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EQUIPMENT FOR CONTEMPORARY PUBLIC SPACES: BASES AND PRINCIPLES FOR THE DESIGN AND PRODUCTION OF URBAN FURNITURE

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CRISTÓVÃO PEREIRA

EQUIPMENT FOR CONTEMPORARY PUBLIC SPACE: BASES AND PRINCIPLES FOR THE DESIGN AND PRODUCTION OF URBAN FURNITURE

INTRODUCTION

More than the buildings clustered in a given territory and the spaces that mediate them, "the city is the people on the street" (Borja and Muxi, 2001). It is, in fact, people who make the city by transforming the spaces between city buildings, which today are called "public spaces", into places for collective use, shared and with more or less free access. Those spaces have always been, probably anywhere in the world, a fundamental element of society and of the daily life of every individual.

The prominence that the public spaces of cities maintain to this day justifies in itself their study, planning, management and design. However, attention is also justified, and even necessary, by the specificities of this environment, whose approach cannot be the result of simply translating principles, strategies, methods or any procedures from other situations, realities or areas of knowledge.

It is this importance and specificity that today defines Urban Design as an area of knowledge and activity. Consensually considered to be interdisciplinary, this area extends to the research, design, production and management of objects, artefacts, products and the product systems that public space is equipped with, including street furniture and micro architecture.

The *agregação* tests in Equipment Design held in June 2022 at the Faculty of Fine Arts of the University of Lisbon (FBAUL)[1] were based on the premises below and they have also served as the basis for our research and teaching activity in recent years. They are now the premises of this book: Public space is fundamental to cities, but only when it has people; Public space requires a specific design approach, that of Urban Design; Urban furniture should be part of that approach, given its importance to the quality of urban life

The result of this reflection led to a set of bases and principles for the design and production of street furniture as equipment for the public space of the contemporary city. Assuming its interdisciplinary nature and based on these ideas, we also propose a reflection on the place of Urban Design in a higher education institution.

The first part of the book presents an overview of the evolution of public space in cities, by reflecting on basic concepts of the city, public space and street furniture. Together with an analysis of the uses and demands of its users, the concept, role and programme of public space for the city in the context of contemporary challenges is presented. The functions and performance of street furniture and the other resources that public space must contain for its proper use and enjoyment are highlighted, and an introductory reflection on the Urban Design field of knowledge is also included. At the end of this section, the specificities inherent to thinking about, designing, making, using and maintaining public space and street furniture are presented with the aim of creating a system of principles for the design and production of this type of equipment.

The second part suggests a framework for Urban Design in higher education in terms of teaching/learning, research and service provision. Given the challenges facing the city today and its public space, the aim is to highlight the advantages and opportunities of – as well as the need for – more dedicated learning and research, using FBAUL as a reference.

The book builds on the research we carried out previously and is intended as an introduction to the study of Urban Design, specifically in the area of public space equipment, while at the same time making a contribution to training, design pedagogy and research into the topics covered. It could also be an opportunity for a broader reflection on everyone's role in the city we live in, on what we want from it and, in particular, on the current challenges its public space faces.

1 For these tests, a report entitled "Introductory concepts and principles for the design and production of Street Furniture" was presented regarding the curricular unit of Urban and Interior Design I of the Master's in Equipment Design at FBAUL. A lesson was also presented for the same curricular unit, entitled "1. Introduction to concepts and general principles of Urban Design", from session 10 of the lesson plan proposed for the same curricular unit.

1
INTRODUCTORY CONCEPTS AND PRINCIPLES FOR THE DESIGN AND PRODUCTION OF STREET FURNITURE

1.1. The city and the public space

1.1.1. What a city is and what makes it a city

The extensive and in-depth discussion about the city demonstrates the great complexity of this subject. Diverse and plentiful opinions have been published, given the multiplicity of points of view and frameworks with which it is possible to approach a subject that, besides being multidisciplinary, is actually very close to all of us.

We would say that the city is probably the best material representation of the society and civilisation that made it. However, we must always remember that the city is more than the buildings and spaces that make it up, since it was from a whole set of dynamics, uses, relationships, interpretations, etc., by its inhabitants that these spaces and buildings emerged and made sense.

When we look at a panoramic image completely occupied by buildings, we immediately think we're looking at a city. This is what we deduce from the size of the continuous agglomeration we see. In fact, the idea we have of a city is, first and foremost, that it is an extensive collection of buildings.

Then, if we further analyse the same image in detail, we are able to perceive the differences in the configuration of the buildings present. Those differences may indicate that the building have different functions, which helps us to confirm that we are observing a city. In addition, if this detailed analysis allows us to identify a specific building, we will be able also using other characteristics of the landscape in question to confirm which city it is.

We will only be able to conclude that we are, for example, looking at a panorama of the city of Lisbon if, firstly, the cluster of buildings observed is of a size that we consider to be similar to those of that city. We will also have to be able to identify some characteristics that are proper to Lisbon, such as the orography of "*Sete Colinas*" ("Seven Hills"), the Tagus River, or what can be seen on the horizon. In addition, we will also have to be able to identify some of the buildings that we already know belong to this city, which will have to be correctly located, both in relation to others and to their surroundings.

Over time, many cities have been represented through a panoramic image. There are several such representations of the city of Lisbon, as the one by François Philippe Charpentier (Figure 1).

This type of representation of a city, a panoramic view showing a cluster of buildings, with the most notable ones (palaces, churches, etc.) being in the spotlight and eventually identified in the caption, is very common. It should also be noted that, and this is important for what we are going to discuss next, in this image other elements of equal importance to the city of the time, namely fountains and drinking springs, are also commonly depicted.

We can therefore conclude that our first idea of a city is that it is an agglomeration of buildings with a certain extent, some of which have specific and indispensable functions. Because, in fact, a city is not only a place with a lot of inhabitants, but it also contains various facilities, equipment, services and all the resources that we now consider indispensable for living well. This is an established definition, even by Portuguese law: a city is an agglomeration of population of a certain size, in which there is a specific set of collective facilities.[1]

However, upon further reflection on this quantification and list, it is easy to see that not only it is somewhat vague, but that the concept of a city is much more complex, both because of the references and because of the diversity of contexts and parameters that need to be weighed up.

Very briefly, we can consider that conceptually the city is defined by a set of particularities (Mumford, 1938; Broadbent, 1990; Shane, 2005; Borja and Muxi, 2003):

— By the contrast and separation established with its surroundings. Physically, a city or any settlement can be determined on the basis of the classic urban/rural opposition. When its boundary is not physically clear,

1 Article 13 of Law No. 11/82 was repealed but is eloquent: A town can only become a city if it has a continuous population of more than 8,000 voters and has at least half of the following public facilities: a) Hospital facilities with on-call service; b) Pharmacies; c) Fire brigade; d) Concert hall and cultural centre; e) Museum and library; f) Hotel facilities; g) Preparatory and secondary schools; h) Pre-primary schools and nurseries; i) Urban and suburban public transport;

for example by an existing wall, we deduce that we are "inside" or "outside" the city by comparing the configuration of our surroundings to the idea we have of a city.

— By the complex and compressed social structure it contains and organizes. A city is also defined by having a higher population density, which means that its inhabitants have to be closer together. The society that is formed in this way has to be even more organized and structured.

— By its relationship of dominance over or centrality in relation to the territory in which it is located.

— By its nature, the city depends on the territory that surrounds it and over which it exercises control. By the same nature, the city is the confluence and meeting point for all those who are dispersed throughout that territory and is the point of contact with other cities and territories. It thus becomes their centre and also their point of reference.

— By the sharing and specialisation of labour it provides. Community life means less need for self-sufficiency, which allows the inhabitants of the city to dedicate fully to one type of activity. The resulting specialisation allows for better and more efficient production, as well as the exchange of better quality and cheaper services or goods.

— By using and sharing the collective equipment available to them. In community life, what is common to all is emphasised – and also established. Common solutions are created for the same needs, aspirations and opportunities. In addition, community life also allows for confluent, collective and collaborative work that results in unique objects, structures, buildings, equipment and resources that would otherwise not be possible and that can be used by everybody.

— By being a place where power is exercised and asserted. In social life, with more or less agreement and regardless of the regime, rules are necessarily established, and therefore power. The city, as a place of meeting and confluence, is also the place of power and, necessarily, of its challenge.

However, we can still see some blurriness in these characteristics, even if they are intended to define an abstract and theoretical concept, especially if we look at how cities are created today. If we consider the definition of a city based on the contrast with its surroundings, it wasn't so long ago that the city walls clearly marked the city's boundary and

gave prominence to its surroundings, which facilitated its identification. As a consequence, cities were represented by a densely built-up area, clearly separated from a not built-up cultivated area by a wall. This is the example of the so-called "Pastrana Tapestries" (Workshop of Pasquier Grenier, Tournai, no date) (Figure 2).

However, with the passage of time and especially with the development of technology, particularly military technology, walls became obsolete for defending and protecting cities. The rapid and accentuated growth of cities, which has definitely contributed to the disappearance of these strait-jacket structures, culminates today in the so-called megalopolises, megacities or global cities (Ascher, 2007; Borja and Castells, 1997).

It seems that, contrary to what was predicted a few years ago, even in the Information Age cities show no sign of disappearing; on the contrary, they continue to grow (Borja and Castells, 1997). Several cities are growing to the point of merging with their neighbours, forming gigantic urban continuums. This is the case of the megacity on the Pearl River Delta in China. Made up of the municipalities and special administrative regions of Shenzhen, Dongguan, Zhongshan, Jiangmen, Huizhou, Zhuhai, Guangzhou (Canton) and Foshan, Zhaoqing, Hong Kong and Macau, covering an area of around 56,000 square kilometres, its population was estimated in 2022 to be over 86 million people. (HKTDC Research, no date). A city on this scale, together with its rapid growth and constant mutability, makes it very difficult to understand where it begins and ends and what is its structure and identity, in other words its "image" (Lynch, 1990).

In addition, the current city model prioritises fluidity and good connectivity between all areas, housing, services, facilities and all other buildings. And the larger the agglomeration, the larger and more numerous the flow networks have to be. The results of this predominance may even lead us to question whether we are still in the city, even if we are well within its administrative boundaries. Take the Chelas area in Lisbon. Roads several lanes wide converge at complex uneven junctions, creating slopes and tunnels with secondary pedestrian accesses that nobody wants to go through, pushing the neighbourhoods further apart from each other and definitively severing the cohesion which is essential to the idea of a city (Figure 3, Figure 4).

Flow networks, including not just roads but also all other resources (electricity, water, communications, sewage, etc.) are fundamental to the contemporary city and society. We could also include other flows, perhaps even more vital, such as pedestrian circulation or even air and sunlight. The space that exists in the city between constructions and buildings is empty of them, because it is – and must always be – the channel for all the city's flows. Its preservation as such is a guarantee of the city's continuity and vitality.

However, the excessive dedication of this space to flows reduces its quality and its contribution to the city. This is something that we can often see in our everyday city life, not only due to the "weight" of road networks, but also other networks, such as the overhead electricity network found in many cities and in many countries.

We can then imagine the dystopia of the absolute confinement of this space to the minimal and strict function of a network of flows and their networks, where between buildings there is only room for rapid passage. But places like this are real, one of them being Kowloon, the ungoverned enclave inside Hong Kong in China. Massive unregulated construction only stopped with its demolition in 1992, when it reached a population density of 1,930,000 inhabitants per square kilometre. Here, where every square centimetre had to be occupied, narrow corridors with no natural light prevailed between dwellings, where people circulated through pipes and amidst cables (Figure 5, Figure 6).

One of the great challenges that cities still face today is the pressure of flow networks, especially car traffic, where private vehicles are the main protagonists. In the space between buildings – public space, as we will see below –, the predominance of crossing uses to the detriment of staying uses affects the quality of cities and the quality of life of their citizens.

Recently, awareness of the absolute need for good quality public spaces in cities has risen. We can see that some measures have been implemented to reduce this predominance, seeking a better balance between pass-through uses and staying uses. Much remains to be done, but today we are all surprised by images from the past that show important squares in Lisbon entirely converted into car parks, as was the case with Praça do Comércio until almost the end of the last century (Figure 7).

But it is also possible to consider other challenges that cities and their public spaces are currently facing, given the profound changes in the way public spaces are used and are required to perform. Some of these changes could, in the extreme, eventually lead to the emptying both of their use and their usefulness.

Several authors have addressed this issue, including Sert (1951), Lynch (1990), Cerasi (1990), Castells (2002), Naredo and Rueda (1997), Borja and Castells (1997), Borja and Muixi (2001), Ascher (2007), Brandão and Remesar (2000), Valera and Pol (1994), Pol (2002) and Vidal and Pol (2005). Of these, Borja and Castells present, from the perspective of a contemporary framework, a reflection on these challenges that can be systematised as follows:

— Direct challenges from globalisation questioning the new role of cities, as they are the meeting point between the global and the local, competing with each other in an international network with an uncertain and volatile hierarchy;
— Direct challenges from the new means of communication which, by making information widely available and homogenised, favour the predominance of flows over places, contributing to metapolisation (delocalisation and desynchronisation of the individual) and identity crises;
— Challenges arising from megacities, a territory that is increasingly difficult to manage, with blurring boundaries and borders and a tendency towards suburbanisation and exclusion, in which the citizen, increasingly unable to understand it, abstracts himself from it, living in it with insecurity (although more out of notion than actual experience) and – paradoxically – without having an actual urban experience;
— Challenges arising from profound changes in society and from the demands of society to the city and public space, as a result of a transition from the public to the private and from the collective to the individual. The ancestral functions of collective space are transitioning towards new means of communication and information, to new offers of recreation, entertainment and leisure and other contexts, as a result of the evolution of quality of life standards that favour individual use, private property and the generalisation of consumption;
— Challenges arising from the relativisation of principles and values, the blurring and flexibilisation of concepts and boundaries;

— Challenges arising from the need to reduce the excess consumption and overuse of natural resources, especially in construction, the high consumption of land in its conversion to construction for urban use, the excess consumption due to high mobility, in addition to the excessive general waste resulting from the growth of private property, individual use and reduced reuse;
— Challenges arising from complying with contemporary principles of democracy, accessibility, inclusion, freedom and equality, given the increasingly large and diverse user groups and the growing number of user characteristics to be observed, including cultural and social characteristics.

1.1.2. Public space

Sometimes solutions come from a different way of looking at problems. Views and panoramas like the ones we saw earlier show us a city above all through its buildings, through their physiognomy and the way they relate to each other and to the landscape under observation. In turn, like many others, the engraving "*Olissipo quae nunc Lisboa...*" by Georg Braunalso shows Lisbon with the layout of its agglomeration of buildings and facilities, with the most notable ones identified (Figure 8). However, from a different point of view, the space between the buildings is also represented, allowing us to understand the configuration of each of the streets, squares and plazas, as well as how they combine with and are relate to each other, thus explaining us what this network is.

Because, after all, more than an agglomeration of buildings, more than a set of services and equipment for common use and utility, the physical city is also made up of the indispensable that is not built, its public space.[2].

2 With regard to this definition, we must bear in mind that "public thing" as a legal (and therefore civic and political) concept only exists from the second half of the 18th century, at least in Western society. While these Enlightenment concepts were inspired by what would have been an ideal of ancient societies, it was only at that time that the principles of contemporary democracy began to arise. This gave way to the emergence of that which cannot be individually appropriated, because it fulfils a certain collective need, has to do with fruition rights and is not delimited, as is the case with the sea, airspace, subsoil and the "public road". Therefore, if from the outset cities are made up of their buildings and the space that surrounds them, it would be more correct to consider that the "collective space", made up of streets, avenues, squares, plazas, etc., should only be designated as "public space" from that moment onwards. (C. Valente Pereira, 2012)

This "emptiness", which also defines the city and its character, is vital to it. As we have seen, the emptiness is vital not only because it is the channel for the various flows, but also – and perhaps above all – for the same reason that has led Jane Jacobs (1997) to say that public spaces are the city's most vital organs[3,4] (Figure 9).

Public space is, or should always be, to be used and freely accessed by all its inhabitants and citizens. To this end, we must also ensure pedestrian flows, with the necessary requirements so that they are functional, safe, but also of quality and attractive.

But public space, for its fundamental quality, must not be limited to good use of flows. In order to better guarantee its quality, as well as its survival, it must in fact be a place of diverse uses and go beyond what we might consider to be transit uses. Because, in fact, flows use the public space above all as a channel, as a means of connecting an origin with a destination. In addition to these uses, there must also be those where the public space is itself the main objective, the destination. These types of uses, of staying (as opposed to those of passing through), are also the founders of the cities' collective or public space and are, in the contemporary city, the aforementioned guarantee of its subsistence and quality.

Public space as a place of shared resources

As we have already seen, the city is also defined by the use and sharing of its public equipment. Obviously, the sharing in question will depend on their users being allowed access; if we want that something is shared by all, its access must also be universal. Therefore, a resource or piece of equipment in a city will only be accessible to all its inhabitants when it is in its public space.

3 "Streets and their sidewalks, the main public places of a city are its most vital organs. Think of a city and what comes to mind? Its streets. If a city's streets look interesting, the city looks interesting; if they look dull, the city looks dull."(J. Jacobs, 1997, p. 29).

4 With regard to what this author says, and other Americans, It is important to bear in mind what normally, or originally, constitutes public space in US cities, which doesn't include squares, plazas, fields or other non-linear spaces that are so important in many other cities and cultures, particularly European ones. See also the case of Kevin Lynch who, in his seminal work "*The Image of the City*" (1990) considers that the elements that make up the city are "paths", "edges", "districts", "nodes" and "landmarks".

The water that today reaches the homes of those who live in large cities was, for centuries, obtained from wells, fountains and drinking springs, many of which were found in the streets and squares.[5] The "Águas Livres" project was an important undertaking for Lisbon, both because of the serious lack of water that the western part of the city was already experiencing in the 16th century and because of the investment it required. For this reason, several of its fountains were also planned with the aim of having a strong presence and visibility in the city. To this end, the work of the most renowned sculptors of the time was commissioned to embellish them, thus ensuring that the intended monumental character was achieved (C. Valente Pereira, 2002) (Figure 10).

