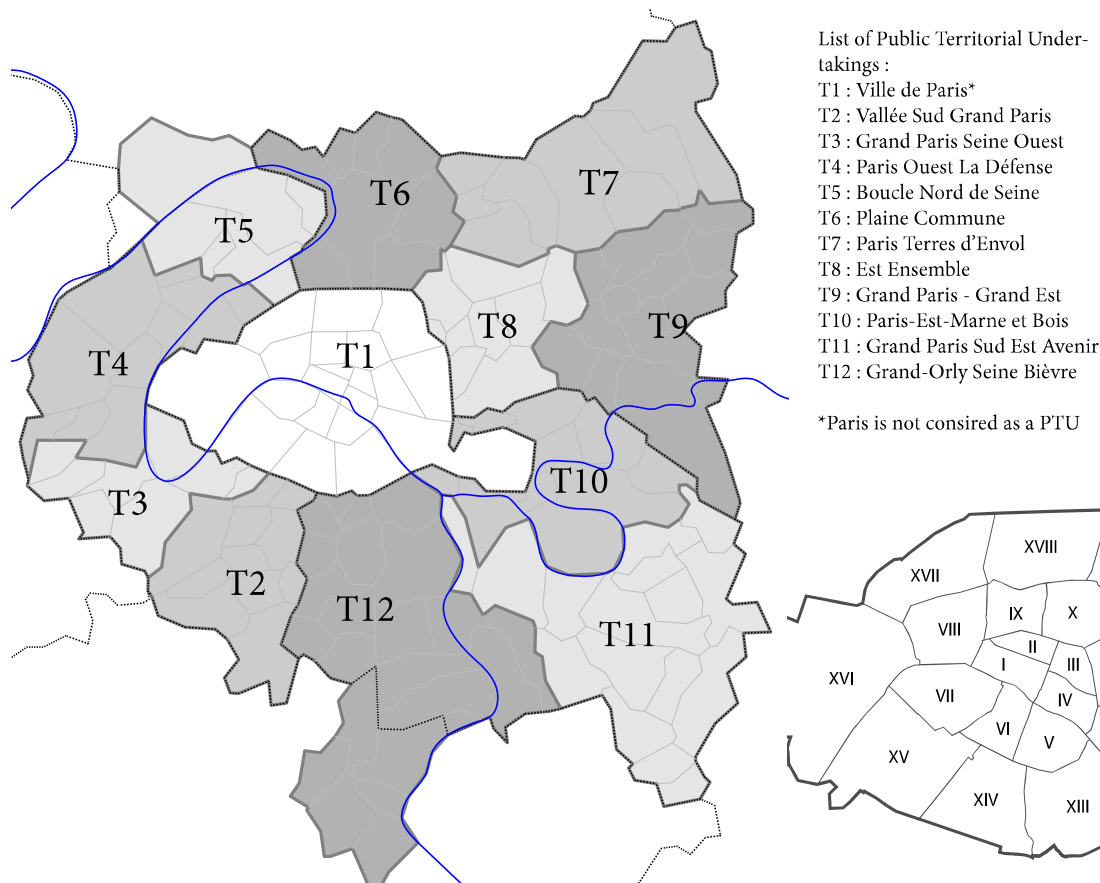


Figure 1.14 : Territories of Grand Paris.

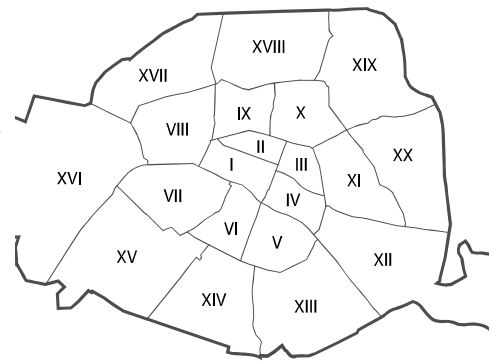


Figure 1.15 : Districts of Paris.

As a matter of fact, the organization of the Grand Paris is quite similar to the disposition of Paris. The city is divided into twenty different districts, the Grand Paris is divided into twelve new territories. The districts are composed of different neighborhood, the territories are composed of small towns. The parallel is quite interesting because, at the beginning, some neighborhood such as Auteuil or Menilmontant were also villages¹. The politic of absorption that Haussmann used during his time is more difficult to make here because of the political weight of the mayors of the small cities. One can also say that even during his work this issue already appears and the fact that the Emperor used is authority helped. That is also the important differentiation that there is between the Haussmannian project and the Grand Paris. The political situation is different but in both cases, only the most powerful organization of France can manage to create a new dynamic. Actually, the Grand Paris was born with the idea to protect and develop the town around Paris. For instance, the former President who started it, Nicolas Sarkozy, was actually the mayor of Neuilly Sur Seine, a town that is part of the Parisian suburb.

Paris is considered as one of the main places in terms of culture in the World. Its architecture has a strong impact on that aspect. The influence of Paris is also important in its metropolis itself. The suburb which is composed of old industrial areas, small villages and office place tend to copy the urban and architectural language of Paris. If La Défense, the business district only filled with offices tower can be seen as an exception, the rest of the development of Paris is influenced by Haussmann style. In many towns, the urban legislation is close to the one of Paris which actually come from the Haussmannian work. Moreover, this style has also a strong symbolic. It evokes the tradition of France and the monumentality of the Haussmannian Ilot and Boulevard come with the idea of luxury. Therefore in some cities, that are part of the metropolis, this style is used in order to attract the highest social class.

¹ *Nouvelle Histoire de Paris : Histoire de l'urbanisme à Paris*, Pierre Lavedan.



Figure 1.16 : From the center of Paris to Nanterre.

The Boulevard and the Ilot that create the urban unity of Paris are also used in some part of the city, the western part of the metropolis used these elements quite often. For instance, the axe

Arc de Triomphe-Porte Maillot is continue with the Arc de la Defense which is the symbol of the new business district of la Defense. This axis cut through the city of Neuilly Sur Seine and is the most used avenue in terms of car flow in Europe. This continuity from Palais des Tuileries to the city of Nanterre shows the process of trying to connect Paris and the suburb. This axis is the major one of Paris because of its history with the Jardin des Tuileries, Champs Elysées, and Arc de Triomphe but also in terms of economy and politic because it links the political center of Paris and the new business center. The Avenue du General de Gaulle which cut Neuilly into two piece is the most used by cars in all Europe¹. The underground line is the most used in Paris. The pedestrian

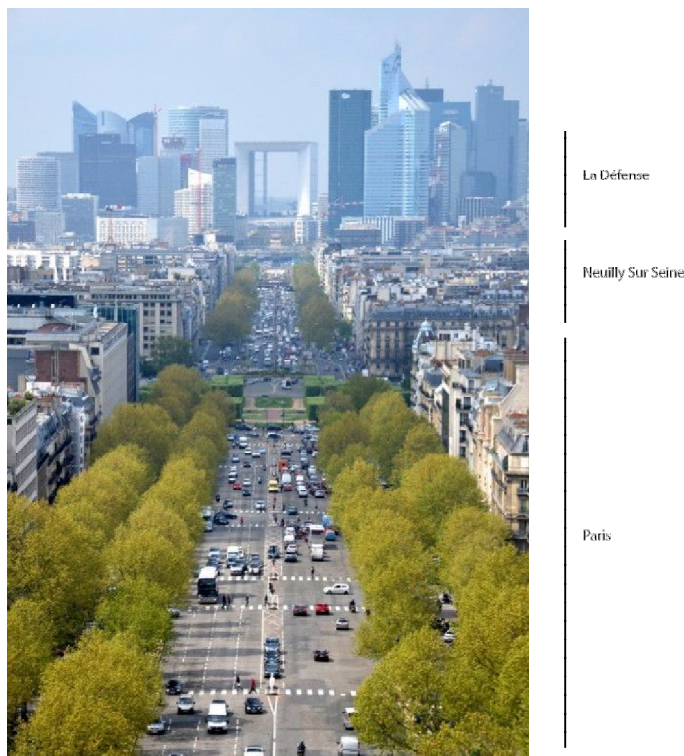


Figure 1.17 : The Axe Arc de Triomphe-Arc de la Défense

flow is actually the only discontinuity in this axes. As soon as the Peripherique is passed, the car flow takes over the pedestrian. It is very difficult to join Neuilly to Nanterre by feet. Most of the time people use the public transportation or the car. Nevertheless with the new politic of the mayor of Paris to reduce the number of cars inside the city and to develop the use of public transportation and bicycle infrastructures², the car flow is reduced a lot. The Grand Paris can follow that movement and use it to reshape the major road of the metropolis in order to favorize pedestrian flow and create the new Boulevard.

¹ *Paris Contemporain*, Simon Texier

² *Abécédaire de la Future Métropole du Grand Paris*, APUR

In the past century, the architect was either trying to redo Haussmanism with the rise of Néo-Haussmannisme or do something totally different. In both cases, the result was not as good as what already exists. Innovation does not fit with classical for now. The history of Paris is what makes its identity but it is also a problem for the future development.¹

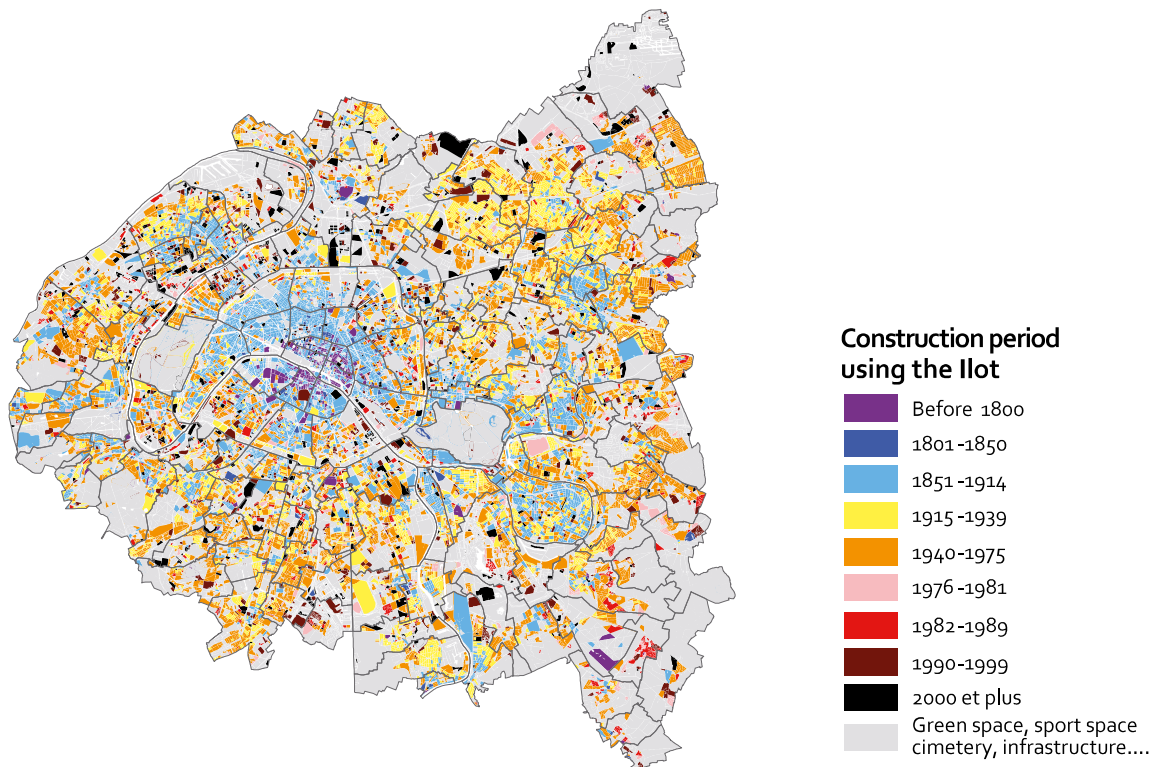


Figure 1.18 : The Ilot in Paris and its suburb. Source APUR

The Grand Paris need to have a solution for the urban design of the metropolis. The aim of the project is to fit contemporary issues such as the importance of mobility, the different density between cities and the need of adaptability for the new development with a strong urban context. As a good example the axis «La Défense-Tuileries», there is already the idea of the continuity in the metropolis that appears. The urban and architectural language has to be part of the debate of The Grand Paris. For now, this project is mostly about developing areas and the transportation. It is also a political issue. A game of influence between the metropolis and the city of Paris. The development of the two is linked. Even if during his work Haussmann has all power and had to fix some issues such as the lack of hygien and security, he creates urban tools that unify the city.