Given that the quality of life parameters evolved and so did the required technology, there are fewer and fewer shared-use resources and equipment to be found in city streets and squares. The disappearance of many telephone and post boxes that we have seen is the latest example of the many resources that have "migrated" from the public space to our individual space and use.

But note the return that happens in crisis situations. Even at a time when we have almost everything we need at home (and even what we do not need), we return to the streets in times of crisis and scarcity. Take the case of shortages of water or cuts in the water supply network, which we are told is being distributed by a fire brigade's tanker, the photo of which shows people getting their water from a piece of equipment in a street or square.

In another episode of crisis, a strike in a match company in 1920, the photojournalist Joshua Benoliel is photographed lighting a cigarette in a "public candle", installed by the Lisbon City Council (Vieira and Rodrigues, 2009). Again, a resource for individual use, whose scarcity forced its conversion into a "public" good (Figure 11).

These examples show us that the public space retains its nature as a place where resources are shared, especially those that are most essential and scarce.

5 It should be noted that the sharing of equipment like these was so important for the city that even in cases of "organic growth", or where building was not planned, the vacant space around it was maintained to ensure better access. Many of the squares we still find today were actually formed that way (Teixeira, 2001).

Public space as a place of trade and manufacture

In Lisbon before the 1755 earthquake, the existing Rossio had a different configuration but was already a wide open space within the densely built-up city. This strong contrast in the occupation of the territory shows that a void was kept within the city so that the market and fair activities that took place there could continue.

This continuity in a city with high population growth and density shows the importance of this use not only for the citizens but also for the city itself. As we have already seen, the city is ancestrally the centre of a territory, and therefore its meeting place and the interface with other territories. With these conditions, it is also ancestrally defined as the place of exchange, including commercial exchange. Various representations of the collective space of squares and arenas, such as the Rossio in Lisbon, include rows of market stalls placed on the square. They were usually located close to the city gates at the time, so that the goods to be exchanged and bartered did not have to travel further into the city, thus avoiding additional problems of traffic congestion (Teixeira, 2001).

Another important place in Lisbon for the same purpose and at the same time was the so-called Rua Nova dos Ferros or Rua Nova dos Mercadores, depicted in detail in a 16th century painting from the Kelmscott Manor Collection. It was the most important commercial centre in the city at the time, the main depot for goods brought to Europe from all over the world. Its unusual characteristics in the context of the city at the time, namely its wide rectilinear configuration and its paving, demonstrate the importance that this street had for Lisbon and society at the time (Trindade, 2016). We should also mention another particularity of this part of the city, whose alternative names confirm its importance: in this Rua Nova dos Ferros there was a fenced-off area with "ferros" (iron), which would have been the site of the aforementioned main trade. This street, and especially this enclosure, would be what is now the Lisbon Stock Exchange or Euronext Lisbon (Justino, 1994).

Trade is therefore an activity that is umbilically linked to the public space, and it is reciprocal the importance they have to each other. But let's bear in mind that in its origins the exchange of services also took place predominantly in the public space. Many of these exchanges are now only present in our memory, while others can still be witnessed,

such as the rare shoeshine boys in the cities of Portugal or the barbers who can still be found in some cities (*Why the Indian Barbershop Is a Unique Institution, 2016)*.

As can already be deduced, trade is not the only type of labour activity that is natural to the public space. Manufactured goods obviously depend on commercialisation, so it is easy to assume, especially in a pre-industrial city, that some of the items were often manufactured in the same place where they were sold, as can still be seen today, for example, in traditional fairs and markets.

But other manufactures, not linked to their immediate trade, could often be seen in the streets and squares of cities. In a city where maritime activities are significant, it is still possible to see, for example in some Portuguese fishing villages, the repair of fishing nets.

And even heavier manufacturing, requiring more people, resources and space, would often take place outdoors, at least in places where the climate allowed it. Today, many of these activities have moved inside buildings, but activities such as tanneries (Guillerme, 1983) in a pre-industrial city would certainly be at least visible to passers-by. Note also the names "Cordoaria Velha" ("Old Cordage") and "Cordoaria Nova" ("New Cordage), urban spaces around the Convento de S. Francisco da Cidade indicated on João Nunes Tinoco's plan of Lisbon in 1650 (1853).

Public space as a place of visibility and great things

As a place of confluence, encounter and sharing, the public space of cities is also the place of big things, the place where large-scale objects, structures and constructions are located. Not only because of its obvious capacity, which is incomparable to that of other spaces that are not "open-air", but also because it is, by its very nature, a space without limits. As a space of confluence and universal access, as discussed, and the place of flows and accesses, its continuity and unity are fundamental to it. As such, its nature is also defined by visibility: public space is the place with the greatest visibility, a characteristic that applies not only to itself, but also to everything it contains.

But by big things, I mean that the public space is also the place for big events. Its characteristics are equally favourable to events where a large number of people take part and events that are of great importance to the city and its society (Figure 12).

Public space as a place of civic activity, law, affirmation of power and its challenge

Because of its characteristics and the uses it allows, the public space of cities has always been the place par excellence for civic activities. Again, as a place of encounter, confluence and great visibility, it is also the place for discussion, conciliation and confrontation. What happens there and what results from it becomes part of everyone's knowledge and part of the memory, culture and identity of the city and its inhabitants. It is from this perspective that the multidimensional importance of public space is unveiled, at least in the *urbs*, *civitas* and *polis* aspects that Borja and Muxi (2003) list, as we will discuss again. In this regard, let's remember the ancestral existence of spaces where the population gathered for these purposes, from the forums and agoras of Classical Antiquity, to the forums, courts and pillory squares of various Portuguese villages and towns. In fact, many of the foundations of our society have been established in the open air and with the whole population present (Figures 13 and 14).

Moreover, regardless of the political regime, the public space has always been a place for demonstrating and asserting power. We very often see public art being used for this purpose. And the squares and plazas of cities have also been the stage of punishments and executions as only in full view of the public will they have the desired effect of serving as an example (Figure 15).

But the public space is also the place where power is challenged and disputed. Many of the decisive moments in the history of many cities and countries have taken place in public spaces. In the revolution that led to the establishment of the Republic in Portugal on 5 October 1910, monarchist troops in Rossio clashed with republicans barricaded in the Rotunda (now Praça Marquês de Pombal) (Figures 16 and 17). The Republic was proclaimed from the balcony of the Lisbon's Council Chambers, in front of a crowd that filled the Praça do Município. At another decisive moment in the Portuguese Revolution of 25 April 1974, the Armed Forces Movement and the units still loyal to the old political regime clashed in the streets of downtown Lisbon and reached an understanding, thus avoiding bloodshed. On the same day, the population wanted to witness the surrender of the then President of the Council of Ministers and the end of the regime in Largo do Carmo (Figure 18). On the following 1st of

May, one of the most participated demonstrations ever took place. The population wanted to commemorate what had been up to then a forbidden date and express their support for the recent revolution and the new democracy.

Public space as a place of collective celebration and reaffirmation of identity

Since public space is the place of greatest visibility, a characteristic that applies not only to itself but to everything it contains, it is a fundamental constituent of the city's "face". The identity of a city is defined largely by what is perceived in its public space: by the configuration of its streets, avenues, squares and plazas; by its monuments, buildings and other things we find in it; by the people, their habits and behaviour; by the life that results from all this, not only appreciated by foreigners and tourists, but fundamental to the inhabitants themselves, since it also constitutes their own identity.

As part of this important role for the city and society, public space is often used as a place for celebration and festivity. On unique or regular occasions, but always special occasions, people take to the streets to celebrate together and also to better express and confirm the legitimacy of their state of mind. There are many occasions in cities around the world equivalent to, for example, the celebrations of the Portuguese football team's victory in the 2016 Euro, or of Saint Anthony's night in Lisbon. A case in point is the gatherings to dance the Sardana in Catalonia. As it is a symbol of community unity and pride, Catalans make a point of meeting regularly, as they do every Saturday night in the square of Barcelona's Cathedral with the clear intention of preserving and reaffirming their identity (Figure 19).

Public space as a place and channel of communication

As it is a place of visibility and encounter, as we have already seen, as well as of flows, the public space is also a place and channel for communication. In fact, this is an equally ancient use: without the means of communication we have today, anyone who wanted to keep up to date with the latest news had to look for them on the street. Graffiti is also a testimony of this function of public space, since it is after all a centuries-old activity, as shown by the testimonies that have reached us today from the Roman cities of Pompeii and Herculaneum.

The countless communication channels we have at our disposal today are not only accessible to us in our homes, but also virtually anywhere we are. However, the public space retains its importance as a means and channel of communication in today's city and society. The business of advertising in public spaces is a good example of this, and is still thriving and growing.

The public space as a place of daily life and day-to-day activities

From what has already been discussed, it is possible to understand the importance of public space and all the uses and performances that can take place in it. However – and we must never forget it – public space is also part of our daily lives. Because it is also, and always has been, the place to rest and be distracted, to socialise and meet, to watch passers-by or simply to do nothing, which is also very important (Figure 20).

Summary

To summarise, the collective/public space of the city can be defined as:

- A place with uses related to flows;
- A place with unique equipment and resources;
- A place of exercise and affirmation of power, law and other civic activities;
- A place of diverse economic activities:
- Various manufactures
- The provision or exchange of services
- Exchange and trade of goods
- A place for recreational and leisure activities;
- A place for various and frequent social events in general: Day-to-day events; Extraordinary events.

1.1.3. The current challenges of public space

As part of the already discussed challenges that, in general, cities face today, some of them particularly affect the public space. Firstly, many of the uses and activities we have referred to no longer take place in public spaces, even though they maintain their importance in society and, for the most part, still exist within cities. In fact, many of these uses and activities have been transferred to other spaces, partly because it has become necessary to use more suitable and specialised spaces for those purposes, but in many cases this transfer

has been made to the domestic and private space.

This downward trend in the use of public space means that it has become confined to leisure and recreation, in addition, of course, to the uses of flow passing. However, we are also witnessing a significant evolution, both in terms of quantity and diversity, in the range of other leisure and recreational activities on offer, most of them in places other than public spaces.

There will thus be a tendency for public spaces to lose their function, which makes it necessary to reflect on the consequences for the space itself and for the city, and therefore for society and each individual, as well as on the present and future role of public space in the city and society. To this end, it is essential to assess which uses and activities we should preserve, as well as those that we should returned to, of course taking into account the contemporary constraints and assumptions. With this in mind, it is also important to define what opportunities there might be for new uses and activities within the public space.

1.2. THE EMERGENCE OF URBAN DESIGN

The first industrial revolution began by generating a great deal of unplanned urban growth, due to the construction of as many houses as possible in a minimum space for the workers of the new industries. In opposition to this rapid unplanned growth, new urban ideas emerged along with social reforms. As a result of the new sanitary principles that were being imposed, but also of the new ideals of the bourgeoisie and their relationship with the city, its public space became a definitively central element of the city and one of the main targets of the major transformations that took place during the 19th century in the world's main metropolises.

In the industrial city of the 19th century, a new concept of public space was established by the bourgeoisie who defined a new model based on new paradigms of use, and even, of behaviour. Once the importance of this component of the city was recognised, especially in terms of representing the image of society and the city, along with the foundation of the concept of "public space", profound transformations occurred in various cities across our country, Europe and other continents. With this new alignment, there were systematic operations to plant new gardens and parks, open new avenues and major roads, seeking better conditions for city life, but also to create an image of a cosmopolitan metropolis at the forefront of the technology of the time.

In effect, squares, avenues, gardens, parks and other new types of urban spaces became common due to a new attitude with aesthetic concerns where the landscape and a monumental project elevated these spaces to more than the merely functional solution that was needed to solve the new problems of sanitation and traffic circulation. Paris for example, despite being a consolidated city in the 19th century, due to the "*Grands Travaux*" carried out between 1850 and 1870 by its mayor, the Baron Haussmann, saw its dense urban fabric, still largely medieval, profoundly altered through the superimposition of a network of new streets, where *boulevards* were aligned according to railway stations and other "new cathedrals". It was, in fact, a huge undertaking, not only because of the large area involved, but also because of the level of detail that went into the project. That was the contribution of Jean-Charles-Adolphe Alphand, who, as part of the design team, not only designed all the parks and gardens, with all their lakes, waterfalls, greenhouses, etc., but also their kiosks and other small buildings, as well as the railings, benches and all the necessary street furniture. This also happened in the rest of the city's urban spaces, where the standard cross-sectional profiles for each new street are defined, including the details of the new lighting and the various underground ducts. This is shown in his work *"Les Promenades de Paris"* (Alphand, 1867), which was certainly an important vehicle for disseminating this new city model throughout the world and which, it should also be noted, greatly benefited the industries that produced this new equipment, especially the French ones, such as the Fonderie du Val d'Osne, which exported a lot to Portugal (Águas, 2009; Barradas, 2015).

This is a design programme that could be called "aesthetic-urban" (Carmona et al., 2010). It is defined above all by a more visual aspect of the landscape and the garden. It would evolve into other theoretical models that had great repercussions, such as Ebenezer Howard's "Garden City", a 1989 concept that proposed "sanitation through nature and social reform" (Mausbach, 1981).

It was with this in mind that the Athens Charter of 1933 was drawn up. It contained the basic ideas of the International Congress of Modern Architecture (CIAM) held in that city, on which Le Corbusier had a major influence. Considered seminal for Modern Architecture, this charter also established other guidelines for contemporary Urbanism, such as the organisation and structuring of cities by mono-functional zones, the coherent separation of pedestrian and car transit, the effective solution of car traffic and parking problems, the creation of residential areas with enclosed and more differentiated spaces and with their own urban core, and the reduction in building density and increase in the number of open areas through the construction of high-rise housing blocks. (Mausbach, 1981).

This rational and functionalist approach according to which the city should be organised and structured by mono-functional zones obviously presupposes more mobility and transit. The subsequent exponential development of the car industry and market throughout the 20th century also has a particular impact on cities around the world. With the huge increase in the number of vehicles for individual and private use, the intensity of traffic also increases with more speed, noise and smoke emissions, as well as its incompatibility with staying uses. Transit becomes the priority, even though today an individual car stays parked for around 95% of its lifetime (Bates and Leibling, 2012). This further worsens the problem of occupation of cities by cars and the quality of the public spaces.

The supremacy of pass-through uses thus established, especially road transit, to the detriment of pedestrian and staying uses, results in a decline in both the quantity and quality of public spaces. Using the same rational and functionalist approach of the Athens Charter, an attempt is made to reconcile new concepts by separating pedestrian areas from road routes and breaking up the traditional, diverse and multifunctional street.

After the Second World War, several cities, towns and neighbourhoods in the United States, as well as in Europe under reconstruction, were planned according to these urban planning principles. However, its results have led many architects and urban planners to question the somewhat elitist attitudes of their own professional class and to reflect on who their clients really were and what their roles consisted of. As a consequence, they began to consider issues beyond the physical surroundings. Various challenges were then launched and alternatives proposed in the 1960s and 1970s, with new words emerging such as "social planning", "community-based planning", "participatory architecture", "process architecture", "advocacy planning" and "self-building", among others, following proposals by Patrick Guedes and Frank Lloyd Wright that aimed to mobilise more people to the design of their own surroundings. (Ellin, 1999). This was the beginning of a search for alternatives to the city of modern thinking, which should be conceived, planned and built "like a machine" and which alienated its inhabitants not only from their intervention or participation, but also from their public space.

A new line of ideas for the city appeared that recognised the importance of public space in its, shall we say, "classical" definition and form. An example is the "townscape movement" that began to take shape in the USA in the 1950s as a reaction to the modernist tendency to see the city as a "sculpture garden" (quoting A. Jacobs and Appleyard, 1987) or the lack of urbanity in some of the new cities that were emerging at the time. In turn, Gordon Cullen (1996) developed the idea of urban landscape to describe the "art of the relationship" between the elements of the landscape, emphasising that our experience of a place is the result of a "serial vision" or the unfolding of sequences of street scenes, an experience that ultimately only results from walking or strolling through the city. This movement emphasised the relationship between the various elements of the city, encouraging designers to add the building around the public space rather than "sit" the building in the centre of the space (Ellin, 1999).

Several authors have pointed out the decline in quantity and quality of public space. This warning partly contributed to the development in many quarters of an awareness of the importance of a meaningful public space. A holistic vision of the city emerged, in which Kevin Lynch and Jane Jacobs were paradigmatic, and whose important impetus in the USA was the fear and confusion generated by modern architecture and the city that resulted from it. There was therefore a desire to humanise the city, to make it legible and to alleviate urban fear, which led to an emphasis on the resurgence of the social and symbolic function of the street and other public spaces.

In *The Image of the City*, released in 1960, Kevin Lynch (1990) emphasises the importance of having a legible and identifiable urban environment (its "imageability") and proposes that designers get closer to the people who use and inhabit the city in order to understand the image they have of it.

In *The Death and Life of Great American Cities*, released in 1961, Jane Jacobs (1997) spoke out against the prevailing post-war American planning, drawing up a manifesto in which she listed the parameters that, in her opinion as a resident and close observer of New York, should be considered in urban planning. Considering that cities are living organisms and the streets are their "lifeblood", she mentions that the existence of connected street systems with a high concentration of people and flanked by buildings turned in on themselves, among other things, is a necessary physical condition for dynamic urban life.

Other authors, such as Ellin (1999), continued this movement, giving it consistency and importance in both the theory and practice of Urban Design. In addition to the aforementioned Lynch, Donald Appleyard and Allan Jacobs and Gordon Cullen, we should also mention the proposals of Charles Moore and Kent Bloomer (1977), who called for a humanising conception of architecture and public space, much more sensorial and syncretic, combining historical references with merely ornamental elements, so that they has meaning for the general public. Christopher Alexander and his co-authors (1977) adopted the methodologies of Sitte and Lynch in an effort to create a sense of historical identity in new sites. This "timeless way of building" can be expressed through related patterns that constitute a "language of patterns" in order to discover preferable design solutions. C. Norberg-Schulz (1984)who approached this concept according to the "recovery of place", or respect for the *genius loci*. We should not copy the old, but determine the identity of the place and interpret it in new ways, he stated.

This line of thinking dedicated to public space also includes historians, philosophers and social scientists, such as Lewis Mumford (1962), Jürgen Habermas (1989) and Richard Sennett (1974). It was also at this time that psychologists began to focus their attention on observing the environment and its relationship with the individual. The proposals of these researchers will make an important contribution to the way we think about and intervene in the city, as well as influencing

the work of other professional areas, including design practice. In particular, the subfield of environmental psychology emerged, along with the concept of "place identity" as proposed by Proshansky, Fabian and Kaminoff (1983), Lalli (1988) and Hunter (1987) (Ellin, 1999; Pol and Valera, 1999).

The Barcelona Model

Equally important for the development of what Urban Design is today, especially in the Portuguese context, is what happened in the city of Barcelona. The so-called "Barcelona Model", although considered debatable by some authors, ended up becoming a paradigm for the evolution of Urban Design given the impact it had on an international level.

As an important industrial city, and despite Ildefons Cerdá's notable urbanisation plan of 1859 – whose design approach reached a level of detail identical to that of the aforementioned work in Paris –, the way its growth took shape was not without some urban problems as a result of the politically troubled period that followed and the strong population growth that continued in the 19th and 20th centuries. It was from 1974 onwards, in the post-Franco period, that corrections and improvements began to be made in several dimensions. With the new team of Oriol Bohigas, appointed director of planning in 1980, and with the impetus of the Olympic Games that the city would host in 1992, a planning and intervention strategy was developed that had as one of its main objectives the regeneration of the city through its public space. The "Barcelona Model", as this strategy came to be called, building on all the critical mass that had already begun to take hold, whether politically, socially, culturally or intellectually, has as characteristic the important role it recognises and institutes for the public space, its planning, strategy, structuring and enjoyment. Above all, this model legitimises attributes and functions of the public space that go beyond the strictly urban sphere (Ajuntament de Barcelona Àrea d'Urbanisme, 1983).

But it is also important to bear in mind that a key characterising feature of the intervention policy in this city is (or was, according to some local opinions) its citizen participation. During the Franco period, neighbourhood associations ("*associaciones de vecinos*" or "*associacions de veïns*") were the only forms of association allowed by the regime, and protests

and demonstrations were restricted to this sphere. Strongly supported by clandestine organisations and political parties, as well as many of the intellectuals who were normally subject to censorship, citizen participation took on a new dimension when it also became a means of political contestation and mobilisation (Martínez, 2004).

Consequently, this will be the context that produces authors who make an important contribution to contemporary thinking about the new millennium society, both at a broader level (Castells et al., 2002) and at the level of the city (Borja and Castells, 1997), or even of its public space, the subject to which Jordi Borja devotes the most attention.

Above all, the latter author seeks to demonstrate the fundamental role that public space plays in many ways, both for the city and for society. If "the city is the people", as he recalls the words of Sophocles, Shakespeare and Goethe, the city is also "people in the street", as mentioned at the beginning. We can therefore understand that, according to Borja, public space is the main space for urbanism, urban culture and citizenship. Consequently, public space is "an articulating element of the urban fabric", but also the "space of representation, in which society is visible", "where power groups, the dominated, the marginalised can express themselves. And the conflicts." It is thus a "physical, symbolic and political space", where the city is finally realised as *urbs* (concentration of population and the territory defined), as *civitas* (culture, community, cohesion, urban society or urbanity), but also as *polis*, the place of power, of government, of politics as the organisation and representation of society (Borja and Muxi, 2001).

Some cases in Portugal

In the context of what has been said at international level, it should also be mentioned what happened in Portugal with this change of perspective in relation to public space. The Industrial Revolution did not have the same impact in Portugal as it did in other countries, which can be seen in the milder level of transformations that took place in the country's main cities as a result of that wave.

Like much of the country, Lisbon would need several decades to recover from the 1755 earthquake, although its reconstruction also paved the way for a paradigmatic urban planning project. Perhaps as a foretaste of what would be the city's next design approach, Lisbon's reconstruction included the intention of a more systematic and complete approach, albeit with the scope and vision typical of the century in which it took place (Figure 22).

But, in addition to the trauma caused by the earthquake, the beginning of the 19th century was also very troubled by the Napoleonic invasions, the consequent British occupation and the Civil War. Only after that did Lisbon and the country regain the strength to grow and complete its reconstruction. For example, Rossio was only paved in 1849 and the Rua Augusta Arch in Praça do Comércio was only completed in 1875 (França, 1997), finally materialising the Enlightenment layout advocated by Marquês de Pombal. However, it was the area around Chiado that in the meantime had become the economic, commercial, cultural and social centre of the city, which explains the emergence in this area of what would be the first public space of the 19th century city and the era of Liberal Portugal. The ruins of the Palácio de Marialva and the shacks that had been improvised there were demolished, the Praça Luís de Camões was paved and the corresponding monument erected in 1860-67, setting the tone for what would become several of the public spaces in Lisbon during the Fontismo period, the maximum expression of which were the so-called Avenidas Novas, the northward expansion of the city in the second half of that century.

Like other cities, Lisbon was preparing for the Industrial Revolution in the 18th century with the emergence of several pre-industrial factories in the area. But it was mainly in the second half of the 19th century, as a result of troubled period already referred, that some growth in the number of industries could be seen. As for the population, it did not grow at the same fast rate that occurred in what have since become the world's main capitals, such as London, Paris or New York. In any case, and also to overcome serious epidemics and other health problems, Lisbon tried to keep up with the urban imperatives of a cosmopolitan city of the time. New avenues and squares thus emerged, mainly under the influence of what was happening in Paris at the time, in which, along with parks and gardens, vegetation gained a presence not seen until then, giving the city's public spaces a new quality. To that should be added the Portuguese pavement that was also spreading throughout the city and the aforementioned monumentalism (França, 1997; Janeiro, 2006).

At the beginning of the 20th century, despite Portugal's participation in World War I, Lisbon experienced a sharp increase in population, which led to greater urban growth. This is also reflected in the sequence of new neighbourhoods built, mostly consisting of multi-family housing for rent (the so-called "income buildings"), although a more comprehensive plan for Lisbon only appeared in the 1940s with Étienne de Groer, commissioned by Duarte Pacheco. That plan defined the basic lines for a city following the same concept for public spaces as in the previous century, with the difference being the imposition of car traffic, which was given absolute priority until at least the 1990s. Thus, along with the new neighbourhoods that included public spaces (namely some parks and gardens), squares and piazzas were born, greatly following a monumental ideal of celebrating the regime in force at the time, structured by wider streets and avenues that linked to some main road routes and brought facilities, services and other areas of the city closer together. This network legitimised the predominance of the car, although the pedestrian "Portuguese pavement", which had also been introduced in the meantime, played a fundamental role in the city's identity (Santos, 2022). A universal rule is established for the standard profiles of all streets (Portuguese pavement – kerb for unlevel levels – traffic lane(s) – kerb for unlevel levels – Portuguese pavement), including in historic neighbourhoods, even when the result is an absurd pavement with a width that makes it impossible to walk on. Also as a result of an insufficient public transport network, the private car is becoming more and more prevalent, increasing the number of traffic lanes and transforming old crossroads, squares and piazzas into road junctions and sacrificing, of course, the pedestrian spaces.

Other master plans and detailed plans followed, introducing some of the trends of modern urbanism that were being experimented with at the time, although on a more modest scale than in other cities. However, their implementation was often postponed due to lack of investment, and the city, whose population increased significantly throughout the 20th century until 1981, grew largely through the "slums" that were beginning to fill its many expectant spaces. Of course, some measures had been taken mainly in the form of building a few social housing or rent-controlled neighbourhoods, but the supply was far less than the needs that were emerging. It was not until the end of the 1980s that the serious housing and urban planning problems in general were solved, along with many other major projects that followed both in the city and in the rest of the country, for which the financial contribution of the then European Economic Community (EEC) was essential.

Nonetheless, it is worth mentioning the work carried out by the team of researchers[6] who, from 1962 onwards, set up the National Civil Engineering Laboratory (LNEC), first the Construction and Housing Division and then the Architecture Division headed by Nuno Portas (*O Laboratório Nacional de Engenharia Civil - 60 anos de actividade*, 2006). This architect saw the opportunity to set up a multidisciplinary team, which, taking advantage of the impetus given by the themes quality of housing and living, soon extended his research to include other themes, such as the Design Process and the Quality of Urban Space, in line with the approach of the city as architecture and the awareness of the need for articulation between each building and the form of the city, which was unprecedented in the country but which, as a result of the effort to be close to other European centres, was part of the state of the art of research on this subject at the time. Several reference research works were produced, of which the studies related to the analysis of the "Territory" and "Urban Morphology" are still up to date, making this research centre a rare case and worthy of future analysis and study (Oliveira et al., 2015; D'Almeida and Marat-Mendes, 2020)Finally, it is worth mentioning the proposals and methodologies for urban regeneration[7] which were also in line with what was emerging internationally at the time, even though the practical application it sought was confronted with the political and economic reality, making its implementation difficult.

But it was after the revolution of 25 April 1974 that the housing problem in Portugal was given due recognition, for example through the creation of the Local Ambulatory Support Service (SAAL) by the Ministry of Internal Administration and the then Secretary of State for Housing and Urban Planning, Nuno Portas.

6 In the period between 1962 and 1974, architects Alexandre Alves Costa (b. 1939), Bartolomeu da Costa Cabral (1929–2024), Francisco Silva Dias (b. 1930), Gonçalo Byrne (b. 1941), Maria da Luz Valente Pereira (1934–2023) and António Manuel Reis Cabrita (b. 1942) should be mentioned, as well as sociologist Maria Amélia Correia Gago (D'Almeida and Marat-Mendes, 2020)

7 As proposed by Luz Valente Pereira (1985, 1991, 1994).

In Portugal, it was in the 1990s that a more extensive change in the attitudes towards the city and its public spaces occurred. The preparations for Expo 98 in Lisbon contributed to that change, by materialising in a more comprehensive and effective way a strategy to improve the quality of life in cities through the requalification of their public space. After its success, the Polis programmes that followed helped in spreading this idea across the country, albeit some of them at times with less success than others. Worth mentioning are the interventions in Porto and Guimarães, where the events of the European Capital of Culture in 2001 and 2012, respectively, were also a pretext for continuing the new approach to public space regeneration.

The case of the Lisbon City Council

At the same time as Expo 98 was being launched in the eastern part of the city, the Lisbon City Council began a series of interventions aimed at requalifying the city's public space. Like other city councillors, Rui Godinho, susceptible to the trends that were then beginning to be observed in cities across Europe, changed the usual priorities for this type of intervention: he placed a landscaper (João Rocha e Castro) in charge of a public space project that was not a green space, since the aim was to reduce the predominant function of that space as a road.

This was the first requalification of a public space following this new orientation, the "Route of Janelas Verdes", which runs from Calçada Ribeiro dos Santos, in Santos, to Largo da Armada, in Alcântara, totalling 4km in length. Designed in 1996, it was completed in 1999, with the priority being the existence of "open linear pedestrian corridors that increased the quality of a historic route and made it safe to be enjoyed", as stated in the project's description. This was an area where disorderly and abusive parking was rife, and its requalification according to the principles already mentioned was imperative to solve this problem.

Following on from this strategy of requalification of the public space, and specifically with the aim of reducing the number of cars parked in the streets and squares of central neighbourhoods, the Lisbon City Council also promoted the construction of several underground car parks in various parts of the city centre. With several other underground works being carried out in Lisbon, especially the extension of the metro network, the City Council often took advantage of these interventions to requalify its public spaces. This was the case of Praça da Figueira (project started in 1999) and Rossio (project started in 1995 and inaugurated in 2001).

In 2014, the requalification of Lisbon's public spaces took on a more systematic nature with the "A Square in every Neighbourhood – interventions in public space" programme. It arose from the assumption that "public space must once again become a meeting place for everyone, the space of citizenship par excellence". This included being less dedicated to the "function of getting around", in other words, less predominance of the car, which, it can be deduced, also included a reduction in car parking. This "rehumanisation of the landscape", which refers to the experiments carried out in Barcelona in the second half of the 1980s and 1990s, aims to give back to public place its "importance and conceptual autonomy as the space of equity and inclusion, and the public space of citizenship". For this to happen, a "variety of public place" will also be necessary (Salgado et al., 2015).

The imperatives of promoting coexistence between the various modes of travel and favouring environmental sustainability are evoked, as well as valuing "Lisbon's identity as a city of neighbourhoods" and the "variety of public spaces" for which the typologies "streets", "squares" and "large open spaces" are distinguished. This "micro scale" programme seeks to continue the most recent "successful" experiences, such as Terreiro do Paço and Ribeira das Naus, Avenida Duque de Ávila, the interventions in Mouraria and Bica, among others, extending it to "all parishes in the city". It involved identifying meeting points, points where flows converge and where socialising takes place, which constitute nuclei that bring together the different communities that make up Lisbon. To that end, the programme took as a reference the methodology of the *Plaza Program* of New York City (*NYC DOT - NYC Plaza Programme*, n.d.) and the Project for Public Spaces (PPS) evaluation guide (*What Makes a Successful Place?*, n.d.). This led, in the first phase, to the determination of 30 "priority plazas", with seventeen having been completed at the time of the consultation. (Salgado et al., 2015). These and other interventions are guided by the manual *Lisbon Street Design* (2018), the first document for the city of Lisbon to systematise various guiding principles for public space projects.

Expo 98 was also a major catalyst for the transformation of Lisbon from the end of the last century onwards, since, in addition to the scale of the work on the exhibition site itself, a number of interventions were made on this occasion, not only in the city of Lisbon, including those already mentioned, but also throughout the country. But one of the major impacts of this international event was, in fact, the affirmation or, if you like, the definitive recognition of the role of public space in the Portuguese city and society.

It is true that the social, economic and institutional recognition that design had achieved during the late 1980s and throughout the 1990s generated important synergies. But it was this whole context that favoured the emergence of various projects with an attitude of keeping with the spirit that was emerging at the time, not only in public spaces, including those mentioned above, but also in street furniture, whose industry and market were also creating their place in Lisbon, as well as across the country.

One of these is the line of street furniture designed in 1993 by Jorge Alves and Jorge Pacheco. Produced by A Resistência SCRL and APCD Consultores de Design, Lda, using simple metalwork technology and modular assembly, the bus stop shelter allowed for a more urban or rural configuration, as well as easy assembly to enable the transport of several shelters and quick assembly on site. Also noteworthy is Pedro Silva Dias' design of directional signage, MUPIs, clocks and posts for the city of Lisbon, produced by JCDecaux. By the same author, the public telephone boxes for PT were also produced using a simple assembly system that allowed for easier maintenance and ended up being installed not just at Expo 1998, as initially planned, but all over the country. Finally, Raúl Cunca and Tiago Girão's 1999 proposal for a line of street furniture for the city of Aveiro should also be mentioned. Larus, which won the tender for the development and production of the directional signage and various equipment for Expo 98, has since been designing, through its in-house team or by using the work of several national authors, and producing a variety of innovative, high-quality street furniture, much of which would be used in the many new public space projects that were growing in the 90s.

1.2.1. The consolidation of Urban Design

The analysis made it possible to understand how and why the design activity that is understood today as Urban Design was consolidated. This term was coined at the end of the 1950s in the United States and is often associated with Jose Luis Sert at a conference at Harvard in 1956. It replaced the previous term of Civic Design, typified by the City Beautiful Movement, which was possibly more traditional and strict as it focussed more on the landscape and the design of the main civic buildings and their relationship with open spaces. Contemporary Urban Design, in this logic, evolves from a mainly aesthetic concern with the distribution of masses of buildings and the space between them to a more comprehensive approach, concerned with the shaping of urban space as a means of making, or remaking, "public" places that people can use and enjoy. (Carmona et al., 2010).

We can then conclude that there are ultimately two general traditions in Urban Design thinking. They stem from different ways of appreciating the project and the products of the design process as aesthetic objects or exhibitions (to look at) and as surroundings (to use or to live in). These traditions, the "visual artistic" one and the "social usage" one, were synthesised into a third, the "place-making" tradition. As already mentioned, in the first tradition, which began with Sitte and Le Corbusier and includes Cullen's "townscape", pictorial composition and the visual dimension predominate. The "social usage tradition" contrasts with the former by emphasising how people use space, encompassing issues related to perception and "sense-of-place", for which cultural, social, economic, political and spatial factors and processes that contribute to the success of urban places are considered. This is where Kevin Lynch and Jane Jacobs come in as the central proponents of this approach (Jarvis, 1980; quoted in Carmona et al., 2010) (Figure 23).

The "place-making tradition", which has emerged in the last 30 years, makes a synthesis of the two previous traditions; contemporary Urban Design thus relates simultaneously to the design of urban places as physical/aesthetic entities and as behavioural settings, i.e. to the "hard city" of buildings and spaces and to the "soft city" of people and activities. These are the guidelines that are still in force in this area, although more recently a greater demand for sustainability has been added, where the reduction of excess wear and tear on natural resources and solutions that ensure the future of cities are also considered. (Carmona et al., 2010).

A diachronic reading of Nuno Portas (1999) makes it possible to understand how the process of intervention in the city and public space has evolved. If it is only in recent years (at least in relation to the date of publication of his article) that public space has become a topic in the debate on urban policies, in a first generation, which the author understands to be after the 1980s, it was used above all in interventions in the already consolidated peripheries of European cities planned according to modernist urbanism, and, in a second generation, in the search to manage the problems arising from the heavy use of flows. Of the latter, the author cites Barcelona, Berlin, Paris, Bilbao and Lisbon, among others, as "successful" cases. These are interventions, of "sewing", in the structural fabrics of the city that have already been made both in disused areas and in the requalification of others, giving them new functions. This evolution described by Portas implies a scale, or at least an attitude, of intervention in the city, which was already present in the aforementioned 19th century urbanisation operations, namely in the contribution of Jean-Charles Adolphe Alphand (1867) for Haussman's Paris, or in the detail that Ildephons Cerdá achieved in his proposal for Barcelona (Group 2C, 2009).