Is it possible that the Grand Paris re-invent those tools in order to homogenize the Parisian Metropolis ?

After this introduction of the context; the Haussmannian work and the Grand Paris, the different parts of the Haussmannian DNA will be introduce. In order to better understand what create the Haussmannian feeling the major elements that composed Haussmannian typology such as the Boulevard, the Ilot and the architecture will be presented.

¹ Identification d'une ville : l'architecture de Paris, Eric Lapierre

II

Parisian Boulevard

The etymology of the word Boulevard come to the word «bolwerk» which means bastion in Dutch. At first, it was a term used in the militarian vocabulary. Nowadays Parisian boulevard is a public place that composed the urban and cultural aspect of the city¹.

If the boulevard is one of the main characteristics of Paris, it is because of its use, its history and its aesthetic.

First of all, the boulevard where used as a tool by Napoleon III to aerate the city of Paris. In the 19th century, the city of Paris was very dense with narrow streets that increase the propagation of diseases and that was a jungle for the army during public protests. The boulevards were used as a large empty space to let the wind blow inside the city but also to allow the army to parade². If at first, this element is about hygiene and security, it will become a major urban element that will transform the city of Paris.



The Haussmannian Boulevard can be defined into three main aspects :

1. It is a public space where the pedestrian can meet, shop, talk, look or just walk.
2. It is an element for the high-speed flow with the cars and the public transports.
3. It is a boundary that created the different neighborhoods of Paris.

1 *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

2 *Atlas du Paris d'Haussmann*, Pierre Pinon

Boulevard and Urban Plan

In Paris there are different types of Boulevard: The Haussmannian Boulevard, created by Haussmann, «Les Grands Boulevards» a series of eleven Boulevards, «Les Maréchaux» and «Boulevards du Mur Murant» that goes around Paris¹. In this part, the analysis is only about the Haussmannian Boulevard.

When Haussmann planned the new Paris, he had this idea that the new large streets he created should go from one particular public place to another. Like the Pope Julius II in Rome, with the Via Julia for instance, who's the idea was to connect monu-



ments to each other along grand axes.

The difference is that the Boulevard does not only connect monuments, it also connects public place and bridges². If Parisian Boulevards connect different locations such as the Boulevard du Temple and Beaumarchais that join the Place de la Nation to the Place de la Bastille, it also connects neighborhood. The result of these connections is also a new hierarchy in the different streets. The Boulevard and the Avenue are two urban elements that possess their own identity. In between them, the streets form the dense neighborhood.

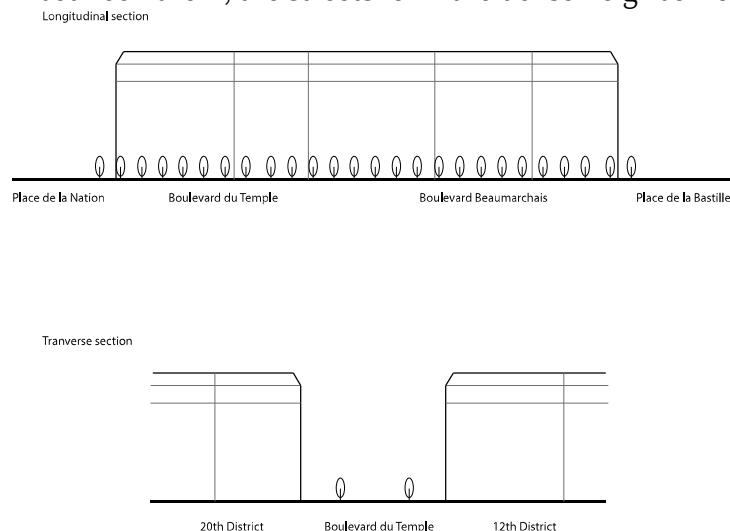


Figure 2.03 : The connection and limit created by the Boulevard.

The boulevard has a role limit in the découpage of Paris. The void that this urban element creates leads to a discontinuity in the dense tissue of the city. All the Parisian Boulevard do not have this role, but some of them are the limit of the district in Paris. It makes sense because of its differentiation between the narrow street and the large boulevard but also because of its history. Some boulevards came from old fortifications like «Les Boulevards des maréchaux» and «Boulevard du

Mur Murant»³, some others came from various changes of function like «Les Grands Boulevards». The Haussmannian Boulevards, on the other hand, are a brutal breakthrough in the dense tissue of Paris. They do not follow any boundaries; their primary purpose is to connect places. That is why these elements sometimes seem as long islands in the dense city. It is like a river, a discontinuity in the urban tissue with a fast flow.

1 Les Grands Boulevards de Paris, Patrice de Moncan

2 Atlas du Paris d'Haussmann, Pierre Pinon

3 Les Grands Boulevards de Paris, Patrice de Moncan

The Haussmannien Boulevard is designed with some rules. Proportion, symmetry are the primary tools of the architectural composition, and it is what creates the uniqueness of Paris.

First, its composition: in the center, there is the road for the car flow. Most of the time it is composed of four lanes, two in each direction. It can be only in one direction like in the Boulevard Saint Germain. There could also be a pedestrian space in the middle which is used as a park or a promenade like in the Boulevard des Batignolles. More and more Boulevard have now a public transport lane.

On the side, some sidewalks are separate to the road by a line of trees. This vegetation is crucial because it creates a boundary between the high-speed street and the sidewalk. Sound and pollution quality are also improved with this. Space between each of the trees is based on the scale of their roots. This particularity came from the fact that the government, in the 19th century, used these trees as a solidification of the soil in case of the army wanting to use the artillery in the boulevard. The position of the trees is set with a precise regulation. There is a distance of 5 meters in between them, and they are at a minimum of 2.5 meters from the facade¹. There is also a distance of 1 meter with the car road.

The construction of Haussmannian Boulevard was made with the straight line in the plan, the facades of every building have to be line with the limit of the block. In outline, the composition of the Boulevard is entirely scientific. This regulation allows the government to work faster and it also unifies all the Haussmannian Boulevard. In the example, the Boulevard Peiriere, the part in the middle is a sort of park. It used to be a railway line for public transportation². The Boulevard Magenta is one of the primary Haussmannian Boulevard by its composition.

In terms of proportions, The Boulevard de Magenta is 1920 meters long and 30 meters wide³. The width of the Boulevard Pereire is between 16 and 44 meters. The dimension can change because of the flow.

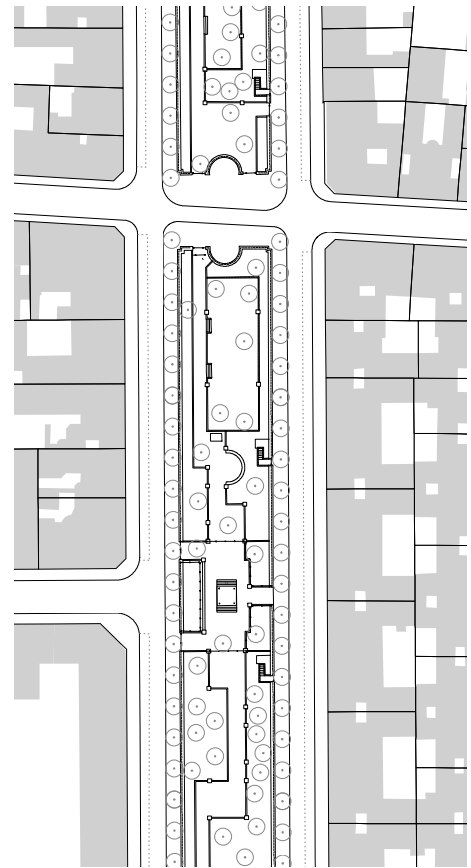


Figure 2.04 : Boulevard Peireire

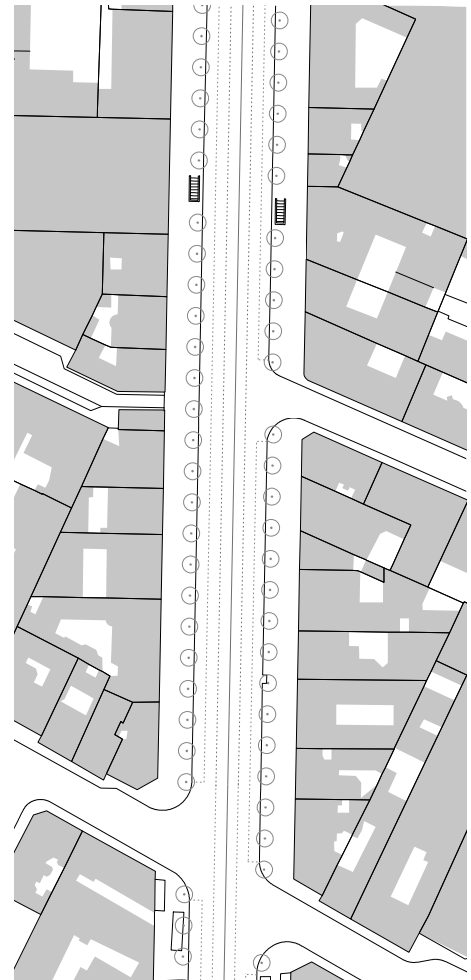


Figure 2.05 : Boulevard de Magenta

1 *Atlas du Paris d'Haussmann*, Pierre Pinon

2 *Les Grands Boulevards de Paris*, Patrice de Moncan

3 *Haussmann*, LAN Studio

Boulevard in Urban Section



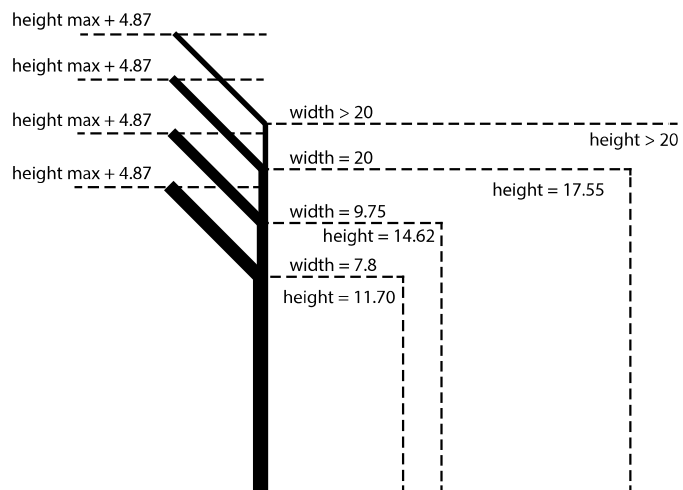
Charles Marville, Boulevard Haussmann

In term of a section, as the unity of Paris was a major point in the plan of the city, the maximum height of the roof was upgraded by Haussmann. In 1783, Louis XIV the king of France set the use of proportion with the height of the building and the width of the street. After few modifications, in 1859 due to the appearance of boulevard and avenue in Paris, Haussmann add some rules :

- The height of the corniche can be up to 11.70 meters for a street of 7.8 meters wide.
- The height of the corniche can be up to 14.62 meters for a street between 7.8 and 9.75 meters wide.
- The height of the corniche can be up to 17.55 meters for a street between 9.75 and 20 meters wide.
- The height of the corniche can be up to 20 meters for a street lager than 20 meters.