It is also proposed, in a generalised way that will have a "broad understanding", that Urban Design is "the process of making better places for people than would otherwise be produced", for which four central arguments are included: Urban Design is for people; Urban Design is based on the importance of *place*; Urban Design operates in the real world, with its opportunities and constraints; Urban Design assumes the importance of Design as a process. (Carmona et al., 2010).

Seeking to contribute to the definition of this area of speciality through specific knowledge that has gained sufficient autonomy, Jonathan Barnett defined Urban Design as "designing cities without designing buildings" – the definition of design guidelines that form cities and their enclosures by forming the buildings and the public space (Barnett, 1982; quoted in Lang, 1994).

The interdisciplinary nature of urban design

In this reflection on Urban Design, the consensus among the authors discussed is that it is an area of knowledge that has gained substantial autonomy and is not specific or belongs exclusively to any other area or activity.

To a large extent, this body of knowledge, ideas and empirical research into the nature of cities and urban places is still developing. They have fostered a better understanding of the person-environment relationship and have been accompanied by a growth in the substantive theory of Urban Design. This evolution has benefited from its sharing with various other fields, such as urban studies, environmental psychology, urban planning, landscaping and architecture. As a result of this interaction, the theoretical content of the field of Urban Design, its body of knowledge, as synthesis, has been unique. It has even proved to be an area of interest for various design professions, which may be why these professions tend to consider it as belonging to their own domain.

The aspects of professional activity are also unique, which is why it has been and must remain an applied collaborative effort: in Urban Design, knowledge is highly diverse and the problems faced are too complex to be solved by isolated professions. Since it must always bring together various types of knowledge, urban design will remain a collaborative act. It will thus be a discipline, or a branch of knowledge, or even an activity, with a set of specialised skills, but it will always be integrative (Lang, 1994).

In other words, Urban Design "is no longer a technical area of specialised knowledge, but a domain that requires a holistic approach, negotiating skills, cultural project, interactive communication and, of course, formal synthesis (...)". Many of the "city's issues" (...) cannot fit into the restricted and self-sufficient plan of a single professional culture (...)". Urban design activities "require increasingly diverse functions and increasingly complex organisations. This calls for a change in the "traditional relationship between

8 Faced with the possible question as to why the concept of "interdisciplinarity" was chosen here, the reflection proposed by Pombo et al. (1994) may be used. The authors contrast "pluridisciplinarity", as any association between two or more disciplines where there is minimal coordination but no changes in the form and organisation of each one, with "interdisciplinarity", as any form of combination or cooperation between disciplines to form the confluence of different points of view for the elaboration of a synthesis regarding a common object, and with "transdisciplinarity", the maximum level of integration, by unifying disciplines to form a new area of knowledge. In addition to urban design being specifically designated as interdisciplinary by these authors, it can be argued that it will be easier to reach a consensus, at least for the time being, to establish it as interdisciplinary, with the aim of stressing that this area of knowledge acquires a transdisciplinary status by consolidating itself through the transcendence of the disciplines that converge on it.

professionals, which until recently was limited to the traditional dialogue between the architect and the engineer, and between the latter and the owner of the work, who is usually a public figure (...)". In this way, urban design requires interdisciplinarity (Brandão and Remesar, 2000).[8]

1.3. Street furniture

Having discussed what public space is and its importance for the city and society, it is now important to understand the role of street furniture and its relevance in this context. But first we need to understand what street furniture is.

It is possible to assume that there is an idea, a general concept or even an archetype of what street furniture is. However, this set of public space equipment is rarely defined by itself, through a duly consolidated general and abstract concept. Instead, an example is given of the types of elements that are street furniture or that can be included in street furniture.

There is a general awareness of the importance of street furniture, especially when we find ourselves wishing that a specific piece of street furniture was available to us as citizens or when we are prevented from making proper use of the public space. When, for example, you cannot sit down when you want to or you don't have a waste paper bin when you need one, you realise straight away that the good performance of the public space is directly dependent on the existence and good functionality of its equipment.

The importance of street furniture in everyday life in your city's public space is also confirmed by its frequent use for political purposes, especially during campaigns for local elections. This is certainly a good way of quickly showing the "work done", with great visibility and direct impact on voters.

To better reflect on street furniture, we can take as a starting point that this set is part of another, which can be considered as the large set of all the objects, artefacts and equipment – or material solutions – that surround us and that we use to interact with our reality in different environments, so that we can live, or even survive, in our day-to-day lives.

It is also possible to assume that the objects that make up this large set are shared differently: some are used only by each of us, as might be the case with our clothes; others, such as the furniture in our house, are shared with our family or closest circle; there are also the things we share with the neighbours in our building, then with those in our neighbourhood, our city, and so on.

In fact, in our daily lives we depend on things, which can be things that we use alone, or things that we share with people even on the other side of the planet. If we organise all this panoply of things according to this degree of sharing, then there will be a first layer of objects that "orbit" only around each individual, followed by another, made up of the things that surround a family or other more restricted circle. This sequencing logic continues until we reach a layer that can involve all those who make up the community we are considering. In the case of the city, street furniture, the set of objects that may also be essential to our lives and that we share with everyone else who uses the public space, will be the final layer of the organisation proposed here (Figure 24).

1.3.1. The emergence of street furniture

Another way to better understand this set of public space equipment is to reflect on their possible genesis.

If it can be accepted that the emergence of street furniture took place in a context of simpler dynamics and self-production, then even in the collective space of a village its users participate in its production in order to obtain solutions to satisfy their own needs, in an immediate, experimental (by trial and error) and improvised way. However, unlike what happens with other objects and equipment, in this case the solution that has been produced remains in the place where the need arose, thus becoming available to its fellow human beings, since their characteristics and use needs are the same. This availability can result from the usual cost-benefit ratio, such as: because the disadvantages of transporting it are greater given, for example, its weight, size or friability; because there are not enough value in use benefits, material or otherwise, in a different context; because the advantage of contributing to the construction and improvement of the common good is conscious.

Consequently, this equipment is left in place after being used for the next user, who will do the same if they have the same interests, needs and attitude. They can also contribute to maintaining or even improving this resource. This forms a process of continuous production and use, in which maintenance, updating and adapting the solution to the problem are also continuous.

This dynamic is not a mere supposition; it is a reality that we can see even today. There are many solutions that we still find in the public space, more or less informal, more or less improvised, with more or less investment from someone who wanted to facilitate a passage, who wanted to sit down, or who faced some kind of problem in the public space that other people also faced (Figures 25-28).

This more individual form of production probably existed alongside other forms of production, particularly those that required more resources (labour, materials, production techniques) and are inevitably collective production, such as a well or a bridge. It is possible to find several of these testimonies of shared resources and equipment from older cities. Some were obviously in their streets and squares, in the open and accessible to all inhabitants (Figure 29).

As we have already seen, the city is also defined by community life, which takes place in its collective/public space, the site of various collective activities and the sharing of various resources and equipment. Assuming that this set of equipment, and everything that makes this sharing possible, is part of the origin of cities, then their genesis is closely related: the city is made through the resources and facilities it makes possible.

As we have already seen, the Industrial Revolution also brought profound changes to the city and its public space. This evolution included collective space equipment (which has since become public space) and its production process, just as it did with many other objects and material solutions. Of the many great works that took place, especially in Europe and America, the "Grands Travaux" carried out in Paris were the ones that dictated the model of the industrial and cosmopolitan city of the 19th century.

The aforementioned Jean-Charles Adolphe Alphand coordinated the design of the new public spaces for this city, for which he detailed the streets, with the paving materials, the finishes and trim, the planting, as well as the implementation of the new networks: gas for public lighting and home supply piped water, as well as sewage and drainage. It is from this new way of intervening in the city's public space that this new type of public space equipment was born. The prepared and systematic implementation of the new service networks was only possible due to new industrial processes. Thanks to new foundry techniques, an industry emerged for mass production of the equipment for these networks, such as lamps and fountain markers, but also for kiosks for various uses, railings, gates and fences, or even "unbreakable" furniture (Figures 30, 31, 32).

As we have already seen, the first large French foundries, in particular the Société Anonyme Des Hauts-Fourneaux and Fonderies Du Val D'Osne, were the main protagonists (Figure 33) of this process. Through their catalogues and products, they exported this new type of product all over the world, along with a new city model. With this new market established, new companies and industries followed in various countries, including Portugal (Figure 34).

1.3.2. The establishment, processes and standardisation of street furniture

The new city model described above, which was established in the 19th century, included a new concept of public space. For the new monumentalised rest and leisure areas that were implemented at the time, the model of the citizen and their behaviour was also determined. For example, the 1859 Instructions for the Municipal Promenade Police contained the following notice to be placed at the entrance to the new parks and gardens:

> "Entry is forbidden to drunks, people travelling with any load, unaccompanied children under the age of 10, and in general anyone who is not decently dressed." (Martins et al., 1998, p. 32)

The new equipments that are set up are part of processes that transform public space in a systematic way, and they themselves are also an agent of this imposed change. By the function and use they define, by the position they occupy, these objects condition a new relationship with the space where they are inserted, objectively indicating what they are, what their legitimate use is, and how people should and should not behave there.

To this day, this set of equipment, which only came to be known as "street furniture" in the 1960s, is still mostly produced in series and according to the constraints of industrial processes. The principle of economies of scale is assumed, even though it is mostly manufactured according to each series ordered.

In order to better analyse how street furniture is made, it is considered that a production process includes, in addition to manufacturing, the other phases and processes that precede and follow manufacturing. This includes everything from the earliest decisions that start the process to the culmination of use by the user. In other words, all the phases are considered, with all

the resources that result in the solution for the problem or need by using an idea that has been implemented for that purpose.[9]

Naturally, each idea, or each type of idea, has a specific production process that is also defined by its purpose and use. Looking at consumer products in general terms and in a very simplified way, we can say that their production process usually includes the design and development phase, the manufacturing phase, the buying/selling phase and the use phase. These phases follow one another in this order and in this direction. The main types of players involved are designers and manufacturers, intermediaries and consumers. Designers and manufacturers are the main players in the design and manufacturing phases; intermediaries are the main players in the buying and selling phase, which is obviously shared with consumers; consumers are the main players in the use phase.

Each of these phases will therefore have inputs from these players, and each player will also have direct inputs from the others. Designers and manufacturers will have a close communication relationship with intermediaries. Consumers' inputs will mainly take place when buying and selling. In other words, the main factor considered by producers is the response of consumers at this stage, much more so than at the use stage (Figure 35).

As for the production process of street furniture, in a similarly simplified and generic way, we have the phases of design, purchase and sale, manufacture, installation in the public space and, finally, use. In this process, the phases also follow one another in the same way, but, as already mentioned, the buying and selling phase precedes the manufacturing phase, since the latter usually only takes place after the equipment has been ordered. Here, the main players will be the manufacturer and/or distributor of this equipment (since there will be national manufacturers and importers), the public space administrator (usually the local authorities or the state), the contractor who carries out the work on the public space in question, and the citizens. The manufacturer (especially when he also hires street furniture designers) will be the main player in the design and manufacturing phase and will make the purchase and sale to the public space manager. The public works contractor can also take part in this phase, being the main player in the installation phase. Most of the time, citizens are only responsible for use.

The public space administrator, being the usual owner of the work, occupies a central position in this process, communicating closely with the manufacturer/distributor of the street furniture and the contractor. However, there will be much less communication with the citizen. It is true that there are a number of projects carried out by public organisations that are legally obliged to hold public consultations, and there may even be a noticeable upward trend in the uptake of policies and processes where there is greater citizen participation. However, traditionally, in a representative democracy the only input the public manager receives from citizens is their vote at election time. Apart from a sporadic contact initiative on the part of a manufacturer, designer or contractor, this occasion will be, in the whole process in question, the only opportunity for this actor.[10] (Figure 36).

In conclusion, and compared to the more common process of producing consumer products, the process of producing street furniture is characterised by being a more complex process and – in particular – by the end user (traditionally) having less ability to intervene. It is true that we may be the individual owners and sole users of consumer products, but for all intents and purposes we will have less capacity to decide and intervene in objects that are public property and whose use is more shared, and this capacity is even less the greater this sharing is. It should be noted, however, that this capacity can be nil, even in the daily proximity of the street or neighbourhood where we live. We have more power to intervene in the world around us and in the artefacts that make it up as consumers than as citizens and users of public space.

9 To avoid referring to a contemporary approach, in which the "observer effect" is discussed even in the most exact sciences, this perspective can be established from Umberto Eco's concept of "Open Work" (1989), which is defined on the basis of the "production-work-fruition relationship", together with the more recent proposals of Codesign or Participatory Design, or even in the global vision that has become imperative for determining the sustainability of products, in which at least the pre-production, production, distribution, use and disposal of a product are considered for its life cycle.

10 Or at least the only legitimate opportunity. The limited participation that citizens and users of the space are allowed in this process may perhaps be one of the causes of equipment vandalism.

Still on the subject of the most common process for producing street furniture, it should be emphasised that, without knowing the specific location where they will be implanted, these products are often developed considering a generic public space as their surroundings. With such broad context, generic characteristics, uses and constraints are also taken into account, which results in the equipment (bench, litter bins, bollards, kiosks, flower boxes, picnic tables, etc.) being typified. This is the code that prevails in the communication between the main players in the production process described and in the manufacturers' catalogues, its main medium, in which variety is consequently seen in the shape and materials.

From this point of view, it is possible to see a levelling out of functions and uses, a standardisation of street furniture, which will be an important factor in the standardisation of public space as well (Remesar, 2004, 2005).

The main result of this standardisation of street furniture can be a reduced ability to effectively match the resources and potential of the public space with the specific demands arising from the particularities of the place and/or its users. It should also be emphasised that standardised street furniture is less able, or even less able, to contribute to the identity of the place where it is located. If there are no formal functional usage characteristics or other characteristics that distinguish them, street furniture can also be seen to be disconnected from the place, its users and their needs and demands.

In addition, in the current context this standardisation can easily take on a global scale. The same model, defined in advance by catalogue, is likely to be found over and over again in many different places on the planet. This will mean a tendency for it to be trivialised, which can also lead to the trivialisation of the space in which it is located,[11] i.e. without having any specific features to distinguish it. (C. Valente Pereira, 2012).

1.4. The specificities inherent in thinking, designing, making, using and maintaining public space and street furniture

As already discussed, defining a city is not easy today, especially to its own citizens. However, we would say that it is still difficult for many to imagine a city without streets or squares. In other words, a city continues to be the buildings and other constructions it contains, but also the spaces that exist between them. We have also seen that, in addition to this physical dimension, there is also a functional dimension underpinning the city. Even today, the city is the place that provides for life in society, without which we would hardly have access to the same resources, at least those that, for example, are unique or require collective investment. Finally, it has also been seen that the collective or public space is the place, at its foundation, of many of the uses that give purpose to the city.

In turn, we can assume that the equipment and objects that are in a space make a fundamental contribution to the function of that space and its use: it is the equipment that exists in the public space, such as the fountains, that make the public space a place where resources are shared; it is the benches that provide you more comfort and invite you to stay in a park or garden for longer; it is the litter bins, lamps and other equipment that improve the use and the whole quality of the atmosphere of a square.

Therefore, it is through its equipment that the public space can perform properly. Many of the aforementioned uses of public space are only effective with the right equipment. Street furniture is, after all, a basic element of the city.

One of the main characteristics of street furniture will be their function and practical usefulness, which corresponds to the fulfilment of needs and the solution to problems that arise in this context. Another important feature is the wide range of users who may, in principle and potentially, be anyone.

The smaller scale of street furniture is also an important feature, complementing the scale of the public space and the scale of the city. It is an equally fundamental dimension, of greater proximity to the citizen by allowing physical contact and direct use. This makes it possible the important and more direct relationship between the user and the space, which occurs through contact and detail and is within reach and at the level of their gaze and the scale of their hand.

11 Several authors have addressed this issue, which has become more evident with the globalisation we have been witnessing. These include the concept of "McDonaldisation" by Ritzer (2011) and the research into the impact of globalisation on cities by Borja and Castells (1997).

In summary, the most important characteristics of street furniture are:

— They respond to all the demands of the public space, many of them very demanding;
— They make important and different contributions to the public space, beyond the practical function they fulfil most directly;
— They have a specific production process, with its own players, phases and dynamics;
— Their lifetime is long, they can be used for several decades;
— They can be shared by several users and they have numerous uses.

Having all these in mind, we can propose the following definition for street furniture: *Stressing the aspect of their importance for the public space and the city, street furniture is defined as the set of small-scale artefacts and equipment installed in public and collective spaces, which enable a use, provide a service or support an activity, and above all, a better use and enjoyment of that space by the citizen.*

In other words, more simply and briefly, they are artefacts and equipment of the City and for the City (Figure 37).

1.4.1. Street furniture and place identity

We now realise that the practical function of these equipment is the most important and fundamental contribution they make to the public space (and, therefore, to the city). However, depending on their attributes, they can play a role on other levels. By enabling users to better use the public space and remain there longer, their presence – through their shape, colours, materials, distribution, dialogue with its surroundings, etc. – can be decisive in establishing the identity of the space and the place to which they belong, as does architecture and public art.

More obvious points of view put forward the need to give, or preserve, characteristics of the places in a city, even if only the physical, formal and spatial characteristics are considered. It is enough to imagine the effects the aforementioned standardisation of street furniture may have, for example, on tourism, if the city we visit is no different from the one we came from, if it cannot offer us the different experiences we expect from a new place. There is little point in travelling hundreds or thousands of kilometres to find the same things we have close to home.

It is widely agreed that a city must have a "face", an identity, in which its physical characteristics are a fundamental element to preserve. Especially in the context of the aforementioned challenges arising from globalisation, cities seek to achieve cosmopolitan prominence as they are competing with each other to attract people, business and income. (Borja and Castells, 1997).

But it is not just for the reason of presenting an image to the outside world that the identity of a city and the different places that make it up must exist and be preserved. As mentioned above, in counterpoint to the post-war flourishing of modernist proposals for the city, a group of authors emphasised the social dimension present in the use of the public spaces of a city. Proposals from researchers in the fields of perception and psychology have shown that there are evidences that the notion of place is needed. Working in the subfield of environmental psychology that emerged at the time, these researchers also defended the importance of "place identity" for personal and social identity, since people and groups of people need to identify with a physical space of their own that provides them with the basis for creating and sharing their way of being (Pol and Valera, 1999; quoted in Proshansky et al., 1983; Lalli, 1988; Hunter, 1987).