On top of the corniche floors can be added, one floor + an attic, the limit is designed by a diagonal of 45° that start at the sewer. The maximum height of this addition is 4.87 meters.¹

This codification is still in use, even if some adjustments have been made. It shows how much the heritage of Haussmann has an impact on the aspect of the new construction in the Parisian metropolis. The widest street of Paris is the Avenue Foch, with 120 meters wide². Figure 2.06 : Haussmannian rule of 1859.

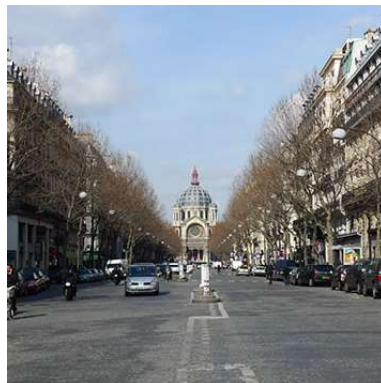


The longest is the Avenue Daumesnil

both are not Boulevard, but it is still Haussmann that creates those breakthrough. From all the Boulevard, the Haussmannian's ones are the longest and widest. The dimensions of the Boulevard de Magenta and the Boulevard Peirere show that the Boulevard can be wider when the flow is more intense. The Boulevard Peirere is an excellent example of the maximum and minimum width a Haussmannien Boulevard because it can go from 15 meters to 45 meters.

¹ Paris Contemporain, Simon Texier

² Haussmann, LAN Studio



Boulevard Flow

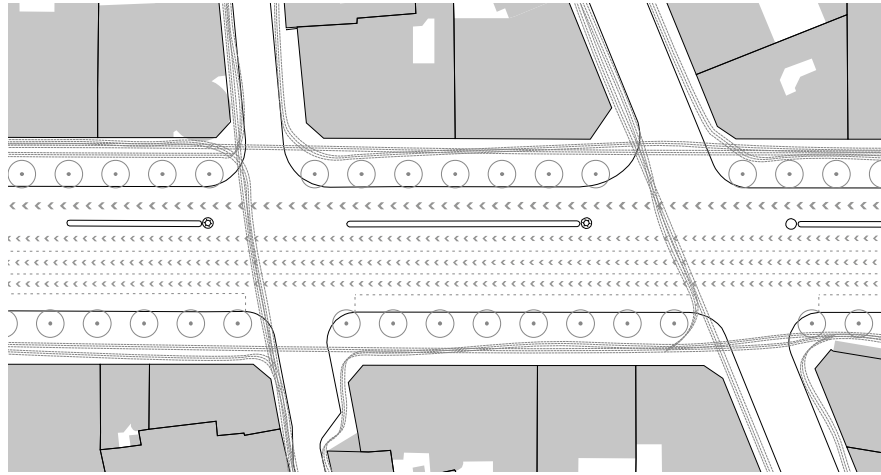


Figure 2.07 : Flow of the Boulevard Saint Germain.

Pedestrian flow represents 51% of the flow in Paris. This amount is one of the highest in the world¹. The pedestrian flow in Paris is as significant as the fast flow.

The presentation of the Boulevard during the work of Haussmann is incomplete in the sense that it is not just an element that creates void in a dense tissue. The Boulevard is also a public space where the Parisian people meet, talk or walk. Even if it is still a place of flow, it has a role in the connection and the life of a neighborhood. In the history of Paris, the street was a place of meeting and trading. The ground floor was used as a place for shops. When Haussmann started his work, the purpose of the Boulevard was also to be a place for leisure walking. We have to keep in mind that during the 19th-century traffic was not as dense as today; cars were not common use during that time. As an example, the Boulevard Haussmann is used also because it is the place where are located the Galerie Lafayette and Le Printemps which are part of the «Grand Magasin». These big shop centers were planned at the same time as the Haussmannian Boulevard. The role of the new boulevards was also to be a place where people can look at the display.² The Boulevard Haussmann is not an exception; this new urban element was meant to be used by the pedestrian. The first document of Parisian Boulevard confirm that idea, it is some painting or picture of the street without any cars. The sidewalk is not only about flow, but it is also about leisure walking.

¹ LAN Studio, Haussmann

² Paris XIXeme Siècle : l'immeuble à la rue, Francois Loyer

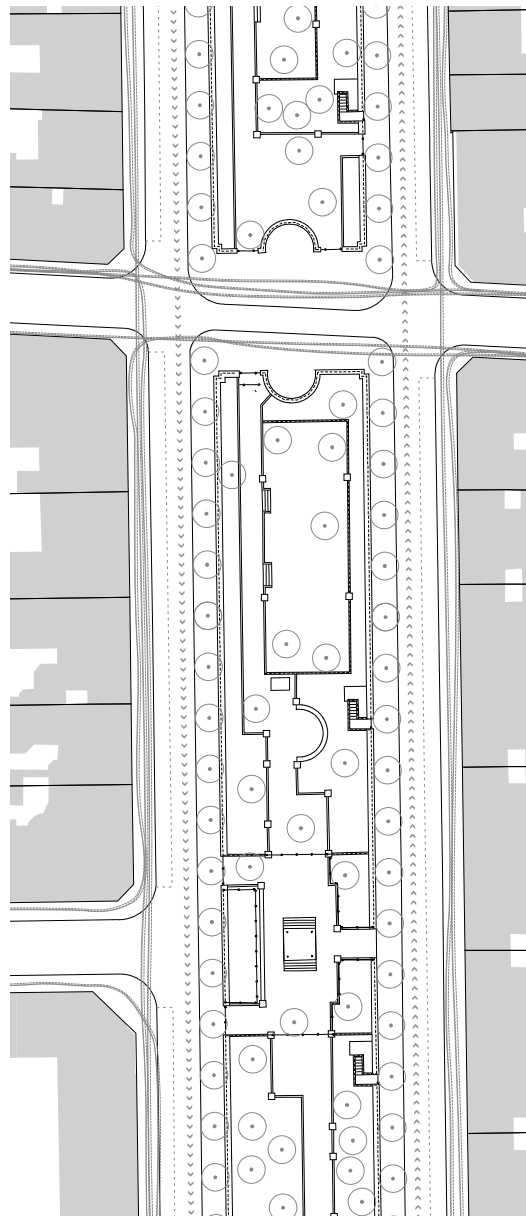


Figure 2.08 : Flow of the Boulevard Peirere.

The importance of the pedestrian is also due to the way that fast flow is generated in the city. The traffic in Paris can be divided into three different ways. First, there is the peripheric highway that goes around Paris and the roads that goes along the Seine. These routes are mostly used to go from one point of the city to another but not really to get in Paris. It also uses a lot of non-Parisians that want to cross the city. Then there are the boulevards and the avenues which are used as a fast road to go from one neighborhood to another. And finally, the small streets that composed the neighborhood. In the last years, the roads along the Seine have been closed or reduce, and it accentuates the importance of the boulevard in the car flow of Paris.

If we look more in detail at the distribution of the car flow in the Parisian Boulevard, we can see that it is quite scientific. As the pedestrian flow, car flow is design in a particular way. These two different flows work together in parallel. Even if in the Boulevard the car can go fast, the fact that there are a line of trees and sometimes a range of places to park created a boundary between cars and walkers. Moreover, the sidewalk sometimes is not treated the same way between the part that is close to the road and the portion close to the buildings. One is made out of clay and vegetation while the other one is pavement or bitumen¹. In a way, the boulevard is made of three different parts: a road, a boundary and a pedestrian. The particularity of the Parisian Boulevard come from this contrast in the flow. When you are in a car, it is a way to get as fast as possible from a place to another, when you walk it is a leisure walk where you can admire the Parisian architecture.

The Boulevard where set to receive three flow: the pedestrian, the car, and the tramway. With the disappearance of the last one and the emergence of buses, cars, and bicycle the clear division between flow is getting harder to see. As an example, the Boulevard de Magenta- which was only meant for the vehicle and pedestrian flow- has now become the second most dangerous street in Paris. Over the last three years, because of the addition of different flows, there were 135 accidents, 167 wounded and 2 dead people in this boulevard². This show that the Boulevard was composed for the flow of the 19th century and this urban element could be redesign to adapt to the contemporary flows.

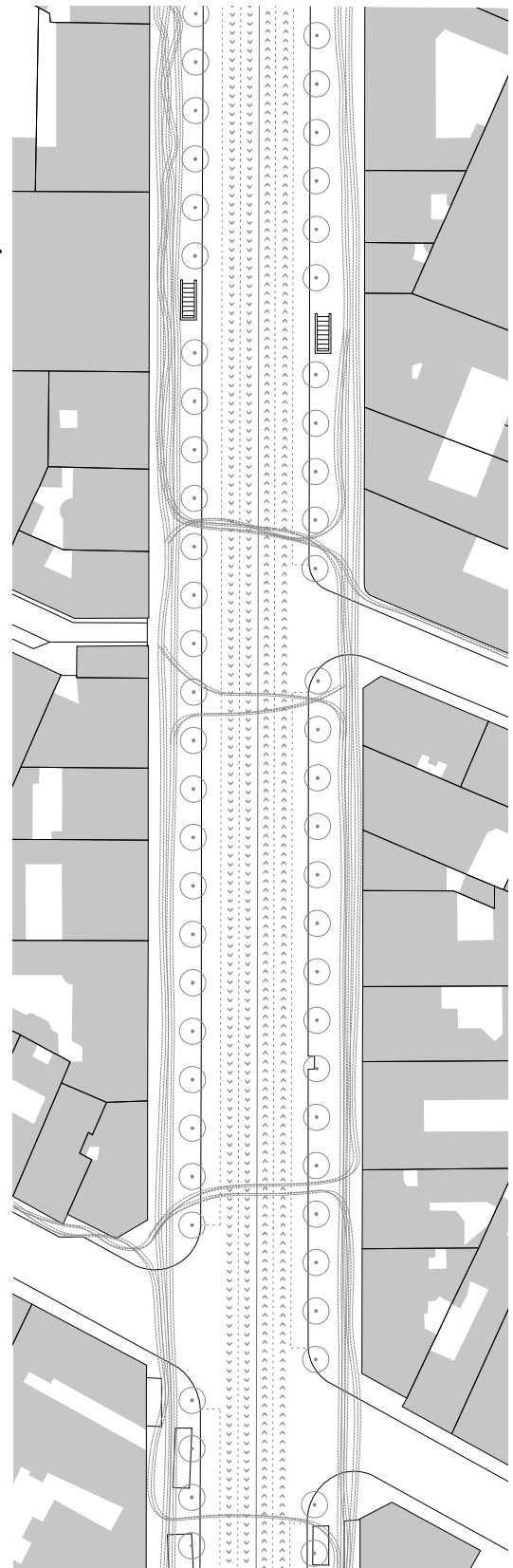


Figure 2.09 : Flow of the Boulevard de Magenta.

¹ Francois Loyer , *Paris XIXeme Siècle : l'immeuble à la rue*

² Jonathan Nataf, *Le Boulevard de Magenta toujours aussi dangereux*, 20 Minutes

Boulevard Aesthetics



Devambez, Haussmann

The Parisian Boulevards result from a radical decision. A line in a non-organized city. To make that gesture even more radical and to simplify it, most of the Boulevards were designed as a straight line. This use of simple geometry follows the French tradition of the symmetry and perspective in the construction of its architecture.

To compare the Boulevards as a straight line rise the question of the starting point and where the line finish. These urban elements connect major public place in Paris such as the Place of Nation, Bastille or Concorde. Some of them form a continuity like «Les Grands Boulevards» which are a succession of Boulevards on the north part of Paris. The fact that Haussmann during his work had the idea that Boulevard should reach to something show the importance of the perspective. The most known example is the Avenue de l'Opéra, which was only designed to mark the new monument. Using perspective for an urban project mean a different construction of the drawing than for one in plans. The straight lines of the trees, the sidewalk and the road play a significant role in the composition. The facade of the building is also essential in this large corridor. To keep this unicity Haussmann wrote a rule in 1854 for the homogenization of the facades of the new block that composed the new tissue of the city. This research of the aesthetic in an organized landscape creates the Haussmannian feeling.