This type of attributes is more institutionally recognised in buildings and public art, and it is usual for architectural ensembles and public spaces, such as squares, piazzas or streets, as well as neighbourhoods and even larger areas, to be listed monuments. However, it has been realised on several occasions that other characteristics and details, such as street furniture and other objects that make up the public space, can also be an important element of the place's identity, even if they are equipment that, from the outset, are considered to be predominantly functional in nature (Figure 38).

The case of the replacement of lampposts a few years ago in some of the streets and squares in the Areeiro neighbourhood is testimony to this role. Considering that they were trivial and purely functional objects, the Lisbon City Council ordered the installation of more efficient lights. The original lampposts, made of turned and polished concrete, were replaced by others with a metal column, its finish exclusively zinc plated and joints or exposed welds with no correction. However, the locals tried to deter this replacement, not only because they thought the new fixtures were worse quality, but because the old ones were an important part of their

neighbourhood's identity. As soon as the replacement began, residents protested, expressing their indignation at what they saw as the prioritisation of "technical criteria" over "aesthetic" ones when replacing "historic" and "unique" lamps (C. Valente Pereira, 2012)s (Figure 39).

Thus, in the criteria for choosing the street furniture for a given place in the city, the potential for any of those objects to become the identity of the place to which they will belong should normally be taken into account. For this reason, the possibility of using generic equipment or equipment that already exists in other places must be duly weighed up, as this could jeopardise the uniqueness and the identification that each place in the city should have.

In addition, since street furniture has a functional and practical dimension, it can make an important contribution to the identity of the place to which it belongs, as can be seen in the case of the mobile chairs in the Luxembourg Gardens and the Tuileries in Paris. From the outset, their mobility could be considered a mere practical functionality and the use of the chairs just a matter of convenience. However, both the manager of those spaces and their users consider that more important than the prosaic function of the chairs is their specific feature of being mobile. The possibility of transporting the chair and freely choosing where to sit is, together with their specific design, an important element of the identity and characterisation of this equipment, as well as the space where they are located and used (Figure 40).

1.4.2. Twelve principles for street furniture

Based on the challenges to public space and the city seen above, as well as the specificities and potentialities that define street furniture, we can propose the following general strategic lines for the whole set of street furniture solutions (C. Valente Pereira, 2012).

— Strengthening the use of public space in the city and for society, both in terms of the number of uses and their diversity;
— Strengthening the localisation both of manufacture and use;
— Reducing wear and tear on natural resources;
— Reducing inequalities in access and opportunities, developing solidarity.

Looking at these strategic guidelines, as well as the specificities of street furniture and its equipment, including their specific qualities and potential, we can propose a set of principles for its production (manufacture-usage-maintenance). (C. Valente Pereira, 2012)

— Ability to contribute to imageability and identity
— Street furniture should have attributes that can help characterise the place and evoke its memory or culture. By providing better appropriation by users, they can contribute to the identity of the place.
— Situatedness
— A landscape relationship must be created between the street furniture and its surroundings, ensuring continuity and interconnection with the neighbourhood and the city.
— Practical functionality
— The comfort, ergonomics, safe use and healthiness of street furniture must be ensured. Its performance must be appropriate to its use, guaranteeing correct operation and observing all the relevant technical standards.
— Accessibility and user integration
— The entire universe of users must be covered, even if it is wider and more diverse than that of many other equipment. The principles and requirements of accessibility already in force must be observed, so that their layout or form does not cause obstructions, guaranteeing universal access to use and the proper flow of the public space.
— Readability
— The proper use of street furniture requires formal language and simple, direct, clear and universal communication. The principles of user-centred design must be observed, above all to enable a good understanding of what the equipment is and what it is for, for which it is essential that the user can easily draw up a conceptual or mental model of the equipment. Elements, access and operation must also be concealed to guarantee security and prevent misuse or theft.
— Versatility and adaptability
— Public space equipment must be able to adapt to changes in its location, as well as to the addition, subtraction or replacement of its constituent elements. Only by being able to renew and adapt to change can their durability be ensured.

— Diversity of uses and multifunctionality
— The greatest possible diversity of uses and functions for street furniture should be integrated. As far as possible, it should also be taken into account that the equipment should have other uses and respond to other demands than those initially specified.
— Adequate durability
— The materials and production technologies used must be suitable for the lifetime of the street furniture, requiring only reduced maintenance to solve problems of exposure to the environment (weather conditions, pollution, etc.) and to use, not only normal use, but also abuse and vandalism.
— Saving natural resources
— For the entire production and life cycle of street furniture, savings must be made on the raw materials and energy resources used and polluting emissions into the air, water or soil must be prevented. The user must also be aware of these processes and be able to participate in their management.
— Location of processes
— The ecological autonomy of street furniture must be ensured, to which end the conception, design, decision-making and manufacturing processes must be local and must, like the operating processes, use local raw materials.
— Compatibility and integration of related services and systems
— In systems as complex as public space, it is essential to ensure that the administrator of that space is able to maintain the equipment it contains. To this end, the economic viability of street furniture must also be guaranteed in terms of purchase, use and maintenance, which includes its proper integration into the municipal or public systems in question.
— Ethically sound manufacturing and labour processes
— Also in line with universal sustainability principles, it is necessary to observe the "social impact of the organisations" involved and the ethical principles of hiring labour.

2
THE PLACE OF URBAN DESIGN IN HIGHER EDUCATION IN DESIGN

Urban Design has been gaining recognition both as a specific area of knowledge and as a specialised project activity. Naturally, and perhaps because it is new, there has been ongoing discussion about its foundations and concepts, as well as its practice, which consequently includes what the competences acquired through its teaching and learning should be.

2.1. The relevance of study and design of urban furniture and the preparation of designers in Urban Design

The discussion presented so far has sought to demonstrate the importance of public space for the city and for society. We have also endeavoured to show that, in order to perform properly, there must be an implicit quality in the way this space has been thought out and designed, which depends a great deal on the detail achieved, at least because this scale, of greater proximity to the user of the public space, is indispensable.

As we have already seen, urban design is a field of knowledge based on interdisciplinarity, fuelled by several more specific areas of knowledge and activity. These complement each other for a better approach to studying, understanding and intervening in the public space of cities, considering its importance as a "place", whose various purposes and uses are fundamental for the city's good performance, for society and for each individual who makes it up.

It was also seen that the smaller equipment that make up the public space have, in addition to their practical functionality, the potential to contribute to the definition and establisment of this notion of "place".

In addition to principles being needed for defining public space and its intervention, the development of street furniture projects is also guided by principles (see 2.4.2).

As these principles are specific, they reinforce the need for dedicated learning, study and reflection.

It is on the basis of this assumption that Equipment Design[12] intervenes, or can intervene, in the public space, contributing with the specific knowledge about the design of equipment and complementing it with other disciplines and specialities. The equipment designer can make a specialised contribution through the design of street furniture, micro architecture and other objects and equipment, which, as already mentioned, can be decisive in the performance and overall quality of the space in which they are located.

In addition to the skills that define their specific training, since they have in-depth knowledge of the city and public space, designers will be able to propose equipment that is more suited to this particular and demanding context. This specialisation is also necessary if we can accept that designing objects and equipment for the public space is not like designing for the consumer market or any other context. It has its own demands and specificities that require research, knowledge and reflection.

The approach of a designer to the development of a piece of equipment or a system of objects for the public space can make an important contribution to the quality of the project as a whole, by contributing to the quality of its overall result with more detail and comprehensiveness. As it is a "reverse" approach, from the object to its surroundings, the designer's intervention can also complement that of the other participants in the project, allowing for a more inspiring and fruitful dialogue for everyone, which reinforces the arguments advocating the interdisciplinary nature of Urban Design.

2.2. A brief overview of the Portuguese higher education in Design

The aforementioned recognition of Urban Design, which was also seen in the national context (see 2.2), was reflected in teaching. However, it should be noted that the subject of public space and its equipment was already being addressed since the early years of the Equipment Design degree programme at the Escola Superior de Belas Artes de Lisboa (Higher School of Fine Arts of Lisbon).

Other courses that followed continued to address this subject, given the specificities of the problem in question and the consequent learning opportunities for training in Equipment Design, Environmental Design, or even Industrial or Product Design. Occasional partnerships with local authorities have been established from the outset to bring students closer to the reality in question, given the obvious advantages of having greater contact with the constraints of specific contexts. The Lisbon City Council was one of those entities, having worked both with the Faculty of Fine Arts for the aforementioned degree in Equipment Design and the Faculty of Architecture for the degree in Design.

In this context, it should also be noted that the first post-graduate course in Urban Design began in 1999 at the Centro Português de Design (Portuguese Design Centre).[13] It described itself as an "original international post-graduate course in Urban Design" (Brandão and Remesar, 2000, p. 7) by "occupying a place that was still vacant in the provision of training in design and urban issues, even at international level – the area of interdisciplinary relations" (Brandão and Remesar, 2000, p. 7). (Brandão and Remesar, 2000, p. 5). With funding from PEDIP – Ministry of the Economy and in an international collaboration that brought together this centre, the Barcelona Centre for Design, the Faculty of Fine Arts of the University of Lisbon and the University of Barcelona, it was based on the assumption that a "close relationship that the design disciplines will have to have with each other and with the themes of urban citizenship, of the environment and quality of life" was necessary and that "Urban Design is no longer a technical area of specialised knowledge, but a field that requires a holistic approach, negotiating skills,

12 The name "Equipment Design" was adopted back in 1974 by the then Escola Superior de Belas Artes de Lisboa (Lisbon School of Fine Arts), which incorporated the design specialities now more commonly known as Industrial Design or Product Design, as well as Interior Design.

13 The Centro Português de Design (Portuguese Design Centre) was an entity made up of nine public and private associates, created in 1985 at the initiative of the government and financed by funds from Portugal's integration into the European Economic Community. Its main areas of intervention were raising awareness and disseminating design to companies and the public, internationalising Portuguese design and setting up projects and partnerships. It was closed down on 31 May 2013 due to lack of financial autonomy as a result of the end of its funding model. (*Portuguese Design Centre to be abolished*, 2013).

cultural design, interactive communication and, of course, formal synthesis" (Brandão and Remesar, 2000, p. 5). In this way, the classes were organised into teams of teachers and trainees from different backgrounds, who were given a theme or place by the local authorities collaborating with this course, which was then approached in an interdisciplinary way.

2.3. Urban Design at FBAUL

2.3.1. The place of Urban Design at FBAUL

Since the need for more dedicated training in Equipment Design within Urban Design is justified, it is appropriate to argue why his teaching can, or should, take place in an institution like FBAUL (Faculty of Fine Arts of the University of Lisbon).

Firstly, we can invoke the scientific assumption that Urban Design has been considered an interdisciplinary area of knowledge from the outset. This means that, although it may be a specific area of research and activity, it can only fulfil its purpose if Architecture, Urban Planning, Engineering, Social Sciences, the Arts and, of course, Design contribute to it. Since FBAUL dedicates itself to higher education and research in these last two areas, it is an institution with full legitimacy to address Urban Design.

A pedagogical precedent can also be mentioned, since the equipment of public spaces has always been a topic studied in FBAUL's higher education programme in Equipment Design, as we shall see. In fact, the Equipment Design Area (currently Equipment Design Department) has several years of teaching experience in this area, to which must be added the aforementioned project activity by several of the teachers of Equipment Design (see 2.2). The existence of teaching expertise is thus recognised, not least because of the specific research they have carried out in the field of Urban Design.

From a pedagogical point of view, it is also worth mentioning the advantages arising from the synergies between urban design and the other design specialities that are part of FBAUL's teaching and research. To include Urban Design here, and due to its similarities with the other Design themes and specialities that are covered in the teaching of Design at this faculty, is actually beneficial since it allows taking advantage of all the conditions that already exist and extend them to all parties involved.

This has created unique conditions for FBAUL to offer Design training in all three cycles of study, where it has the unusual opportunity at national level to address issues relating to Urban Design. Naturally, this approach will be more or less specialised according to the demands of the level of study, i.e. if we are talking about a Bachelor's degree it will have a more introductory character, at Master's level it is already possible to specialise in this field. Consequently, unique conditions are also created for the development of research in Urban Design.

Obviously, these conditions would be of little use, as would the training programmes and the research mentioned above, if there were no use for them outside the academic sphere. For this reason, the training in question stems, firstly, from the need that has been highlighted here for this specific training in Urban Design, but also because it is possible to see the opportunity for the students to find employment. Due to the nature and scope of the activity in question, a designer with this training could – and are only considering the national market – join or coordinate project or research teams in institutes or other state organisations dedicated to the design or management of public space and cities, as well as in any of the country's 308 municipalities or 3092 parishes. Alternatively, they could work for a company that provides services related to the design of collective or public spaces and their equipment, such as a design, architecture or landscape architecture studio or office[14] or a manufacturer of street furniture.[15]

14 In 2017, the activities that could consider it necessary to hire an FBAUL-trained designer to work in urban design had the following size: the CAE (classification of economic activity) group "74100 – Design activities" had 5,765 companies whose turnover totalled 301,312,277 euros; the CAE group "71110 – Architectural activities", which includes landscape architecture, had 9,230 companies whose turnover totalled 414,750,021 euros.

15 It is difficult to determine the value or size of the street furniture market in Portugal and, consequently, the size of the its labour market, since companies that manufacture or provide services in this area register under different CAEs as there is no specific code. However, as an example, JCDecaux, the largest advertising concessionaire for public spaces and a manufacturer of street furniture, reports a revenue of 3181.4 million euros in its 2018 profit and loss account (*JC Decaux SA (JCDX) Profit* and *Loss Account*, no date); in 2017, in addition to Larus Design Urbano, the group "31092 – Manufacture of metal furniture for other purposes" included 100 Portuguese companies with a turnover of 69,847,523 euros. (*Portal do INE*, no date).

2.3.2. Framework for teaching Design at FBAUL

The teaching of Equipment Design is part of FBAUL's diverse and wide-ranging higher education offer in various areas of Fine Arts or Arts and Design. Having been the first Portuguese institution to offer a degree in this area, the evolution of its educational offer has kept pace with the changes that have taken place. Today, in addition to the Graduate Degree, FBAUL also offers a Master's in Equipment Design, a Master's in Design for Sustainability[16] and a PhD in Fine Arts with a specialisation in Equipment Design. Design training at FBAUL also includes three cycles of higher education in Communication Design. This area includes the Graduate Degree in Communication Design, the Master's in Communication Design, the Master's in Contemporary Typographic and Editorial Practices,[17] and the PhD in Fine Arts with a specialisation in Communication Design.

The Graduate Degree in Equipment Design began in the 1974-75 academic year. Like other graduate degrees at the then Escola Superior de Belas Artes de Lisboa (ESBAL), it was a two-stage course, the three-year basic cycle, corresponding to an undergraduate degree followed by a two-year special cycle, corresponding to a graduate degree.

In this format, which remained in place until 2004, when the degree was first restructured, the core subjects, with a more theoretical-practical nature and more teaching hours, addressed the issues and practices of equipment design projects. In the subjects, or curricular units (CUs) as they came to be called, whose main aim was to develop skills for drawing up projects in Equipment Design,[18] students were offered exercises that simulated studio practice and future project activity. These exercises were given a theme or problem and were organised so that the student was introduced to these practices gradually, i.e. with increasing difficulty and complexity over the five years.

16 In association with the Faculty of Sciences, the Institute of Social Sciences and the Higher Institute of Economics and Management of the University of Lisbon.

17 In association with the Faculty of Architecture of the University of Lisbon.

18 This is a training designation that today falls under the Education and Training Area "214 – Design". (Diário da República, 2005) and which is dedicated to the professional activities of Design that are now referred to in the 2010 Portuguese Classification of Occupations as "2163.1 – Industrial product or equipment designer" and "2163.3 Interior, space or environment designer". (National Statistics Institute, 2009).

Topics relating to equipment and the space were only covered in the 4th year of this degree, already in the special cycle. Here, exercises were proposed aimed at developing the design of a space and the objects that equipped it, whether this space was indoors or outdoors, private or public. The students thus worked on projects for museums, commercial spaces, restaurants and hotels, offices, domestic spaces, among other interior spaces, but also exterior spaces, especially urban ones, such as streets, squares, gardens, and riverfronts, among others.

In the 2008-09 academic year, a new curricular plan for this degree came into force. Following the standardisation that had been defined for European higher education and applied in Portugal through Decree-Law no. 74/2006, the main characteristic of the new curriculum was its duration of six semesters. From the first moment this new format was analysed, the teaching staff clearly understood that a university degree programme in Equipment Design with such duration could never offer students the same level of preparation that they could achieve previously at FBAUL. As a consequence, the creation of master's degrees that was already contemplated in the Bologna process became even more imperative. Faced with this new scenario, the theoretical-practical curricular units relating to design project remained the main focus, as they were present in all graduate degree semesters and always corresponded to at least 9 ECTS.[19] However, it should be noted that the level of development that was generally achieved confirmed the preparation that a three-year programme allowed.

Currently, FBAUL's Equipment Design programme continues to share an important part of its foundations, both theoretical and theoretical-practical, with the other areas of Fine Arts. It is multidimensional in nature, as it includes both a theory-based approach to Design and Art and a technology-based approach to the various types of means of producing and implementing ideas, from those more traditionally linked to sculpture and other arts to more industrial ones, which also include the latest digital manufacturing and prototyping technologies. This diversity, which, it should be noted, is centred

19 European Credit Transfer Scale (ECTS) (*European Credit Transfer and Accumulation System (ECTS) - European Commission*, 2016).

on the operative field of the design project, will contribute to an education that is intended to be a mobilising factor for productive and entrepreneurial activity, as well as motivating autonomy and the development of processes and methods by the student themselves, mainly in order to allow them the flexibility and autonomy necessary for the challenges of contemporary society. The Graduation Degree in Equipment Design is presented as a first step in this training, which includes an operative aspect that aims to introduce the areas of Product Design, Urban Design and Interior Design, while maintaining its inclusion in the Education and Training Area "214 – Design" of the National Classification of Education and Training Areas (CNAEF). Diário da República, 2005) and providing the basis for the professions defined by the Portuguese Classification of Professions (CPP) as "2163.1 – Industrial product or equipment designer" and "2163.3 – Interior, space or environment designer". (Instituto Nacional de Estatística, 2009).[20] The requirements relating to the aspects involved are also taken into account, including the socio-cultural, environmental and productive aspects. The aim is to provide training that meets the demands of the labour market, but also allows self-employment.[21]

The syllabus for this degree is structured around a set of theoretical-practical curricular units, each with 12 ECTS, which follow one another in each semester. The aim of these Project CUs[22] is to gradually introduce students to design practices until they reach an appropriate level of autonomy for developing projects in these areas.