The aspect of the boulevard as a straight and monumental line influenced the Parisian architecture of the middle 19th century. The Haussmanian Ilot is set as a perfect response to this new urban element.

Finally, the Haussmannian Boulevard which can be seen as a simple urban element is composed and organized. The interest for the government at that time to create an item that can be repeated and can be transformed leads to the apparition of this modern machine that is the Boulevard. The effort made on the aesthetic of it gives another analyze of it. It is not only a road. The creation of the Haussmannian Block is also helping this urban element to fit in the city. Both are working together; the Ilot is codified like the Boulevard.

III

Hausmannian Block

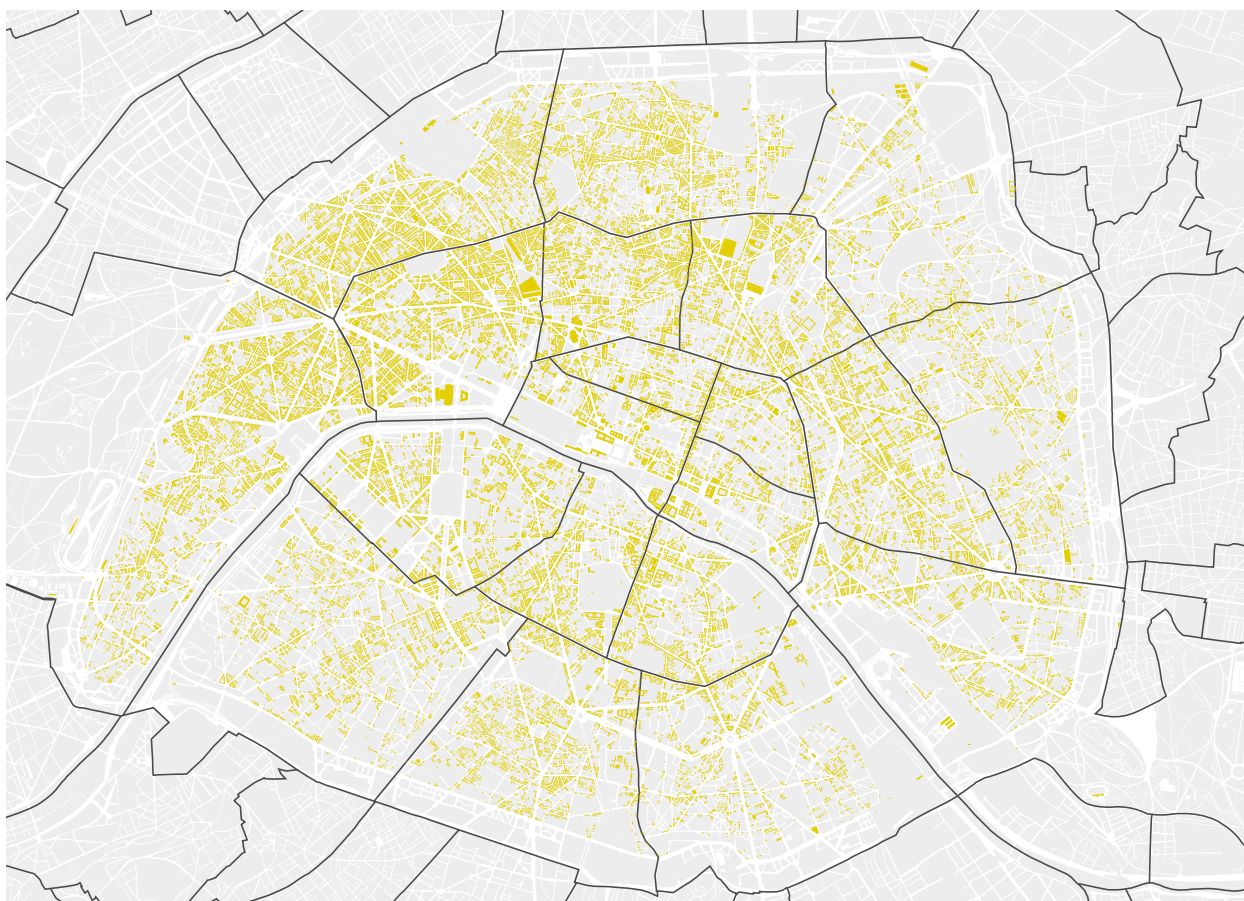


Figure 3.01 : Housing construct between 1851 and 1914

The Haussmannian Block results from two figures that symbolized the development of the city. On the one hand, there is the new urbanization of Paris which need a type that can fit in. On the other hand, there is the development of a new kind of building with several floors and separated apartments. The analysis of the Parisian block will show the Haussmannian DNA of Paris and more precisely what are the rules that code this urban element.

Like Barcelona, Paris possesses a typical urban form created by its particular blocks. The «Ilot Haussmannien» is an answer to several needs that the work of Haussmann creates with the Boulevard and the new distribution of Paris. First, the specificity of the Ilot is that it is a system design to fill the modern Paris. As for the Boulevard, the fact that the city was designed on a large scale involves the obligation to create regulations for this urban element, so it can be repeated and be adapted if needed. Even if the block is cut into different parcels and that they are filled with building designed by several architects, the Ilot must have homogeneity in its aspect. Haussmann set a series of rules that coded the Ilot¹. In the continuity of the idea of the monumentality of the new boulevards and avenues, the Ilot as an aesthetic role. The facade of this urban element follows the concept of construction through the perspective and the creation of a Parisian landscape. The Boulevard and the Ilot create this corridor that composes the Haussmannian feeling. They are urban elements that would not work on their own.

Last, the Parisian Ilot is a closed block. Meaning that there is a particular relation between the inside and the outside. Moreover, the density of the build part involve the importance of the void part, the courtyard in the Haussmannian block have a significant role. They are, like the rest, organized through a list of rules and proportions and they play a role in the climate control of the block.

¹ *Atlas du Paris d'Haussmann*, Pierre Pinon

Parisian and Haussmannian Block.

During the analysis of the Parisian Boulevard, the importance of the street as a place for trading and meeting was shown. That aspect is also remarkable in the development of the Parisian block. At first, buildings were placed close to the street. The ground floor was filled with shops and the upper floors with housing. Only the places that touch the road were used in the parcel. Then as a second step in the back of the parcel, a second building was created and last, parts on the side were built to put the services¹. Haussmann transformed that typology to create a model which is now the Haussmannian Block. This development will be seen in the organization of the Haussmannian building. It already gives the point that the perimeter of the block is treated in a different and more precise way than what comes inside.

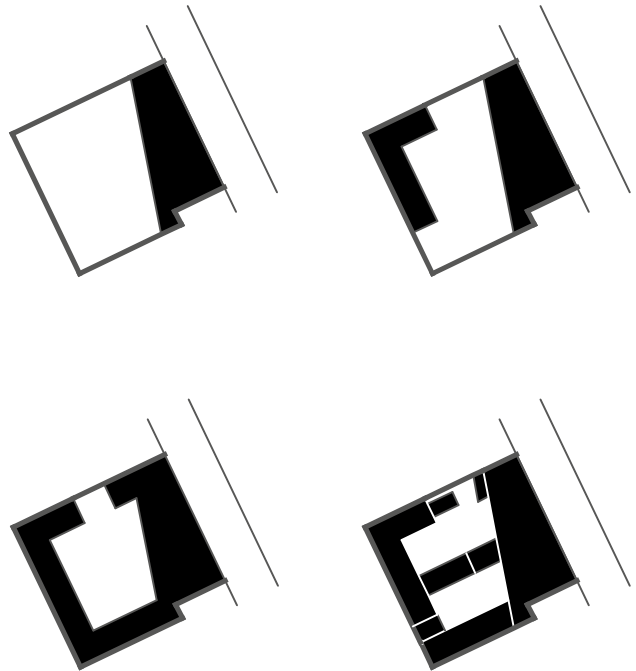


Figure 3.02 : The block : from the building touching the street to the addition of element in the parcel

It is relevant to understand that the *Ilot* came with the concept of the Boulevard in the Haussmannian work. The decoupage that was used in the design of Paris influences the composition of the Haussmannian Block. The *Ilot* came with the idea of the decoupage created by the breakthrough that Haussmann made. The new urban plan of Paris needed a new typology that can also respond to the need for housing. This urban element has to be monumental and to give a unity to the city. A piece of architecture that will work like a machine, in this industrial era. The block is organized by various rules as a logical response to the architectural and urban conditions.

The form follows the shape of the street, with the new urban rules, the facades have to be drawn in the plan as a straight line. This new typology was applied in a modern context, some of the blocks that exist already work in the new urban project and some are just modified to fit the rules². To create this new *Ilot* and Boulevard, in Paris, Haussmann had to process a series of expropriations.

There are more than 3300 Haussmannian blocks in Paris, the average perimeter is 410 meters and the average surface area is 10'800 meters square. The number of facades of a block is from three to six. If there is a variety in the block, the three facades block represent 16% of the Parisian blocks, the one with four sides represent 68% of the *Ilot*³. It seems that the Haussmannian code was filled mostly with these two blocks and the rest is the exception. One of the typical triangular *Ilot* is the one in the 8th district of Paris, limited by the Rue de Berne, Rue de Petersburg, and Rue de Moscou. This block will be used as a sample of the Haussmannian *Ilot*. These blocks can contain up to 125 buildings, the precise composition of it makes this model possible and pushes the code of the *Ilot* further.

1 *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

2 *Formes urbaines : de l'ilot à la barre*, J.Castex, J.Ch. Depaule Ph.Panerai

3 *Haussmann*, LAN Studio

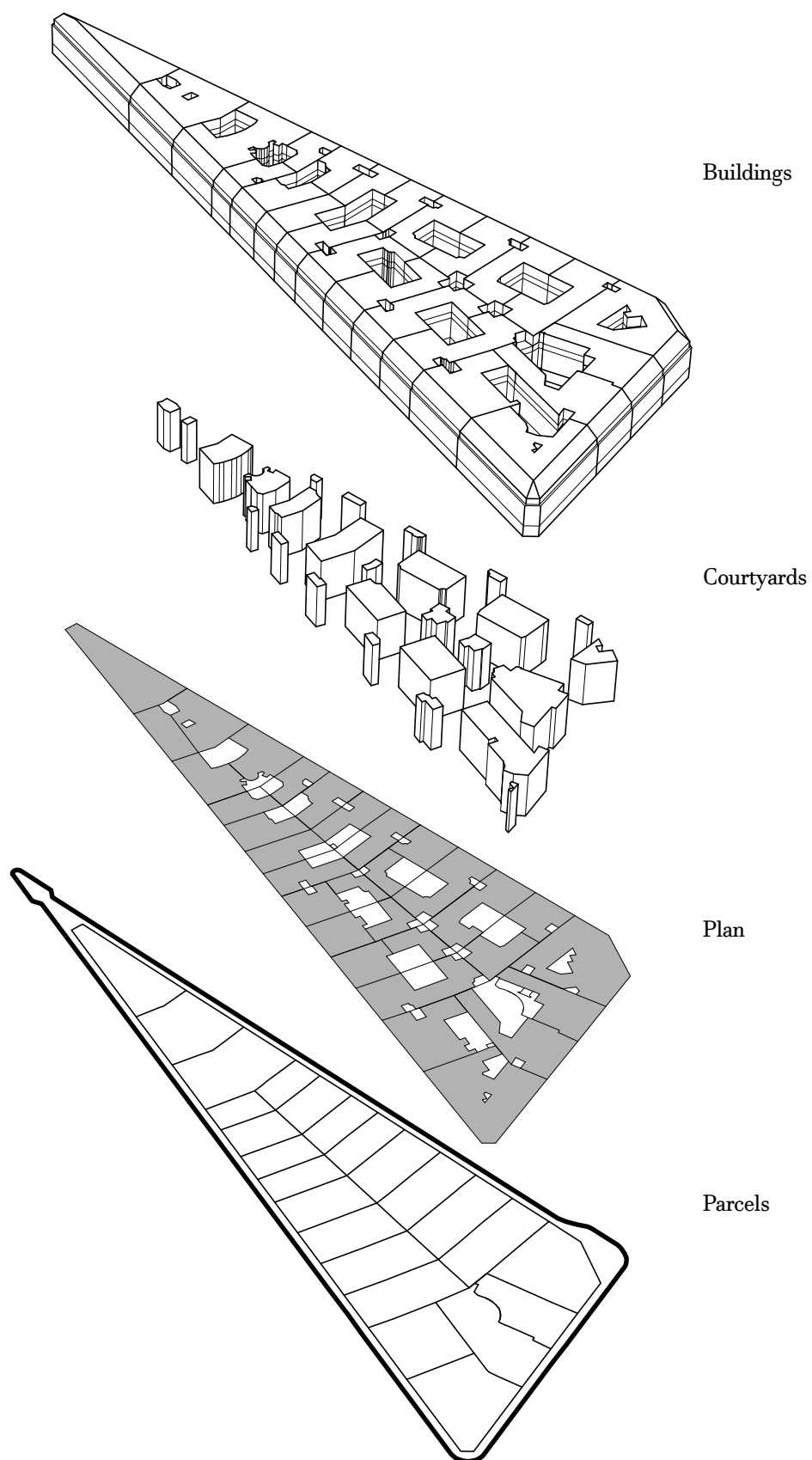


Figure 3.03 : Dissection of the Ilot

The composition of the Haussmannian Block is linked to the context of the economy and the construction at this time. One of the principal weapons of the government to create the new Paris was the expropriation. They bought the parcel and then resell it to the proponent, for a long time this system work until the debt became impossible to refund¹. During the Haussmannian ere, this organization was working because of the division of the block into parcels. These pieces of land were easier to sell and gave more flexibility in the development of the constructions. To maintain the unity and homogeneity of the city, some rules were set and the Haussmannian Block appeared.

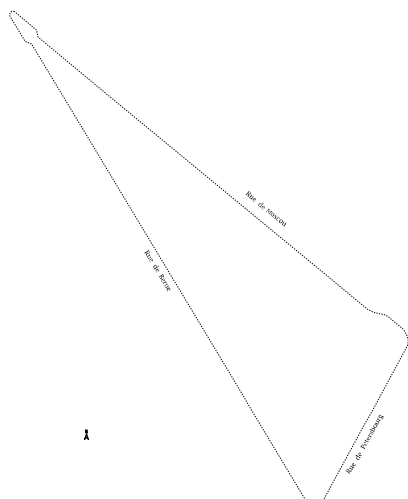


Figure 3.04 : Limit of the streets.

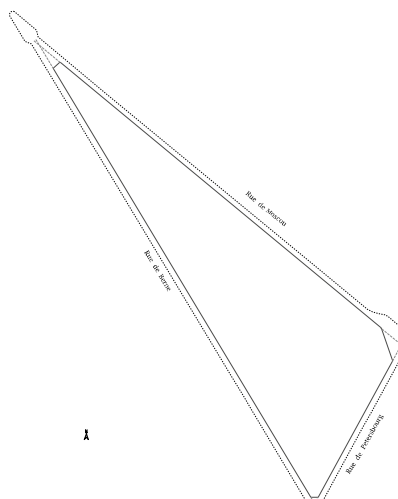


Figure 3.05 : The angle

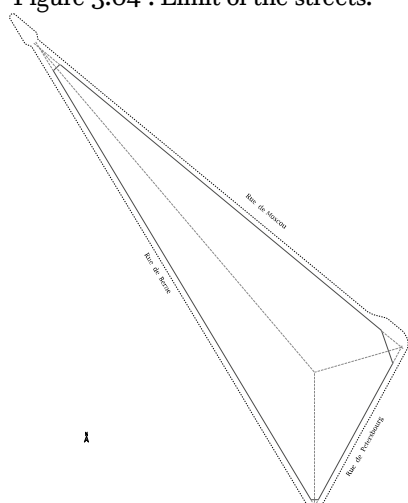


Figure 3.06 : Bisectors

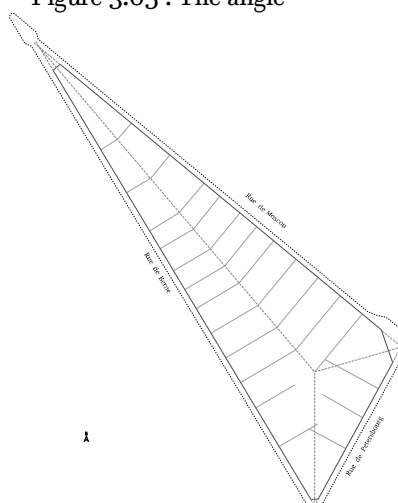


Figure 3.07 : The parcels

In the example of the analysis of the block, a series of Haussmannian rules are followed.²

The first step is to divide the block into parcels.

The three bisectors of the triangle are drawn in order to divide the parcel.

The angle is cut in a way that there are a least two windows in the angled facade.

From the street perpendicular lines are drawn, space in between them is from a minimum of 16 meters to a maximum of 76 meters. Each parcel needs a facade of at least 15 meters to respect the rule of the enfilade in the plan. These 15 meters represent the three rooms on the facade that composed the plane: living room, dining room, and bedroom.

From this process, the parcels are set. In term of space, the average area is 1000 m² but the maximum is up to 1800 m² and the minimum is 500 m².

¹ *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

² *Formes urbaines : de l'ilot à la barre*, J.Castex, J.Ch. Depaule Ph.Panerai

In this example, not all the parcels are the same. We can divide it into three part. The head, the body, and the base.

The head and the base are parcels that have to compose with the geometry of the street. The body follows the Haussmannian typology and can be seen as the typical parcels.

The proportion of the parcels that composed the body is approximately the same for all of them. The width of the facade is the half of the width of the parcel.

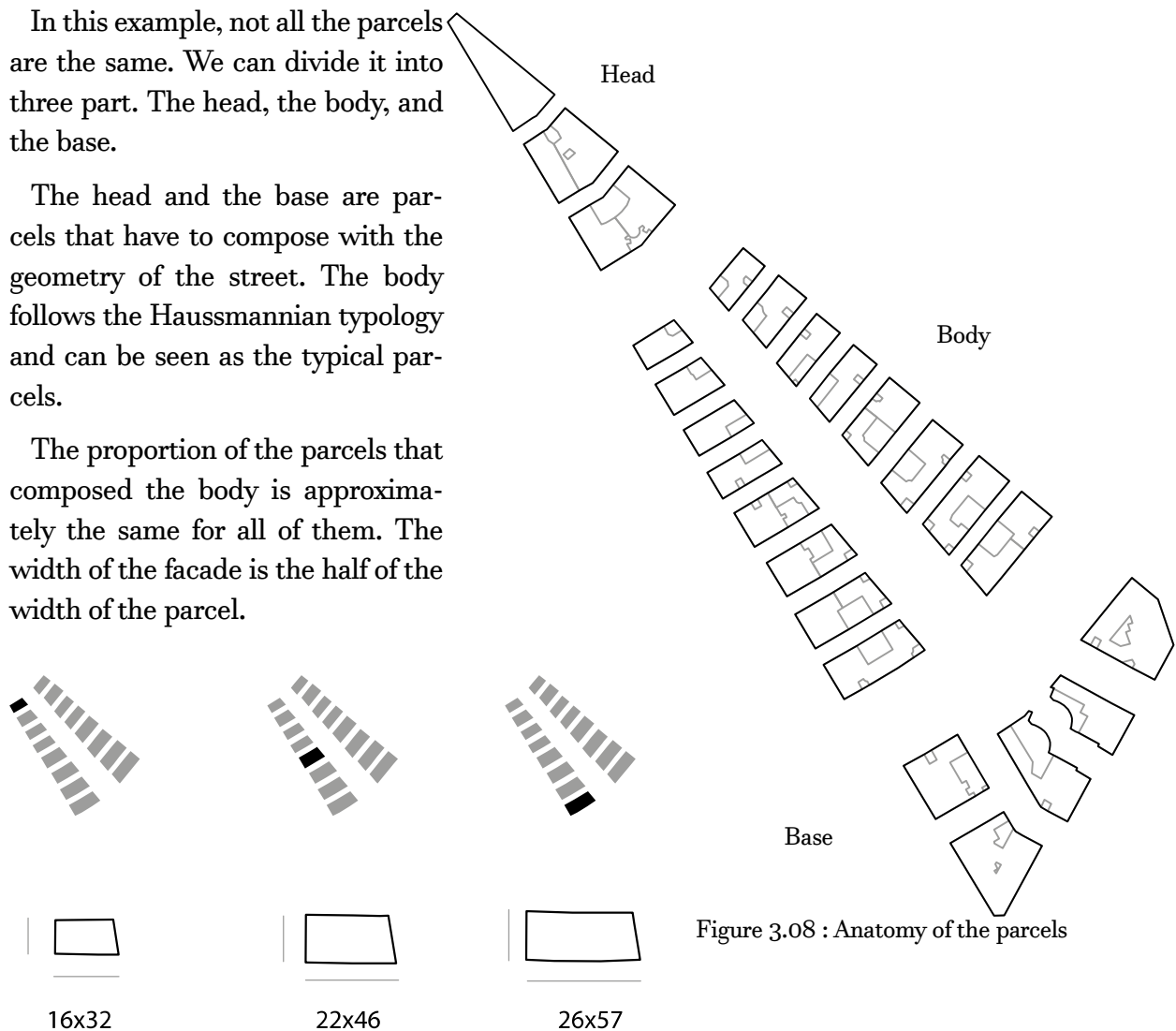


Figure 3.08 : Anatomy of the parcels

Figure 3.09 : The «Body»

The role of the courtyard

The disposition of the Haussmannian Ilot as a closed block create an inner space, a courtyard, which has an influence in almost half of the building in term of lighting, ventilation, and view. If the courtyard can be interpreted as a living space it plays a significant role in the efficiency of the Haussmannian block. There are two type of void : the courtyard and the ventilation space. One is accessible, and the other one has only a technical function.

A courtyard is a semi-public place in the sense that it can be accessible to all the people who live in the parcel. Its status is not clear. It can also be designed as a place for services that are pulled out of the building like the well, the garbage place, and the common toilets. At the same time, it is a functional space and a public space.

The openings in the courtyard are also different. There are some which only have a functional aspect and follow the shape or the need in term of the climate of the room they serve. The other one is designed with the same principle of the windows that compose the street facade. This part will be seen in detail in the next chapter.

In the end, it is mostly the size of the parcel that influences the courtyard¹.

¹ Haussmann, Michel Carmona

The courtyard

As for the rest, the courtyard also has a code. In 1884, after Haussmann rule, a law established an obligation to set the courtyard of a minimum surface area of 30 meters square for the buildings lower than 18 meters. For the buildings which are higher than 18 meters, a minimum distance of 6 meters in between the two facades is set. This distance is most of the time the third of the height of the facade. It is linked to the need of illumination for the second facade¹.

More than the role of the courtyard as a public place, it is also a climate element in the Haussmannian Block.

In this example for the parcel that composes the «body» of the Haussmannian block, there are some clear rules.

For the two type of the void, the courtyard and the ventilation void, follow a precise construction. There is an offset of the limit of the block. This offset corresponds to the disposition of the plan of a Haussmannian apartment. For the ventilation, it is the size of a living room about 10 to 12 meters, and for the courtyard, it is an addition of this room with a corridor another living room. The offset for the courtyard is approximately of 24 to 28 meters².

The width of the courtyard is about half of the width of the parcel.

If the parcels are big enough, they can contain an inner built part which has not any direct access to the street³.

The construction of the courtyard is essential in this dense blocks. It has a significant impact on the comfort of people living in the Ilot. The second facade, the one on the courtyard is designed to have more privacy inside the building. To have less direct views the windows are shifted from the one they are facing⁴.