Adjusting to Bologna made it imperative to create a Master's programme that would maintain the quality and reach of the previous Equipment Design training at FBAUL. In fact, in the initial phase of adjusting to the Bologna process, an attempt was made to adapt the five-years programme contents and learning objectives that had been in force until then to a shorter duration, at least during the period in which a four-year degree was contemplated. However, it eventually became clear that training would have to be spread over more than one cycle of studies according to the new parameters, i.e. it would also have to include a master's degree.

It is in this context that FBAUL's Master's programme in Equipment Design was created. The training offers what is understood to be necessary for this area and is based on both a strong theoretical and practical component. As a result, the main feature of the 1st year of the programme is that it consists of weekly classes in each semester that can total up to 25h30, depending on the optional CUs chosen. (*Master's in Equipment Design - Curriculum Structure*, no date). From the outset, it was realised that this workload might be less attractive than that of other courses offering the same degree, since it requires a dedication that makes it more difficult to reconcile with, for example, a parallel work activity. However, this option was chosen because theoretical-practical training was given priority, which is why the curricular structure defined for the graduate degree is maintained, with more teaching hours and more ECTS, and is centred on project UCs with the main objective of building project development skills in Design.

The studio practice that is carried out in these CUs is not exactly simulated. The external organisation with whom we establish partnerships formulate problems to be dealt with in the exercises students do for these courses. In this Master's degree, the projects developed by the students may possibly be based on problem that are intended to be "real", since they are proposed by these partners, which are industries or other companies as well as local or state institutions, and thus correspond to an existing situation or need that may even end up being implemented. In this way, students "acquire sufficient skills to work in the field of design and contribute to the production of differentiated solutions that may be adopted by the fabric of business and administrative organisations in response to the challenges of contemporary society."[23]

20 The CNAEF is based on UNESCO's International Standard Classification of Education, as well as on the classification of training areas overseen by the European organisations EUROSTAT and CEDEFOP. (Diário da República, 2005). The CPP was structured and organised on the basis of the International Standard Classification of Occupations (ISCO/2008) of the International Labour Organisation (ILO). (Instituto Nacional de Estatística, 2009)

21 Taken from a presentation text for the Degree in Equipment Design, prepared by the Area Department and the Course Coordination and published in part in a publicity leaflet and on the FBAUL website (www.belasartes.ulisboa.pt).

22 Introduction to Design, Project I, Project II, Project III, Project IV and Project V.

23 Taken from a presentation text for the Master's in Equipment Design, drawn up by the Area Department and the Course Coordination and published in part in a publicity leaflet and on the FBAUL website (www.belasartes.ulisboa.pt).

FBAUL has always proposed that the training course dedicated to the topics that are considered to be within the area of Equipment Design should be organised, firstly, according to their degree of complexity, and secondly, according to the specialities that can be considered to be included in this area of knowledge.

It is for this reason that the Master's in Equipment Design at FBAUL has another characteristic: it is organised according to specialities, divided into the branches of Product Design and Urban and Interior Design. This choice is initially made by the students at the time of their application, which naturally means that the research and consequent preparation of the Project Work or Dissertation will fall within one of these themes.

The current Master's Degree in Equipment Design is thus a training programme "at the level of the 2nd Cycle of Studies with regard to the competences and research methods of Design". (*belas-artes ulisboa » design de equipmento*, no date)7,13]]}}],"schema":"https://github.com/citation-style-language/schema/raw/master/csl-citation.json"} . It is aimed at "consolidating and improving the skills of the graduate degree and the advanced implementation of research methods in a broad area of Design" and "aims to promote a critical sense that contextualises specific practices, through the understanding of transversal and complex phenomena, as well as enabling research in new operational scenarios of Design".[24]

The aforementioned specialities within the current format have the strategic objective of offering training in this "broad" area, since it will include all those that fall within Equipment Design, or at least those that can be considered the main ones in our country.

The Urban and Interior Design branch focuses on "analysing the relationship between man and his surroundings. The study and activity of design are thus related to the production of physical space and the artefacts that equip it, namely the city's public places and interiors".

The 1st year curricular structure is centred on the aforementioned theoretical-practical project CUs with 12 ECTS and 12 hours per week, in this case Urban and Interior Design I for the first semester and Urban and Interior Design II for the second, which include exercises to develop design projects with themes and problems proposed by our partners.

Finally, the Urban and Interior Design branch includes, as the name suggests, two distinct areas of activity and knowledge. Since the problems, contexts, needs, performance, technologies, materials and other constraints are specific to each area, a separate approach is necessary to better guide the students. The semester organisation is therefore used to separate them; in the first semester, the exercises proposed in Urban and Interior Design I are aimed at developing Urban Design projects and the exercises of Urban and Interior Design II are aimed at developing Interior Design projects.

2.3.3. Teaching Urban Design

Despite the implementation of the Bologna Process, the initial attributes of FBAUL's training in Equipment Design have been maintained and are now distributed across the Graduate Degree in Equipment Design and the Master's Degree in Equipment Design. The emphasis on theoretical and practical training was also maintained. The curricular structure of the two study cycles continues to be centred on "project" curricular units (CUs). One CU that stands out in the first semester of the master's degree is Urban and Interior Design I (DUI I), because it has 12 ECTS while the other CUs have 3 or 6 ECTS.

Topics relating to equipment and its surroundings, with exercises on both interior design and urban public spaces being proposed, were already covered in the 4th year of the graduate degree programme in 1974 (see 3.3.2.). It is therefore evident that the Urban and Interior Design branch of the Master's in Equipment Design preserves the original learning path defined for the first Design courses.

We have previously mentioned that, since this first graduate degree, the exercises that are developed in the "project" CUs are the result of partnerships with external organisations, albeit sometimes sporadically or informally. This also happens in the 4th year of this course, where, given the topics covered at the time, some of these partners were local authorities. Mention should be made in particular to the partnership that existed, although without a protocol, from the 2000/2001 to the 2005/2006 academic years (6 editions) with the Green Structure Projects Division / Municipal Directorate for the Environment and Green Spaces, later the

24 Taken from the same presentation text for the Master's in Equipment Design, drawn up by the Area Department and the Course Coordination and published in part in a publicity leaflet and on the FBAUL website (www.belasartes.ulisboa.pt).

Studies and Projects Division / Municipal Directorate for the Urban Environment, of the Lisbon City Council.

When the Master's programme in question started, a partnership agreement was signed with Larus Design with the same purpose of collaborating in defining themes for the development of projects by students and accompanying them within the context of the DUI I curricular unit. From the 2015/2016 academic year onwards, the relationship with the Lisbon City Council was resumed through the Urban Studies Division / Municipal Urban Planning Directorate / Public Space Department. Subsequently, given the more comprehensive nature of the protocol that came to be established, all the departments of this City Council have, since then and to date, contributed with a list of proposed themes, which, after an initial selection by the lecturers, are used by the students of this CU to develop their project. With these two protocols, students have benefited from the point of view of two types of public space stakeholders: the street furniture manufacturer and the space manager.

DUI I thus follows the continuity advocated for the Area of Equipment Design, which defines the Master's Degree itself. It does so, firstly by maintaining the sequence of themes and specialities defined for FBAUL's first Graduate Degree in Equipment Design and, secondly, by maintaining teaching with a strong practical component and close to professional reality. With this approach, students will be better prepared for their future day-to-day work, and will also be provided with a more complete education in the speciality of Urban Design, being exposed to a greater variety of points of view than would be possible if their only contact with the outside world was, for example, with street furniture manufacturers.

2.3.4. Contents for an Urban Design curricular unit programme

Based on the experience and precedents described, the following is the programme for a CU equivalent to DUI I to be included in the 2nd cycle course (master's degree) dedicated to the theme of Urban Design, with the specificities described below.

The main aim of this course is to acquire skills in the development of Urban Design projects, i.e. projects in and for the public space of cities and human settlements and urbanisations in general. Taking into account the interdisciplinary nature of this area, it focuses mainly on the design of equipment for public spaces, namely street furniture and "micro architecture", lighting, information and directional signage and other specific equipment, such as equipment for the various services or other non-typified equipment to be determined, for example, according to the specific needs or opportunities of a given place.

Although more in an introductory way, it also inherently includes "floor design", defining its modelling, the various types of flooring materials and technologies, managing its structuring according to the various circulation channels, types of zones and, of course, the implantation of equipment. To fulfil this objective, the following skills will be acquired:

— To observe, analyse and understand a given place or public space according to the aspects that should be referred in an Urban Design project, namely the historical, social, cultural, perceptual aspects, as well as functional and administrative;
— To determine the needs of the intervention site, taking into account the requirements for each of the dimensions listed above in order to ensure, as far as possible, its feasibility and sustainability, as well as the perspectives, expectations and aspirations of the residents or inhabitants;
— To define, develop and apply an Urban Design project method according to the specificities of the intervention and the site in question;
— To learn about the various technological solutions, especially in terms of materials and manufacturing technologies, with a view to selecting and adapting the best way to implement the project under development;
— To coordinate, manage and integrate a multidisciplinary Urban Design team;
— To master the techniques and means of presenting projects, using them in the best way possible to communicate ideas;
— To communicate and dialogue with the different stakeholders involved in the project, namely residents and the local population, local authorities and other public space management bodies, the different technicians and specialists, as well as the contractors and manufacturers involved.

Given these objectives, the syllabus of this CU will be linked to the processes and specificities of Urban Design, especially to the development of an Urban Design project that culminates in the design of its equipment. As such, its programme is structured according to a possible phasing of the development of a public space intervention project and its equipment.

Alongside the preparation of the project, structuring themes in the thinking of this area of knowledge are addressed throughout the semester, which are distributed taking into account the evolution of the exercise and the opportunity of addressing such theme in the learning context. The themes are addressed in technical and theoretical seminars. After an introduction to the basic concepts, these seminars are followed by an in-depth study of the various issues relating to the city, public space and street furniture, their dynamics and specificities, with the aim of ensuring their proper performance by consolidating the appropriate requirements for thinking, designing, making, using and maintaining them. This is followed by an approach centred on the detail of the Urban Design project, i.e. street and public space furniture, including the technical and building aspects. Given its importance for training in Equipment Design in general (C. Valente Pereira, 2019), the area of mastering the techniques and means that will enable the implementation of the ideas being developed is given pride of place.

In line with what is mostly practised in Fine Arts teaching, which includes the Schools (then Faculties) of Lisbon and Porto, or even the Design Schools since the Bauhaus, FBAUL's Equipment Design also makes largely use of "learning by doing".[25] In the same way, this CU bases its teaching methodologies on exercises to be carried out by the students under the supervision of tutors. The aim of these exercises is for groups of students to develop an Urban Design project, thus simulating the professional reality of a studio.

Naturally, the theoretical and practical nature of Urban Design must be taken into account in the teaching methodology used. As is usually the case in Design and Architecture,

25 John Dewey (1859–1952) is often referred to as the first author to address and systematise this methodology. We should also take this opportunity to refer to the most recent review by Yuan et al (2018).

as well as in other areas that converge on Urban Design, both learning and research use a process that includes an approach that complements theory and practice.

The development of these exercises is then structured in phases, such as those that normally take place during the development of a design project, i.e. research, programme, preliminary project and project.[26] At the end of each of these phases, there will be a presentation session on the development of the projects, which will be assessed by the lecturers, along with a complementary dossier containing other elements in addition to those mentioned, namely materials researched and those produced by the students.

Given their great importance for teaching/learning, partnerships with external organisations will continue to be established for the development of exercises for this CU. The close contact with the professional and work environment will complement the scientific and academic aspects, allowing for a more diverse and complete learning that will enable students to be better prepared for professional activity, as well as enabling research with practical and useful results for the business and industrial fabric, municipalities and other organisations.

26 This is a subject that is widely debated in the literature dedicated to Design and in the literature used by its researchers, teachers and professionals. Without wishing to elaborate an anthology on this subject, we will only use the authors who are easiest to remember, such as C. Alexander (1964), G. Bonsiepe (1992), B. Burdek (1999), G. Dorfles (2002) and B. Munari (2004). This project organisation aims to structure the different phases of the project according to their evolution, from the exposition of the problem(s) to its resolution. This model is gaining recognition and is spreading widely, and it is worth mentioning "design thinking" in the English-language literature, which reaches areas of knowledge as diverse as economics or computer science.

But while Bonsiepe admits that this "scientific approach to design" makes it possible to "clarify the structure of the design process" and "avoid erratic behaviour by setting precise goals", he also ironically claims that it is intended to "confer on design activity the stigmata of academic respectability that the concept of science enjoys – rightly or wrongly" (1992, pp. 203–205). In fact, this linear, step-by-step design method seems attractive in the abstract, but in reality, the actual sequence of design thinking and decision-making is not a simple linear analysis-synthesis process. So, in practice, the problems tackled by designers can hardly be mastered in this way. There are several authors who have reflected on a different structure, of which Burdek (1999) is worth mentioning. This author makes use of the dialectical and continuous process of antithesis-synthesis-thesis for the development of a project, as well as the model that Lawson (2006) proposes, composed of "volumes" of analysis, synthesis and evaluation. This three-dimensionality results from the demultiplication of the original linearity, but also from the permanent negotiation and tension between the problem and the solution.

Consequently, it is with some reservation that the linear method of the design project process is used here, but it ends up being the option that is most likely to streamline and make this exercise a success.

For this reason, our partners – companies, local authorities or other organisations involved in the problem in question – are asked to collaborate in defining the themes to be dealt with, as they are intended to be related to real, concrete problems. They are also asked to be available to provide the information and elements needed to carry out the exercises, as well as to answer any questions the students may have. They are also invited to be present at evaluation sessions, contributing with comments and opinions based on their own perspective and knowledge.

Alongside the development of these exercises, the aforementioned seminar sessions for the presentation and discussion of topics related to Urban Design also contribute, directly or indirectly, to the development of those exercises. The aim is for these seminars to function more as a forum than as a "lesson" (in the most classic sense) led by the lecturer alone. Therefore, whenever possible, the seminars are presented by the students during the course of their research work, and then supplemented by the lecturer to ensure that the topic is dealt with correctly. Alternatively, lectures may be given by external guests, belonging to the Master's programme's partner organisations or others.

Given that these topics need to be discussed and given the learning objectives of this course, where it is essential to have as close contact as possible with the reality of urban design, real cases are often described, analysed and evaluated. Beyond the "four walls" of the classroom, this CU includes study visits, some of which are provided, organised or even proposed by the partners.

With regard to the evaluation of students in this CU, it is worth reflecting on the nature of the Design problems. On this subject, Buchanan (2009) evokes Rittel to explain that the majority of designers' problems are "wicked problems" (a term originally coined by Karl Popper and given new meaning by Rittel). These are problems that are poorly formulated, with confusing information, with many clients and decision-makers with conflicting values and where the ramifications of the whole system are truly puzzling. This day-to-day life of designers exposes above all the relationship between "determinancy" and "indeterminancy" in design thinking. It should be noted that this indeterminacy that Buchanan talks about implies that there are no definitive conditions or limits to design problems, hence the difference with "undetermined". Thus, and keeping on with this author, perverse problems in Design have no definitive formulation, their resolution does not depend on an exhaustive list of admissible operations and their solution is never final, never true nor false, only good or bad.

In line with this idea, in his reflection on scientific and design methods, Cross (2001) recalls Alexander (1964) who states that "scientists try to identify the components of existing structures, while designers try to shape the components of new structures". He also recalls Simon (1969), who says that the natural sciences focus on what things are, while design focuses on how things could be.[27]

If in Design we work on how things could be, there are no correct or incorrect solutions and each problem can generate several solutions, as a consequence the assessment of student performance in Design teaching, or at least in a CU of this nature, cannot be based on comparing a possible solution envisaged by the teacher with the one presented by the student. In the same way, if Design problems don't have a definitive formulation, the evaluation cannot be based on comparing the process that the student defines and implements with one that the teacher has foreseen.

Therefore, the evaluation in this CU focuses on the results that the student has obtained and the path that he or she has taken throughout the semester, which should fuel each other. In other words, the path you follow is as valid as the result you obtain from it, just as the result you reach is as justified as the path you followed to reach it.

Quantitative and qualitative components are also considered. In other words, the amount of work the student does is assessed through the extent and diversity of the research they do, the detail with which they characterise the problem, the number of elements (drawings, models, etc.) they produce in developing their ideas, the number of elements they use to present their solution and the detail that results. The quality of the research is also assessed by the relevance of the elements collected and the way they are systematised and organised, the way they prioritise the issues raised by the problem and how they characterise it, the quality of the development of the ideas, where being innovative is fundamental, and the overall quality of the solution proposed, the quality and appropriateness of the response being checked in relation to the problem initially defined.

27 In the original: "The natural sciences are concerned with how things are... design on the other hand is concerned with how things ought to be". (p.51)

As is clear, the evaluation of the student is based on the results they obtain and present, but also on the development of the work they do to obtain those results. In other words, as already mentioned, at the end of each of these phases there is a presentation session on the development of the projects, which is evaluated by the teachers, but this evaluation cannot only refer to the results presented there. These will have to be considered in conjunction with the student's performance in attending classes and the evolution of the work resulting from their discussion with the teachers.

2.3.5. Research

In the second year of the Master's programme in Equipment Design, students begin work on their Dissertation or Project Work,[28] which is supported by Orientation Seminars they have one morning (4.5 hours) per week and accounts for 6 ECTS. These seminars are organised by all the lecturers in the Equipment Design area, so it is an open space for reflection on key current design issues, which are proposed from the individual perspectives of the different researchers. The variety of approaches makes it possible to identify themes and methodological references useful for defining the student's individual research. (*belas-artes ulisboa » Programas das Unidades Curriculares*, no date).

It is therefore possible to realise that this is an opportunity for students to carry out research at the level of a second cycle of higher studies and on a topic within the field of Equipment Design and Urban Design. Large scope research can be carried out on a wide range of topics and genres, from designing a line of street furniture or other urban equipment, to analysing the evolution of public space and its equipment, studying methods and procedures for intervention in public space, urban sustainability, use and user-citizen behaviour, materials and production technologies for public space, among many others. As in the previous academic path described above, this research, whatever its format, can also be developed in partnership with an external organisation, whether an entity with which a partnership already exists or a new entity with which a partnership is established for this purpose, as has already happened.

28 Designation adopted by regulation (Diário da República, 2016) which, in practice, distinguishes research work of a predominantly theoretical nature from that of a theoretical-practical nature, the latter including those for which a design project is developed.

Research can also be dedicated to Urban Design as part of the Fine Arts PhD programme, although naturally with a deeper level of reflection and approach than what is possible at a master's level. Students on this programme can also write both theoretical and theoretical-practical theses with the same large scope and variety of themes. Similarly, research aimed at producing a thesis can be the result of a specific request or a partnership with an external organisation, which will even create more conditions to ensure its usefulness, an essential requirement for a thesis, and one that is not always easy to achieve.[29]

The Fine Arts PhD programme of FBAUL has been operating under the Bologna model since 2009. As it is part of all areas of the same faculty and is transversal to them, doctoral students have access to several options when choosing their research topic. Thus, its structure and curricular units provide different options within the broad scope of knowledge, practices and experiences, which simultaneously provide advanced and specialised training on the appropriate skills through research and the development of projects within the scientific fields of Fine Arts. Doctoral students will be able to independently pursue a career in research, both artistic and scientific,[30] either by joining multidisciplinary teams or by coordinating them. (*belas-artes ulisboa » doutoramento em belas-artes*, no date).

In the meantime, the need for more specific conditions for research in Equipment Design has been established. Among other things, it is worth noting the need for a PhD programme that investigates subjects related to design and that allows, or even encourages, a strong practical, experi-

29 Umberto Eco (1989) had already proposed that a study is scientific when: 1) it deals with a recognisable and defined object in such a way that it is also recognisable to others, 2) it says something about the object that has not yet been said, 3) it is useful to others and 4) it provides elements for verifying and challenging the hypotheses presented. In other words: recognisable, new, useful and verifiable. This is certainly not why some consider this work to be dated.

Let's remember, by the way, what Voltaire wrote in 1759, in his *Candide, or Optimism*, in the chapter on the visit to Mr Pococurante, a Venetian nobleman (1986):

"Ah!" exclaimed Martin. – "Here are eighty volumes of the annals of an academy of sciences; there must be something good about it.

– "There would be", said Pococurante, "if just one of the authors of this moxinifada had invented the art of making pins; but in all these volumes there are nothing but innocuous systems and nothing useful."

30 This is the name the source quoted here uses; however, it is also understood to include research in Design.

mental and operative component, closely linked to the reality to which the subject under investigation refers. This is also why contact with the outside world, partnerships, protocols and collaborations with various organisations are essential.

For these conditions to be met, proper coordination with CIEBA – the Centre for Research and Studies in Fine Arts – is essential. This will make it possible to be in tune with the thematic lines of research, as well as with the disciplinary areas defined by this centre, which, after all, organise the whole of FBAUL's training offer and the expertise of its teaching staff.

This connection will also provide contact with the other study programmes and the work they are carrying out. To this end, the research group involved, by coordinating all the research related to its theme, can act as an interface between the cycles of study and all the students and researchers involved, also ensuring better horizontal and vertical communication.

Again, the strong practical, experimental and operative components closely linked to the reality of the subject under investigation, the contact with the outside world, the partnerships, protocols and collaborations with various organisations are also fundamental here.

The possibility of internships or residencies for these doctoral students should also be considered, with a duration and format that suits the doctoral programme, the needs of the research in question and the availability and preferences of the partner involved.

In this way, the conditions will be created for greater integration between research and teaching at FBAUL. It should also be noted that this closer relationship can also be catalysed through the Laboratories areas – which are part of both FBAUL and CIEBA. The Laboratories are, after all, also a means of integrating the services and projects they provide, both in teaching and in research.

In this context, there is also an opportunity and a need to consolidate research in Urban Design focused on public space equipment in cities at the aforementioned research centre. By helping to better organise research and the topics to be covered in theses, dissertations and project work to be carried out to obtain a PhD or Master's degree, the creation of a thematic line or research group makes it possible to optimise the obvious synergies between researchers on an ongoing and stable basis.

In addition to other themes with a more transversal nature that may be established between the researchers, the specific research into Equipment Design that will take place following this approach should have the main objective of contributing to the development of proposals that correspond to the opportunities and challenges of public space and its equipment in society and in the city. It is centrally considered that this conjuncture is defined by the development of new means of communication and information, the generalisation of consumption and globalisation, along with the requirements of sustainability, democracy, inclusion and citizen participation.

Given its scope of themes and the general objective that was presented, three work orientations can be defined for this group of themes, from which others can be organised and developed:

— Determine what the opportunities and challenges are for the performance of public space and its equipment in the context of the contemporary city;
— Get to know the collective space equipment of cities: Lisbon, Portugal, Europe and other cultures;
— Propose what will be the principles, methods and procedures for the production – design and manufacture, as well as management and maintenance – of street furniture for the city and the society of the future.

As is often the case outside the so-called "hard sciences" or STEM (Science, Technology, Engineering and Mathematics), it is assumed that it will be more difficult to generalise and universalise solutions in this area of knowledge. In any case, even if the results obtained may be of more limited application, the expected building of knowledge in the area in question is possible from the outset through the continuity of the research produced.

As a result, in any of the cycles, teaching and learning will be able to benefit more directly and immediately from this evolution, as is to be expected in universities, which includes the experience of the activity of the laboratories associated with the universities. Research could also benefit with more solid and up-to-date teaching and learning bases. Obviously, laboratories will also benefit from this proximity, at least because they can be a place where knowledge, reflection and evolution converge.

From the above, Urban Design has consolidated itself in recent decades as an area of knowledge and activity that has gained visibility and popularity, including in higher education institutions. For example, there are already Master's degrees in Urban Design being offered at international level, but it is possible to say that this area is still uncommon, at least in the research and teaching of Design faculties and research centres in our country.[31]

Despite this, there are many opportunities for Design and Designers, due to the usefulness that the citizens and user see in, for example, street furniture. The public spaces they equip remain fundamental to our daily lives and our cities, despite the successive prophecies that try to dictate their demise. Training and research based on the design, production and implementation of this equipment is essential and urgent for the proper quality and sustainability of public spaces and, consequently, for manufacturers and builders, local authorities, parish councils and other public space managers.

But the greatest opportunity for the development of public space equipment – or even the need for its evolution – will be in exploiting its potential as an important solution to current sustainability problems. As is now widely recognised,

31 For example, a very quick search on 3-5/2/2021 at https://www.educations.com/search/urban-design-europe/c3979-d58 and https://www.masterstudies.com/Masters-Degree/Urban-Design/ returned 226 and 56 responses, respectively. After filtering out the results that turned out to be less specific (namely Master's degrees in Architecture), those that fell outside the scope of interest here (for example, courses entitled "Urban Planning", which were considered to be Urbanism, "Urban Development", or others that were assumed to be linked to other areas such as economics or engineering), and the repetitions, and after combining the two results, 60 courses were obtained. Of these, 24 (40 %) only admitted students with a graduate degree in Architecture.

The "Search for Courses and Institutions" on the DGES (Directorate General for Higher Education) website (https://www.dges.gov.pt/pt/pesquisa_cursos_instituicoes?plid=372) using the parameters "Design" and "Master's Degree - 2nd Cycle" returned 66 courses from 33 institutions. Not considering the Master's in Equipment Design at FBAUL, only 3 of these courses shows some affinity with Urban Design in the description on their websites: Master's in Spatial Design at the University of Madeira – Faculty of Arts and Humanities; Art and Design for Public Space at the University of Porto – Faculty of Fine Arts; and Integrated Design at the Polytechnic Institute of Viana do Castelo – School of Technology and Management (the latter because it has Larus as a partner). Searching this site with the parameter "Urban Design" returned no results.

before recycling the manufacturing materials, their reuse and, above all, their reduction must be promoted. As strategies for following this principle, proposals have emerged for dematerialisation, converting products into services, or even promoting shared use of products and systems that have so far been consumed individually and discarded after use. As part of this alternative offer of shared resources, some of them could be available in the public space of cities, which is, after all, the space of sharing by nature.

As a result of recent environmental and social challenges, there may even be a crisis in Design today, at its very basis and foundations. If initially only a few wanted to recognise these problems, as Papanek put it (1985), for which Designers are also responsible, there is presently a deep and wide-ranging reflection on how Design and its activity, both professional and research, can continue to contribute to the quality of life and current demands.

Now, when we recognise that the dynamics of the so-called "consumer society" have been an important factor in the aforementioned environmental problems through the excessive consumption of natural resources, this logically means that it is necessary to find alternative dynamics to the consumer market. Consequently, it is also essential to find alternatives to consumer products, at least in their most classic concept, and therefore to consumer product design.

The logic still prevailing in industry today is that of production with the rewards obtained directly through its sale. This is how the consumer market was founded, flourished and consolidated, and consumer products multiplied. From then on, the demands and opportunities for designers also multiplied; this was the path to the development of Industrial Design, as well as to the consolidation and institution of the activity of Design in general.

Understandably, founding concepts such as "Industrial Design" have been questioned – and even disowned. However, we must never forget that not only Design not just Equipment Design, but Equipment Design is not just Product Design and Product Design is not just Industrial Design. Nor is Industrial Design just Industrial Design of consumer products. In addition, we will continue to live in this material world and we will continue to need to materialise our ideas, if not those that allow us some comfort, at least those that allow us to survive. Related activities and areas of research,

such as design, must continue to evolve, albeit now within the new framework that is imposed. It is from this perspective that Urban Design, and the design of equipment such as street furniture, can make a valid contribution to the current and increasingly urgent problems of sustainability in environmental, social and economic terms, as well as be an important factor in the reflection that has become the order of the day for Design in general.

Adding these more transversal issues to those that have already been addressed and that stem from the contemporary and specific challenges relating to the city and its public space (see 3.1), it is possible to understand there is the broad field of activity and research for designers within Urban Design. There is, in fact, an imperative to preserve the interdisciplinary nature of Urban Design (see 2.2.1), which reinforces the importance of the presence of those who intervene in the public space from the scale of the equipment found in it.

The various reasons why Urban Design should be taught and researched at a school like FBAUL were also presented (see 3.3.1). The work carried out in this field at this institution has been well received by the partners and its value has been recognised both by them and by other organisations or people outside the faculty due to its innovative approach and the relevance of the solutions proposed (see Appendix).

However, the results of this work show that this is only a small part of what can still be done. It is easy to see that more partnerships and protocols can be established, either with town councils, parish councils or other public space managers, or with companies dedicated to the production of equipment for public spaces (street furniture, street lighting, paving, cabinets and technical equipment, among others), or with architectural or landscape architecture studios, engineering offices or with other designers working in this field. This activity, whether as part of teaching, research or just providing services, can take the form of global projects being developed for the requalification of public spaces, whether existing or new spaces, or projects dedicated to a line or type of equipment, such as those mentioned above. As an alternative or complement to this production, studies, reports and specialised consultancy can also be produced.

As for research in particular, while there is still a lot to be done in the general field of design, or more than in other areas of knowledge that have been consolidated for longer, there are even more opportunities and needs for research in the area of Urban Design.

In fact, we have seen that, in addition to the importance of public space for the city and the society that inhabits it, there are specificities that reinforce the legitimacy of Urban Design as an area of knowledge, arising from the problems and practices specific to this context and its equipment, including its production and use. Therefore, if these specificities justify dedicated teaching and learning, it is easy to understand that they do not allow the intrinsically necessary research to be simply transferred to this area from other contexts, objects and dynamics.

The several years experience tells us that FBAUL's partners are interested in the work carried out by universities. Each theme proposed for the project of intervention in the city to be developed by the students includes a reflection that contributes to the reconceptualisation of the city's public spaces and their equipment, their functions, uses, typologies, production and management processes, or any other aspect they highlight.

Last but not least, it should be emphasised that Urban Design brings, and may yet bring, advantages to those who graduate. It is an area of knowledge that provides additional and unusual training for designers, giving them qualifications that put them at an advantage in job application processes or job offers. In this way, it has also been pointed out that more job opportunities will open up in various organisations involved in the study, design or management of public spaces and cities, whether they are local authorities, ateliers, manufacturers or others.

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APPENDIX

APPENDIX

The Faculty of Fine Arts of the University of Lisbon (FBAUL) has been developing relevant work within the specific scope of Urban Design. As a consequence, valid results have been obtained both in teaching and in research.

Up to now, the author supervised and co-supervised two dozen dissertations and project works by master's students from FBAUL, as well as from other institutions in the country and abroad. As an examiner, the author was also a member of the examining panels for other candidates from equally diverse backgrounds.

Within the same specialty, the author wrote, alone or as a team, several articles that were included in national and international publications.

With regard to teaching, both 3rd year students of the Graduate Degree in Equipment Design and students of the Master's Degree in Equipment Design in the Specialty in Urban Design have been developing projects for public space based on exercises proposed and guided by the team of which the author is part. In the case of the Graduate students, less complex problems are naturally addressed in the Project V curricular unit (CU).

In the case of the Masters students, some of the projects developed in the CU of Urban and Interior Design achieve more complete solutions, to the point that their production and implementation can even be continued. In this case, the proposed themes are often related to a specific public space, such as a square, piazza, viewpoint, park or garden. Other themes for more comprehensive interventions are related to the development of systemic solutions and strategic approaches to intervention in public space. Following the process already described, the work developed by the students is aimed at determining a possible solution to the problem, by making an additional characterization of the intervention site and creating a project specifically directed for that space and including the necessary equipment. As already seen, the themes are defined by the partners with which protocols are signed.

Larus Design has a protocol with FBAUL since 2008 to monitor the projects that are developed by students within this CU. The results obtained are presented and discussed with its technicians and, the following year, this company offers internships to students, so that they can integrate this experience into their project work or dissertation.

The Lisbon City Council, through its Department of Public Space of the Municipal Directorate of Urbanism, has been proposing themes for projects to be developed in a curricular context even before the establishment of a protocol in 2016. These projects are also developed with the supervision of technicians from this authority and, in the end, the results obtained are presented and discussed with teachers and students from other colleges and universities, in meetings organized by the City Council.

These occasions have made it possible to assess the recognition of the work carried out at FBAUL, especially as it complements – or even completes – the work produced by other teaching and research institutions and local authorities. In fact, as a direct consequence of this demonstration of capabilities, additional proposals have been made to FBAUL for the development of specialised solutions.

This was the case of the Lisbon Avenidas Novas Parish Council, which proposed to FBAUL the development of a project for a system of identity and utility equipment for the parish's gardens. The first phase of the project was developed within the context of the CU of DUI I in the 2019-2020 academic year, by students Ana Carolina Ferreira, Adriana Franck and Joana Pratas under the guidance of their teachers, the author and Prof. Raul Cunca. The results obtained were very well received by this Parish Council, and further production and implementation was approved. However, the Covid-19 pandemic and other setbacks ended up interrupting this project.

The solution that was proposed was achieved through a system of precast and painted concrete modules, making possible a unique set with a size appropriate to the size of each garden or green space in the parish. All sets are an identity landmark, but also a place where people can rest and have intergenerational meetings (Figure 41).

Also developed within curricular context and at the CU of DUI I was the Signage project for the University of Lisbon following a request from its Rectory in the 2014-2015 academic year. It was developed by students Joana Soares, Mariana Francisco and Susana Gomes, under the guidance from the same teaching team. In addition to serve as signposting,

indicating direction and giving information to users of the University City and the Ajuda Campus, the proposed system also had the objective of reinforcing the University's identity and contributing to the requalification of these areas, improving their use and, therefore, increasing the permanence of the university community in those places.

Once the signage system project was approved, its production continued under the supervision of the same team of students and teachers and its implementation was completed in 2017 (figure 42).

Possibly due to the portfolio of Urban Design projects that the Equipment Design Area has been consolidating, at the end of 2018 the Presidency of the Polytechnic Institute of Setúbal (IPS) also requested the development of a pedestrian and road signage and information system for their Campus in Estefanilha (Setúbal). Since the dates for completing this project were not compatible with the academic calendar (the system had to be implemented in October of the following year), it was decided to set up a team of teachers (Cristóvão Pereira and Tiago Girão), technicians from the Equipment Design laboratory (João Costa and João Rocha) and Equipment Design and Communication Design students (respectively, Sara Joaquim and Diogo Lourenço) to develop the project outside the curriculum and monitor its production. The preliminary design phase was approved in the first half of 2019 and the project was completed in the third quarter of the same year. Its implementation was completed in September 2020, a delay that was largely due to the confinement imposed by the Covid-19 pandemic.

Naturally, its main function would always be to allow all those who access the campuses, especially those who were not sufficiently familiar with the site, to quickly and easily find out the best route to reach each destination. Two types of users were considered for this purpose: pedestrians and drivers. This was due to the existence of two route network systems, one for drivers and the other for pedestrians. To further complicate matters, the first destination of drivers is the parking lot closer to their desired building which, after parking, they will have to reach on foot. It was also previously established that, on the one hand, it was imperative that unity and consistency be maintained across all elements of the system but that, on the other, some variation should exist along each route, defined according to each case, to provide a better sense of evolution for the user. The design of this system, developed specifically for the IPS campus and which included its graphic information and communication content, as well as the determination of the sites where all the system's constituent elements would be implemented, was defined based on a "family" of types of supports transversal to the paths.