1 *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

2 *Formes urbaines : de l'ilot à la barre*, J.Castex, J.Ch. Depaule Ph.Panerai

3 *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

4 *Haussmann*, Michel Carmona

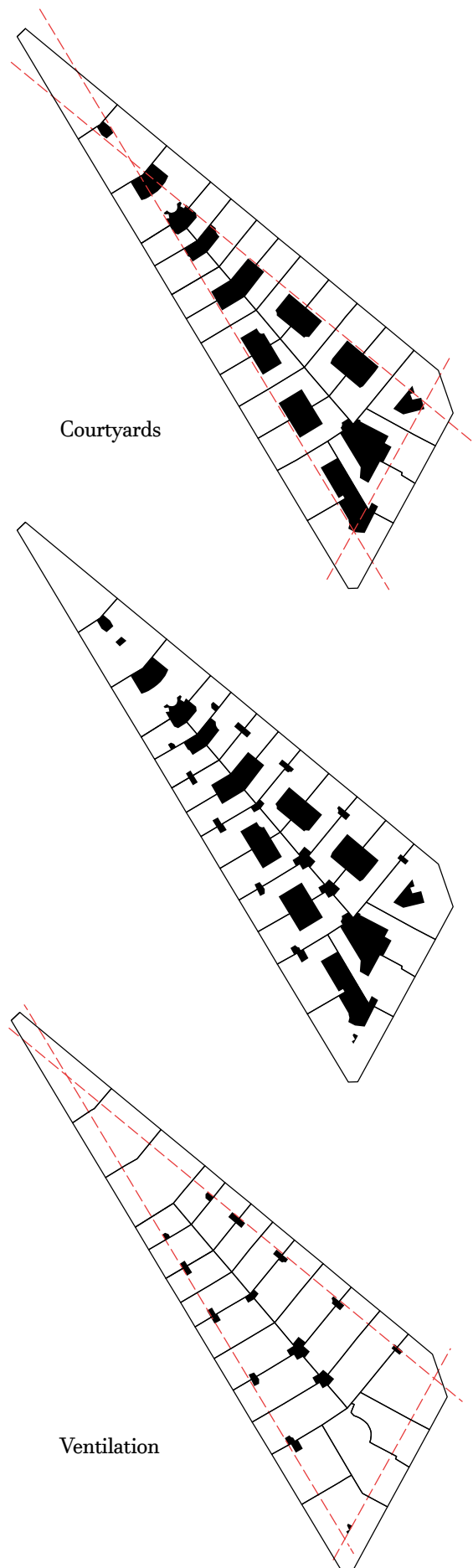
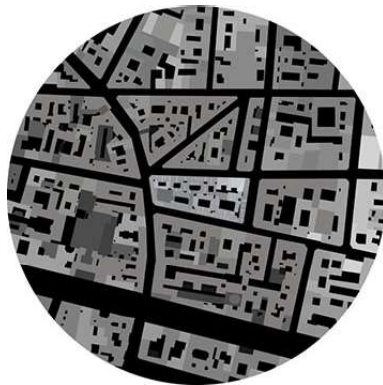
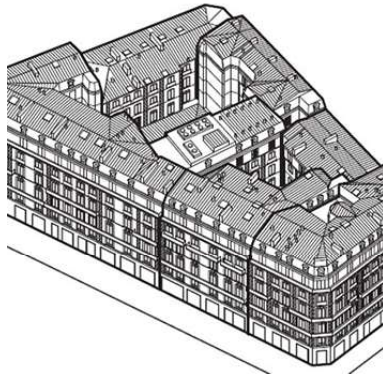


Figure 3.10 : The voids



The volume

This composition allowed a clear distribution in the planning of the different parcels. There is still the question of the unicity. This item is central to the identity of the Ilot Haussmannian. It affects the limit of the roof and the facade but also the design of the facade on itself. Because of the multiplication of different buildings drawn by different architects some rules were needed.

Regarding volume, the maximum height is ruled by the municipal law of 1855. The part that is touching the facade is always the highest of the parcels, in some case the buildings in the back can be lower. Because of the density of Paris, most of the time the whole parcel is at the same height².

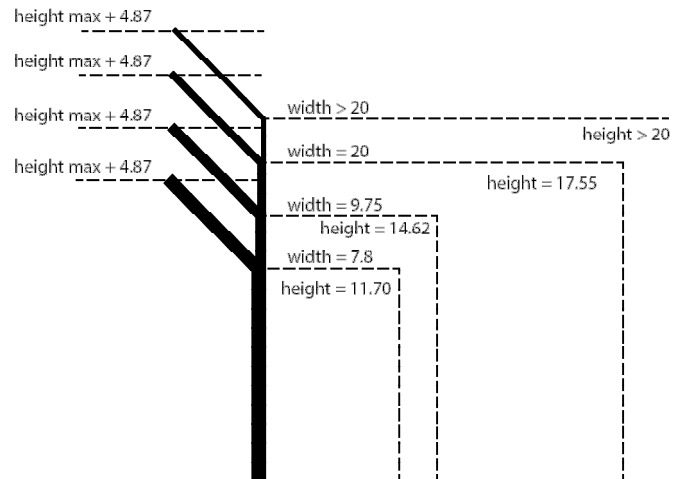


Figure 3.12 : Rules for the Haussmannian roof

The exterior facade is also coded to have a homogeneity between the parcels. In 1855 Haussmann enforced a continuity between the line of the cornice, the balcony and the roof³. This law creates a unity in the drawing of the facade. The desire to control the horizontal lines of the building is the result of the architectural composition as a perspective. In the end, these rule set more and more a precise model for the Haussmannian Block.



Figure 3.13 : Major lines

The facade will analyze more in detail in the next chapter. There is already the general ideas of the French aesthetic with the construction of the perspective and the importance of the symmetry. Even though if the Haussmannian Block is composed of different buildings that are designed by various architects. The use of the same regulation, with the repetition of a bay and the symmetry, create a homogeny in the aspect of the whole Ilot.

1 Haussmann, LAN Studio

2 *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer

3 *Atlas du Paris d'Haussmann*, Pierre Pinon

The height of the building also has an impact on the size of the courtyard. For sunlight and privacy, there is a minimum distance between the building which is $1/3$ of the height of the facade. This rule shows the climate issue in this Haussmannian Block because the position of the sun is not taking into considerations.

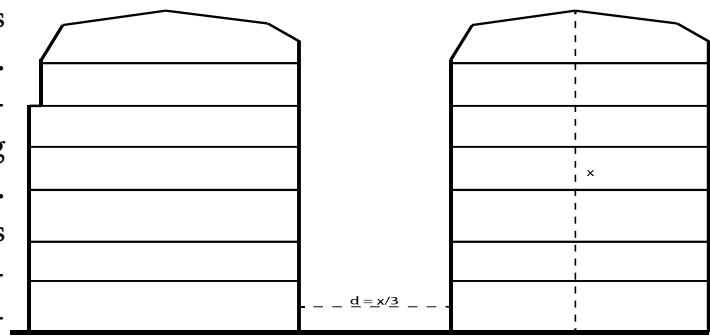


Figure 3.14 : Courtyard section

As a conclusion to this part, the Haussmannian Block is, like a Boulevard, an urban and architectural element that was codified to create a unity in the city and construct faster. The design of the two together can be seen the same regulation or concept that they have.

This new typology was a success not only because of its aesthetic and architectural qualities but also because of the economic aspect. Haussmann is not an architect, and he knew that the financial point of this urban project was essential. In a way, he manages to create an entity, the Haussmannian Block, that was codified enough to work and to be homogeneous. At the same time, this urban object can adapt to different context and can be cut into various pieces. This division of the block into separate parcels make the project easier to sell and to construct. In a way for Haussmann, form follows finance. In the last part, we will enter the Haussmannian Ilot and find out more in detail about his regulation in a building.

IV

Buildings

To finish this Haussmannian DNA, we are going to focus on the architecture and the building part. The architecture in Paris during that time was developing following the plan of Haussmann and the French government, but each parcel was designed by a single architect. In this situation, and as for the Boulevard and the Ilot, some rules were set to control the general aspect of the building. The Haussmannian code framed the design, a lot of the main lines of the drawing of the plan or the facade was already imposed. The ornament becomes the critical element to differentiate the buildings from each other, to give them a unique aspect. The Haussmannian drawing regulations are actually working very well in the city with the Haussmannian Block. It is one of the reasons why Paris is stuck in the Haussmannian because the aesthetic aspect is remarkable and the efficiency of the building is also well thought.

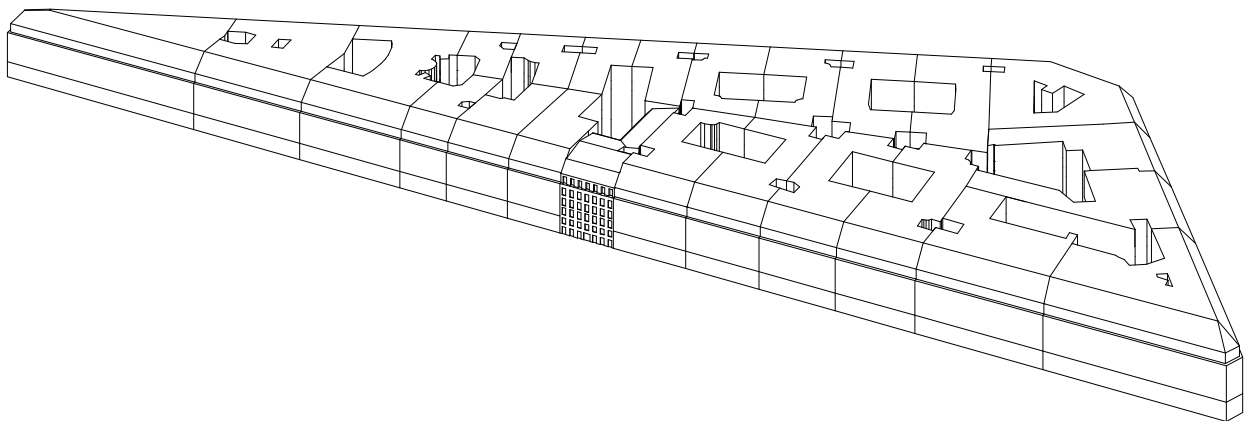


Figure 4.01 : Building inside the block.

The analysis of the Haussmannian architecture can be seen through different key symbol. There is the disposition of the building. The review will show how the build part adapts to the regulation of the Ilot. The division of the Haussmannian Block into parcels create a new base to work. As for the rest, a regulation was set to facilitate the unity of the whole build part. The law made by Haussmann was always seen from the outside, in this chapter the consequence of these rules in the apartment will be discussed.

Then, one of the symbols of Haussmann, the facade. It gathered many of the Haussmannian concepts and also reflect the design of the plan. The code also influences the drawing and the ornament used is a way to categorized buildings. It is also a significant aspect of the Haussmannian feeling. It is a system with repetition and symmetry, all facades follow the same rules. It is a drawing where ornaments are exhibited, all the facades are different.

Finally, the materialization, the ornamentation and some architectural elements such as windows make the Haussmannian spirit.

Plan from outside and inside

As this analysis goes more and more into zooming, the Haussmannian logic is also kept. As for the Ilot and the Boulevard, the composition and regulation of the Haussmannian Block have some repercussions on the building part. For instance, in the Ilot we had analyzed, the central part of it is composed of the same type of buildings. They are all in the same shape; an L. This disposition is particular because there are now three sides in the plane: the street, the courtyard, and the party wall. There can be some variations, for instance, the parcel on the angle has the party wall replaced by the street. The building on the back of the plot has two party walls and the courtyard. These variations have an effect on the inner disposition but not on the volume of the building. In the example, the building has this particular shape.

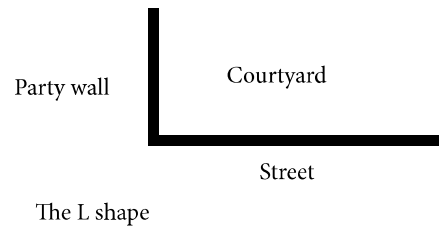


Figure 4.02 : L shape

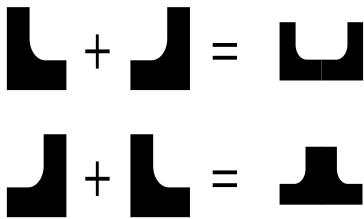


Figure 4.04 : Composition

The organization in L is not the only possibility in the disposition of the Haussmannian architecture. The addition or subtraction of elements creates different shapes. This mathematical terms also mean that quality is the same, it is just a sort of repetition to form an ensemble. For instance, two L can build a U or T; three L can form an E, etc¹ ... In the end, seven clear typologies can be differentiated into various form: I, L, U, O, A, T, and E. These

can be reclassified into three groups. There is the one that composed mostly the Haussmannian plan with the I, L and U that represent 83% of the parcels disposition. Then the O and A are 15% of the shapes, and the T and E that only represent 2% can be seen as particular parcels².

This L shape is not a rule in the system of Haussmannian architecture, but it is a disposition that is often used during that time.

Inside the parcel, there is again a division of the building into apartments. It could be cut into many pieces or have a large flat that uses all the plot. To sell all the apartment, the division was made with the idea that the wealthiest people live on the lowest floor and the higher you go the poorest you are. Following that strategy, the apartment above the shops where the biggest one. The top part of the building was composed of small apartments with two or three rooms. An attic is a place for the servants, and this floor is composed of «maid's rooms», it is also made for storage. This level is set into a series of rooms linked with a public corridor.

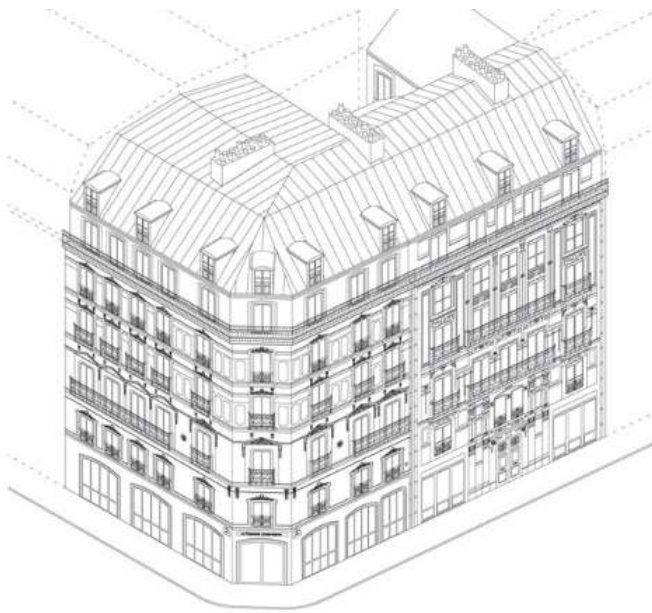


Figure 4.04 : Composition. Source Pavillon de l'Arsenal

¹ *Formes urbaines : de l'ilot à la barre*, J.Castex, J.Ch. Depaule Ph.Panerai

² *Haussmann*, LAN Studio



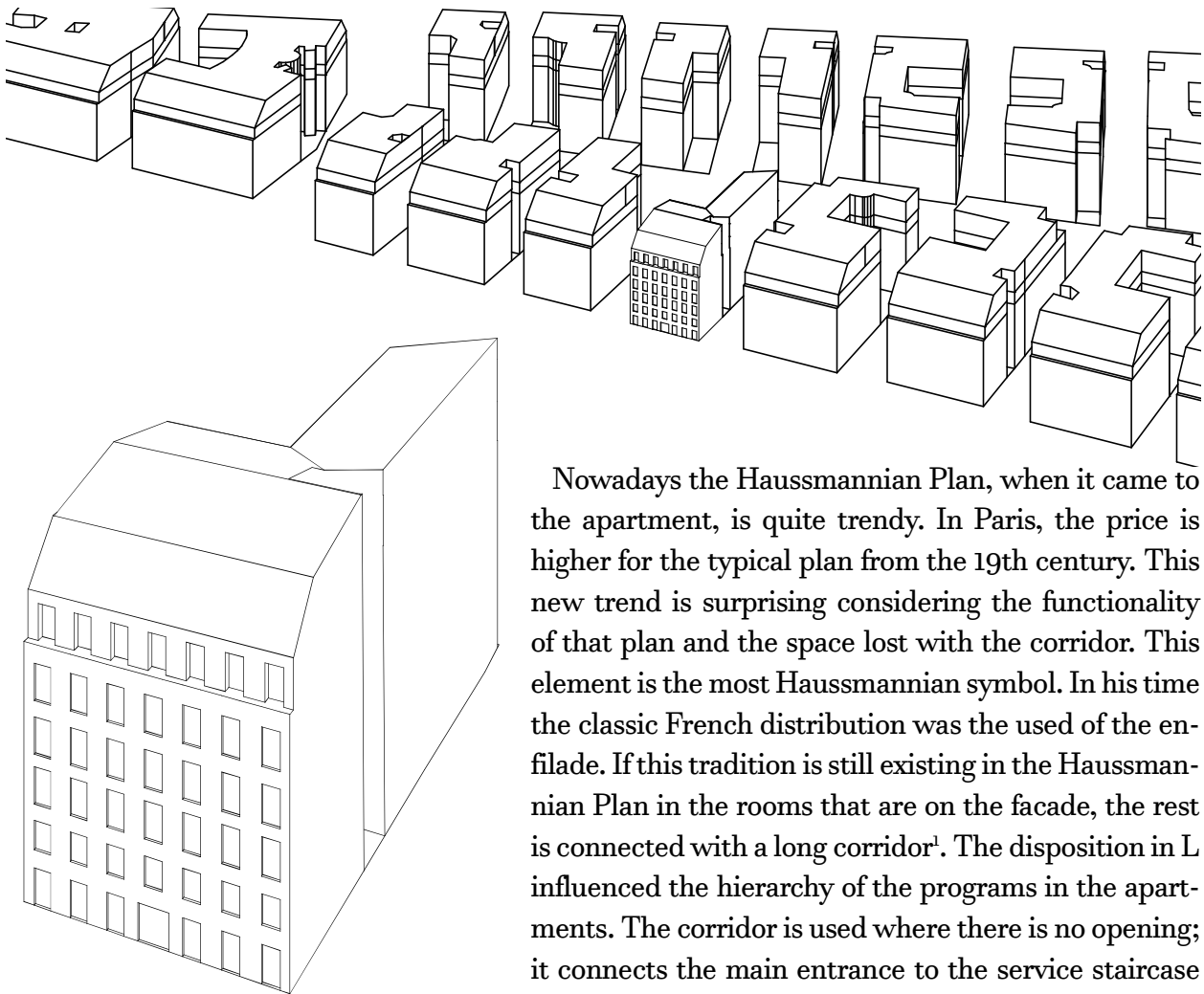


Figure 4.03 : From the block to the building.

Nowadays the Haussmannian Plan, when it came to the apartment, is quite trendy. In Paris, the price is higher for the typical plan from the 19th century. This new trend is surprising considering the functionality of that plan and the space lost with the corridor. This element is the most Haussmannian symbol. In his time the classic French distribution was the used of the enfilade. If this tradition is still existing in the Haussmannian Plan in the rooms that are on the facade, the rest is connected with a long corridor¹. The disposition in L influenced the hierarchy of the programs in the apartments. The corridor is used where there is no opening; it connects the main entrance to the service staircase along the party wall. This organization creates a differentiation with the principal rooms -living room, dining

room, master bedrooms, the bedrooms and bathrooms and the services -kitchen, laundry rooms. The service staircase was usually used by the employees who were not allowed to use the main one, that is why services are often close to it. The shape of the parcel in U or L or I or another influences the plan, but the principles are still the same. As for the urban elements such as the Boulevard or the Ilot the plan respects some basic rules and then adapt to its context. The Haussmannian code can be reflected in the different scale of Paris.

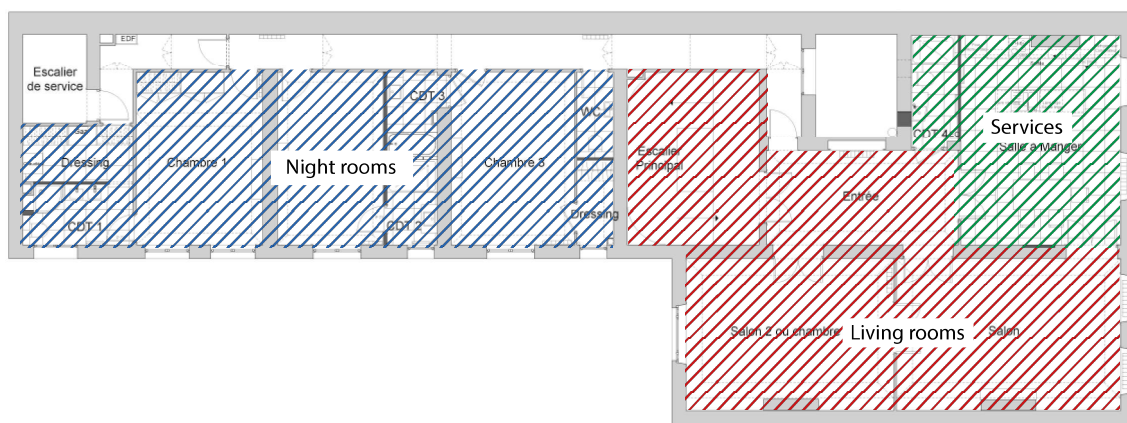


Figure 4.04 : Composition of the Haussmannian flat.

1 *Atlas du Paris d'Haussmann*, Pierre Pinon



Composition of the facade

The Haussmannian's law about the continuity of the line of the facade of the *flot* set a differentiation in the parts that composed the facade. The particularity of the Haussmannian building is the idea of social mixing that wants the government of that time. In the challenge of breaking the boundary between rich and poor this new building was a social machine that was for everybody. If the attempt seems to be a noble gesture, it can also be seen as a way to get a system that works in every context. The superposition of different social class has an impact on the design of the facade.

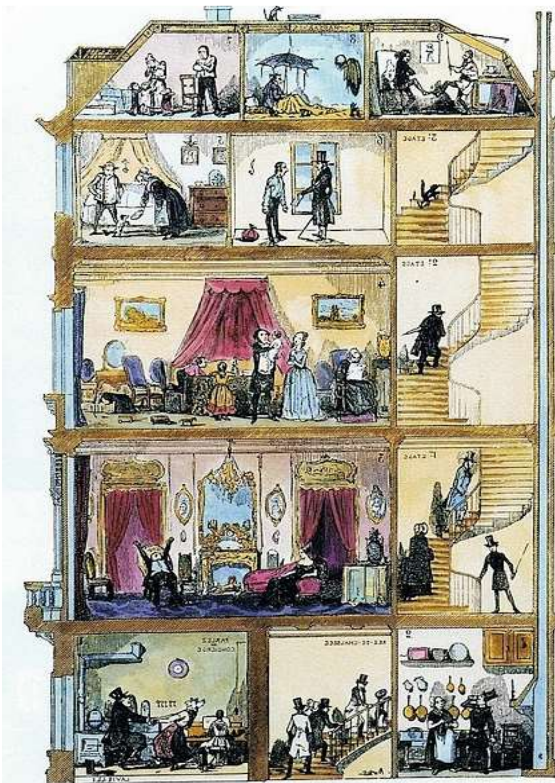


Figure 4.06 : Edmond Texier, *Tableau de Paris*

There are three main parts :

- The ground and first floors that are for a commercial purpose except for specific luxury Haussmannian Blocks. They are designed with a *bossage* to look like a base.
- The exceptional levels: the second floor is the most imposing one with a balcony that goes all the way along the facade, and the ceiling is higher than any other one. The third and fourth floor are also noble but do not have the same balcony and height.

The cause of this differentiation is due to the nonexistence of the elevator the second floor is the easiest one to get without being annoyed by the sound of the street.

- The top stories: the fifth floor is in retreat and has a balcony on all the width of the facade. The most unfortunate family lived there. And there is on top of it, the attic.¹

The apparition of the elevator will completely change the composition of the building. When it appears, the most value apartment became the highest. The small flats became large places for wealthiest people. The problem was that it is impossible to do the opposite. Therefore the levels which are lower are now used mostly as offices.

As for the rest, the Haussmannian window is codified. The dimension is the same for all of the windows facing the street the width can be from 1.2 to 1.4 meters and the height is up to the one of the ceiling. The openings were at first smaller, but the development of the heating system increased their sizes.

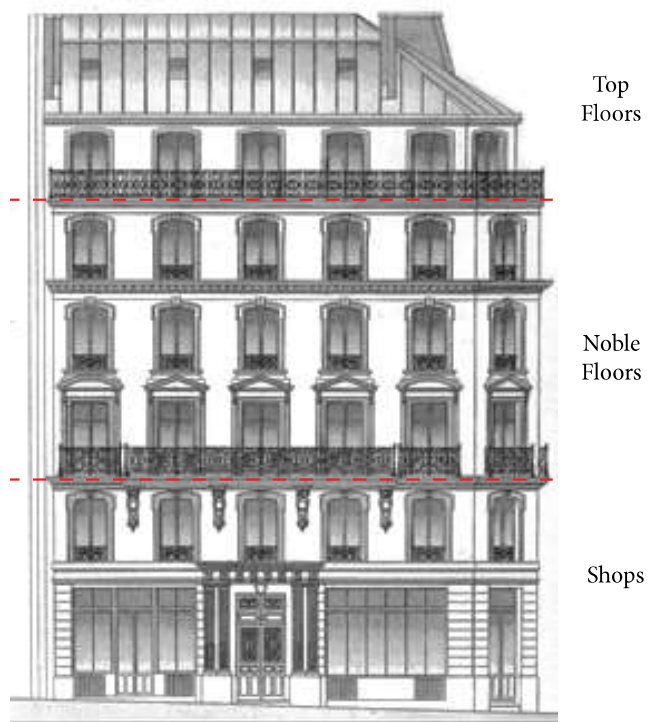
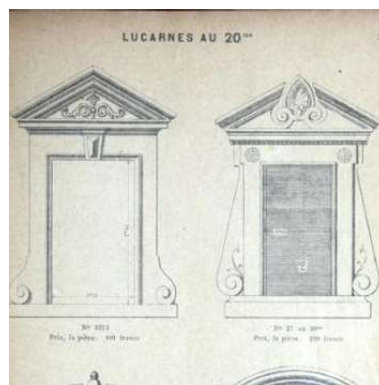


Figure 4.07 : Major lines.

¹ Atlas du Paris d'Haussmann, Pierre Pinon



Materials and Ornament

In order to have some freedom and a different style, French architect used the ornament as a response to that rigid system that marked the facade. An analysis of the ornament will be too complex and will not fit in the topic of the codification of Haussmann but it is an important aspect of the architecture. This new language is mostly aesthetic and does not follow any rules. Yet the amount and beauty of the ornament define the type of building. Actually, Haussmannian buildings are separate in three different categories from the richest to the simplest. The first one



Figure 4.08 : First, Second and third types.

is composed of six floors and have a rich ornamentation, the second one is also six floors but the ornamentation is poorest and the last one as 5 floors and simple ornamentation¹.

The materialization of the facade is what creates the unity of Paris. Haussmann imposed the use of the stone for the buildings in Paris. It was stronger, allow to build highest constructions and was safer for the fire accident. The cut stones were picked in the stone-pit around Paris. The use of one material for all the building reinforces the idea of unity so important for Haussmann. Combined with the concept that codifies the facade, the unity of the style was even stronger. The last thing that set the design of the facade is the importance of the symmetry in French Architecture during this period. The symmetrical drawing in so important that even nowadays plans are the second step after the facade in Paris.

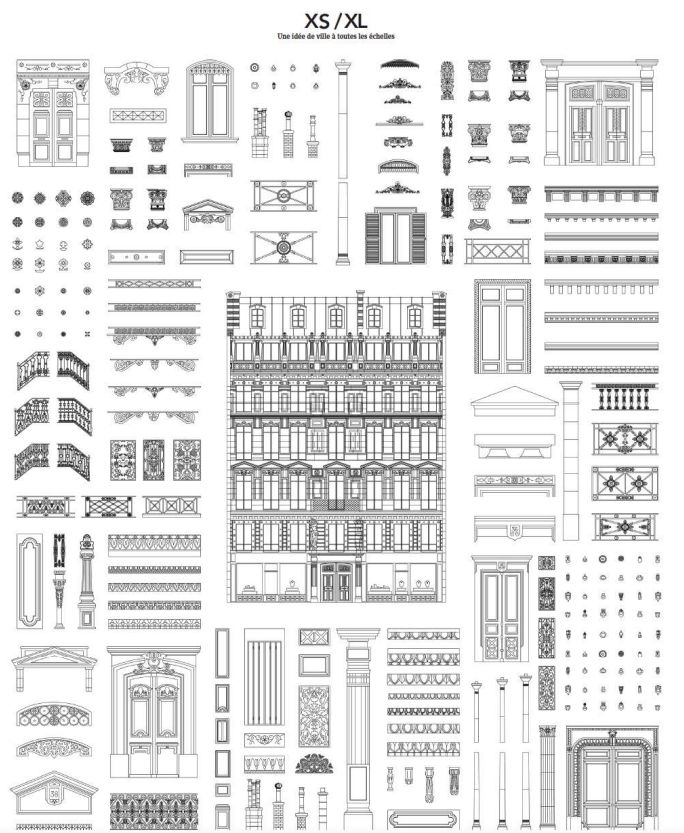


Figure 4.09 : Ornaments. Source LAN Studio

¹ *Grammaire des immeubles parisiens : six siècles de façades du Moyen-Age à de nos jours*

The window material is simple wood carpentry and one layer of glass. Its drawing is with two leaves, and the wood part is painted in white. The window is well inserted in the Haussmannian facade. The only significant difference is between the efficiency of the window in terms of climate and the rest of the elements that composed the facade. The wall is quite efficient because of its thickness -40-50 centimeters- only the ornament can create a cold bridge. The window represents the third of the heat loss in the Haussmannian facade. Most of the openings were replaced with double or triple glass windows because of the noise of the streets. On the second facade, the problem is different because the wall is made out of brick and the opening is facing the courtyard. The quietness of this place does not need sound protection. It is often this part of the building that is problematic with the attic.

In this last part, we went more into detail in the Haussmannian architecture. Considering even though there are still some precise regulations it is a bit harder to say that every building is the same. They all have the same logic but have to adapt differently to their context. The complexity of this part is also due to the other theme that Haussmannian architecture tries to solve. The functional and economic aspect has more impact on the design, on the set of rules here. The social issues, which are shown in the section of Edmond Texier, is also set to be solved by the Haussmannian machine. In the end, the regulation is based where architecture can design decoration to give a specific to their building. It creates this Haussmannian feeling where an architectural structure is set up using the symmetry, proportion and the point of view, as a program can do, with a significant amount of small decoration or architectural detail. In a way, one can say that there are several steps in the process. The regulation part, where the system is designed. The adaptation of the system to the context. The add of aesthetic and small detail. Even though if it appears that it goes from the large scale to the minor level, some element like the window is already part of the designed system.

To conclude

Through the three chapters and the different regulations that we showed, one can tell that Haussmann and Napoléon III had the intention to create an architectural and urban system that can be applied and adapted to different contexts. It is important to say that if it is a way to allow a fast urbanization, by using the same rules, it is also a way to unify the city. The need for the development of Paris was as crucial as the need to impress the world with a high architectural aesthetic. Nevertheless, during the analysis of Haussmann work, it appears that the architecture was working like a machine. The era when this urban development takes place is relevant because it is the Industrial Revolution. The construction is design as a machine with dimensions that are specific because of the different function of the Boulevard, Ilot or building. The effort of anatomizing Haussmannian architecture was essential to show that the approach was similar to the parametric one. Paris is a modern city; it is one of the densest, the pedestrian flow represents more than 50% of the total flow, only the climate is problematic, and the government focuses a lot about it. If we expect that last part, Haussmann, and the different architects, managed to set a city with the same aesthetic and the same logic. In that sense, they create this Haussmannian feeling that everybody has when they are in a street of Paris. From the proportion of the Boulevard, the disposition of the trees, the continuity of the line of the facade and the use of the same materials. All of these create this picture of Paris.

The qualities of Paris is also, the default of the metropolis. Paris is too detached from its suburbs. First of all, by the physical element that represents the Boulevard Périphérique, this high way ring that goes around the town. Second of all, the active cultural context of Paris makes it difficult for the little cities that composed the suburbs to exist. It is impossible to recreate Haussmannian style because it is based on its appearance and the stone that was used «Pierre de l'Oise» is too expensive. But anyway, the point is not making a replica of Boulevard inside the suburb. It is to reuse the Haussmannian logic with contemporary issues such as the climate which is never



considered in his work. This essay wants to show that the Haussmannian architecture is not just an aesthetic design. The logic can be reused in the development of the Grand Paris as a way to have continuity in the construction of the metropolis.

Haussmannian style in the new construction in the suburb is a marketing argument. It means a building which is traditional and luxurious. The abstraction of the architectural qualities of the building only for its appearance lead to the failure of the inscription of this construction in the landscape of the suburb.

First of all, a lot of things have changed, the mobility, for instance, the creation of the elevator, the use of the concrete. These changes have an impact on Haussmann design and cannot be just added but have to be part of the plan of the new system.

The discussion was also about the limit of the Haussmannian DNA. First, as intuition, the idea was to develop this DNA until it collapses, can it get higher or denser, for instance. These questions are already solved because contemporary construction that used Haussmannian style have already more floors than the one of the 19th century. There are also smaller building with only three levels. During the different chapter, we showed that the limit is the lack of flexibility at a certain point. There is no example of a Haussmannian building that forces the design system to fill the particular site. In most of the place, Haussmann modifies the context. This limit of flexibility in the code of the DNA and the lack of interest for the climate in the building will be tackle during the project. In a different context, more technologic, less dense, less modifiable as the suburb, the Haussmannian logic has difficulties to work. The modification of its DNA might help, the project will be of this new type.

Bibliography :

- *Agrandir Paris*, Loic Vadelorge, Edition de la Sorbonne, Paris, 2012
- *Haussmann*, Michel Carmona, Fayard, Paris, 2002
- *Atlas du Paris d'Haussmann*, Pierre Pinon, Parigramme, 2000
- *Deplacement dans les Villes Européenne*, APUR
- *Abécédaire de la Future Métropole du Grand Paris*, APUR
- *The Global City*, Saskia Sassen, Paperback, 2001
- *Paris Contemporain*, Simon Texier, Parigramme 2010
- *Nouvelle Histoire de Paris : Histoire de l'urbanisme à Paris*, Pierre Lavedan, Hachette, 1993
- *Identification d'une ville : l'architecture de Paris*, Eric Lapierre, Broché 2002
- *Paris XIXeme Siècle : l'immeuble à la rue*, Francois Loyer, Fernand Hazan, 1993
- *Les Grands Boulevards de Paris*, Patrice de Moncan, Broché, 2002
- *Haussmann*, LAN Studio, Edition du Pavillon de l'Arsenal, Paris, 2017
- *Formes urbaines : de l'ilot à la barre*, J.Castex, J.Ch. Depaule Ph.Panerai, Broché, 1993
- *Grammaire des immeubles parisiens : six siècles de façades du Moyen-Age à de nos jours*, Claude Mignot, Parigramme, 2013

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