To formally develop the projected signalling system, it was decided to maintain the visual image that had been defined for the symbol and logo of the IPS. Its implementation on both campuses also contributes to the identity of IPS through an image of contemporaneity and innovation, which is reinforced by the contrast between the system and the rural environment of the Setúbal campus. Additionally, this resource also allows the colour code that was defined for each organic unit to be reused. Thus, on each plate, these units are indicated using text along with its corresponding colour.

A modular construction was chosen that uses materials and technologies for production that do not require large investments in pre-production through, for example, moulds or other tools. Therefore, the supports are manufactured using metalworking processes, namely 3mm steel sheet, cut, drilled, bent and welded, with metallisation and gray forge enamel finish. It is fixed to the ground by a reinforced concrete footing, connected to the base using a thread bolt. The plates containing the information are made of 6mm HPL sheet with a white finish. The graphics are made using CNC machining (milling or laser engraving) with a depth of 1mm. On some supports the IPS plan is coloured with enamel paint. A piece of milled polyethylene, painted in the colour of the respective school, is glued to the HPL plate at one of its ends (Figures 43, 44, 45, 46 and 47).

1

CHARPENTIER, François Philippe, 1734-1817. Lisbone, ville capitale du Royaume de Portugal.... - À Paris: chés Charpentier, [ca. 1760]. Biblioteca Nacional de Portugal. Digitalised copy call number: E. 1472 A. http://purl.pt/13617. Engraving with a panoramic view of Lisbon identifying the city's notable buildings.

2

Pastrana Tapestry, Conquest of Tangier. Execution at the end of the 15th century attributed to the workshop of Passchier Grenier in Tournai (currently Belgium) ordered by D. Afonso V of Portugal after 1471. The scene presents the walls of Tangier containing its buildings. Outside, Portuguese troops surround the city.

3

Av. Do Santo Condestável in Chelas, Lisbon. Photo by the author, 2002.

4

Chelas central intersection of Av. Do Santo Condestável with Av. Mal. António de Spínola, Lisbon. Photo by the author, 2002. The consequences of the prominent role given to cars in city planning sometimes makes us question whether we are actually still in the city, even if we are well within its limits, as is the case in this place.

5

Aerial view of Kowloon in 1989. Wikimedia commons. https://commons.wikimedia.org/wiki/File:Kowloon_Walled_City_-_1989_Aerial.jpg

6

An alleyway in Kowloon, 1983. Wikimedia commons https://commons.wikimedia.org/wiki/File:KWC_-_Alley.jpg
Also found in the book City of Darkness: Life in Kowloon Walled City, by Ian Lambot (ISBN 1-873200-13-7). Kowloon, a dystopia that led to the confinement of public space to the minimal function of strictly serving the network of flows of the city.

7

© Arquivo Municipal de Lisboa | Parking area, photo by Horácio Novais. NV000765PT/AMLSB/CMLSBAH/PCSP/003/FDM/0016476547
Praça do Comércio in Lisbon, one of the city's most emblematic places with exceptional characteristics and distinctive features, was entirely occupied by cars until almost the end of the 20th century.

8

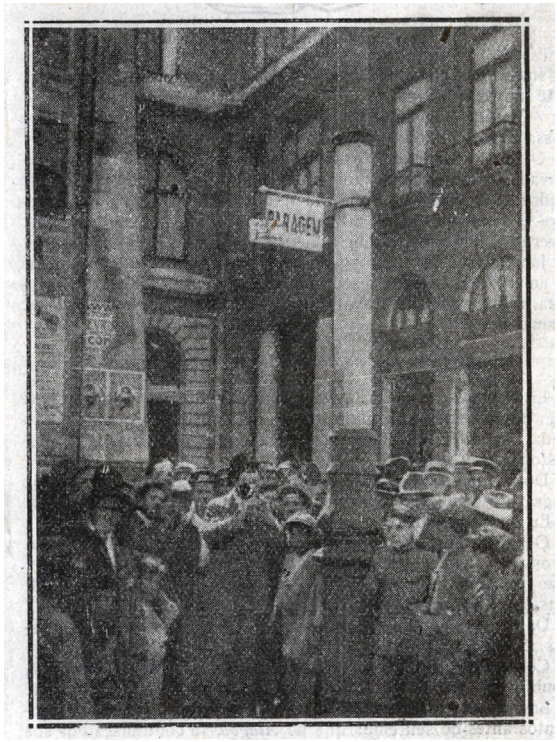
BRAUN, Georg. Olissippo quae nunc Lisboa, ciuitas amplissima Lisitaniae, ad Tagum... / J. Braunio. – [Scale not specified]. – [Lisbon: n.n., 196-]. – 1 view, reproduction: b&w; 36.30 x 46.80 cm on a 44.10 x 63.60 cm sheet. Biblioteca Nacional de Portugal. Digitalised copy call number: CC-381-A. https://purl.pt/22208.
Representation of Lisbon at the end of the 16th century, where the buildings that make up the group considered "the most important in the city" are highlighted.

9

Rossio, Lisbon. Photo by the author, 2002. More than just its buildings and constructions, the city is also made up of its public space and is also defined by it. In addition to flows, this is a place of various uses and the access of the city's inhabitants to public spaces and the time they stay there is fundamental to their quality.

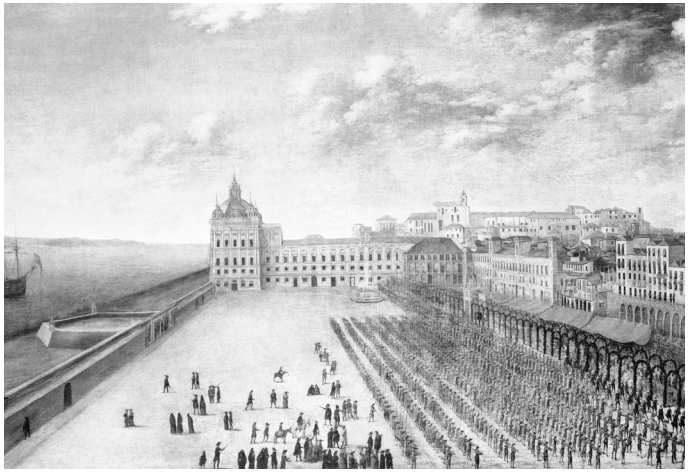
10

© Arquivo Municipal de Lisboa. Fountain of Loreto, Lithography by Legrand, 19th century, engraving reproduction. Bárcia, José Artur Leitão. Call number: PT/AMLSB/CMLSBAH/PCSP/004/BAR/000928. Following the new Pombaline plan for rebuilding the city, the Loreto fountain was located where the statue of António Ribeiro Chiado stands today, according to a design by the architects in charge, Reinaldo Manuel dos Santos and Francisco António Ferreira Cangalhas. Machado de Castro sculpts a figure of Neptune. This fountain had a strong monumental investment to give it the necessary visibility required by the enormous effort of the great Águas Livres aqueduct. Completed in 1774, it would have an extremely short life, as it would last little more than 80 years, being demolished in the 50s of the following century.



11

© Gabinete de Estudos Olisiponenes. Martins, R. ABC: Revista portugueza. Year I no. 4 from 5 August 1920. Fausto Villar. “LISBOA – O povo diante do Avenida Palace acendendo os seus cigarros ao morrão público” [“LISBON – The people in front of Avenida Palace lighting their cigarettes on the public candle”]. Another photo published in addition to the one where Joshua Benoliel poses demonstrates that the municipal initiative of the “public candle” ended up having some media impact. The text accompanying the photo reads: “Companhia dos Fósforos [Match Company] continues to not offer for sale boxes of its essential product for public consumption. There is a parliamentary decision that authorizes the use of lighters, but there is also the tax guard constantly apprehending those who use them. Furthermore, the sellers of these devices raised their prices beyond all limits. The time has come for the people to defend their interests in the public square, by making their lighters with a few pieces of rope, like those used on a boat, and this resulted in real rows of citizens who “asked for their fire” from these great lighters (...)”.



12

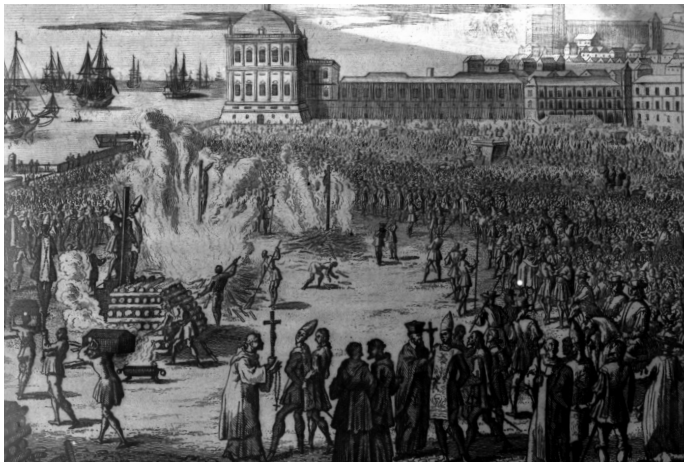
© Arquivo Municipal de Lisboa. Terreiro do Paço at the end of the 17th century, painting. Estúdio Mário Novais. 1933–1988. Call number: PT/AMLSB/CMLSBAH/PCSP/004/MNV/000744
Up to this day, Terreiro do Paço in Lisbon has been a place of great events, such as the procession and military graduation represented here.

13

The pillory in the foreground and the forum in the background at Largo do Pelourinho and Rua Direita de Linhares da Beira. Photo by the author, 2024.
More than their original purpose as equipment for punishment and public exposure of offenders, pillories in Portugal have been present in the central places of several Portuguese towns since ancient times to maintain internal order and peace and also to affirm the council's right to its own justice. The Manueline ornamentation of this pillory demonstrates its connection to the charter the town received in 1510.

14

Linhares da Beira Forum. Photo by the author, 2024. The Linhares forum, a rarer facility today, was the meeting place for the assembly of “good men”, where administrative, legislative and judicial decisions were made. It contains a table and bench in the same granite as the building and the city’s coat of arms. Previously it had a wooden structure roof. The oldest charter given to this city is from 1169.



15

© Arquivo Municipal de Lisboa | Os autos de fé no tempo da Inquisição no Terreiro do Paço [The acts of faith at the time of the Inquisition in Terreiro do Paço], engraving. PT/AMLSB/CMLSBAH/PCSP/004/ACU/001592. There are many engravings representing various autos-da-fé at Terreiro do Paço in Lisbon. A spectacle in a public square, to ensure good visibility, demonstrating the death that awaited the heretics. There may have been acts of faith in Portugal between 1540 and 1766.

16

© Arquivo Municipal de Lisboa | A revolução de 5 de Outubro de 1910 [The revolution of 5 October 1919]. Franco, Anselmo. PT/AMLSB/CMLSBAH/PCSP/004/FRA/000018 Barricades improvised by rebellious republicans in Rotunda da Avenida (currently Praça Marquês de Pombal), which attracted many people.

17

© Arquivo Municipal de Lisboa | Tropas Monárquicas no Rossio durante a implantação da república em 1910 [Monarchist troops in Rossio during the establishment of the Republic in 1910]. Franco, Anselmo. PT/AMLSB/CMLSBAH/PCSP/004/LSM/000252
Military troops installed in Rossio.

18

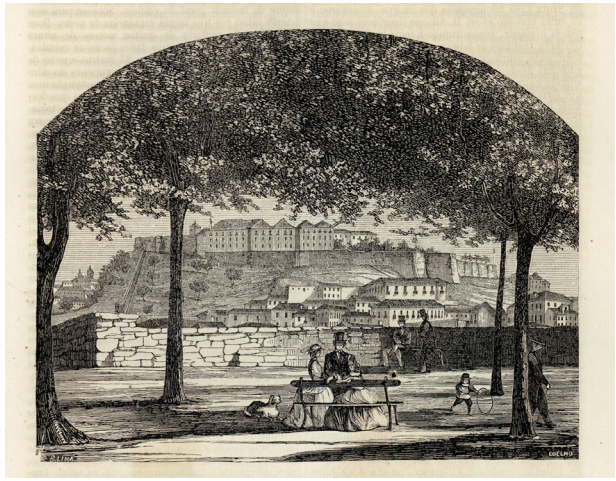
© Arquivo Municipal de Lisboa | 25 April 1974, Ana Haterly. PT/AMLSB/ANA/000237. Largo do Carmo on the morning of 25 April 1974. A crowd supporting the Armed Forces Movement, which was awaiting the surrender of the President of the Council of Ministers.

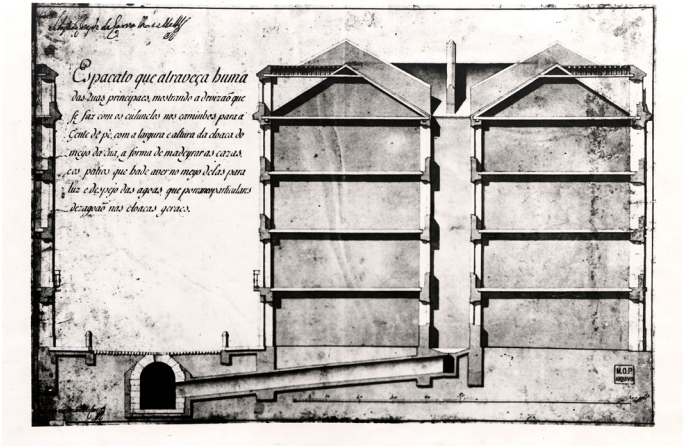
19

Catalans dance the Sardana in Plaça Nova in Barcelona. 2004.
Photo by the author.

20

Moments of a chance meeting at Praça Eduardo Mondlane in the same neighbourhood of Chelas in Lisbon that is crossed by Av. Do Santo Condestável. The characteristics of this public space make it a place to rest, socialize and meet, to watch who passes by or simply to do nothing.



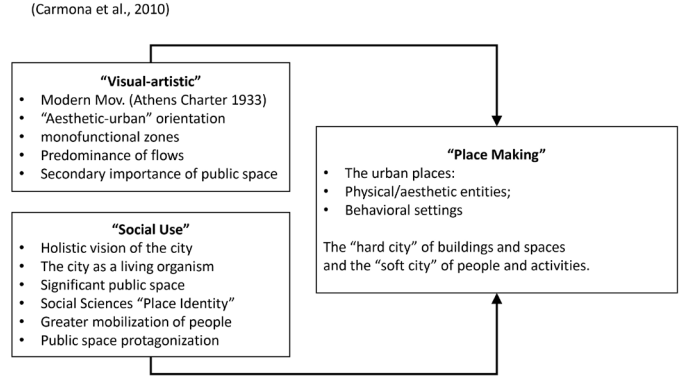


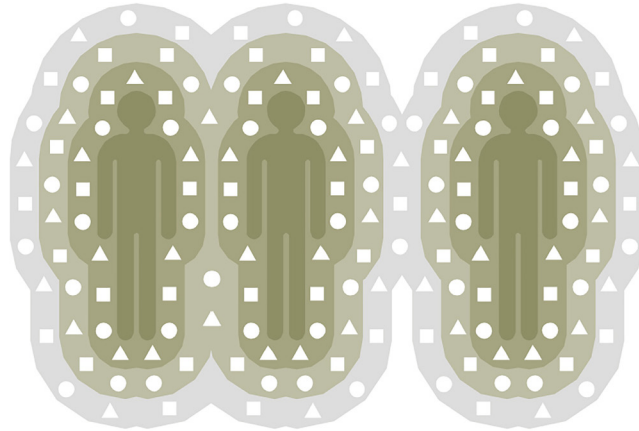
21

Engraving from page 193 of the publication “Archivo Pittoresco”, 6th Year, No. 25, 1863. BLX-Hemeroteca Municipal de Lisboa.
View of Castelo de São Jorge from the then recent Garden S. Pedro de Alcântara in Lisbon. It includes the model of a citizen, with an appropriate behaviour and making good use of the space and equipment.

22

“Espacato que atraveça huma das ruas principaes mostrando a devizão que se faz com os colunelos nos caminhos para a gente de pè, com a largura e altura da cloaca do meyo da rua, a forma de madeyrar as cazas, e os patios que hade aver no meyo delas para luz e despejo das agoas que por canos particulares dezagoão nas cloacas geraes”. 1 Drawing: photo. b&w in paper; 581 x 392 mm. Biblioteca e Arquivo Histórico da Economia. Secretaria-Geral do Ministério da Economia e Mar. Call number: D 0015-1 A BAHOP
This is a typical section of a street and buildings from the Pombaline plan to rebuild downtown Lisbon after the 1755 earthquake. By demonstrating how to build streets and infrastructure alongside the buildings, this document is a precursor to what will become the city’s global and systematic project.





23

General traditions for Urban Design thinking according to Carmona et al. (2010). Created by the author.

24

The objects and resources we are surrounded by and use can be organised into layers according to their level of sharing, from those that only we ourselves use, to those that we use and share with others who are total strangers to us. Urban furniture will be in the last of these layers. Created by the author, 2003.

25

Improvised chairs on a street in Vila do Bispo, Portugal, 2002.
Photo by the author.

26

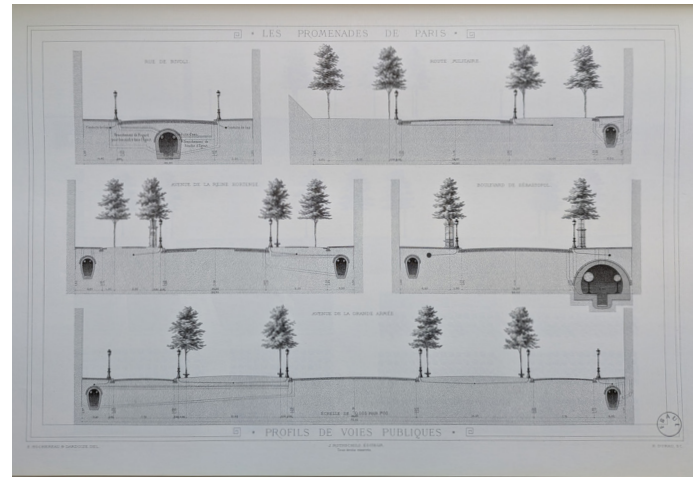
Improvised scrub board for washing, Linhares da Beira, Portugal, 2002.
Photo by the author.

27

Notice left on a sign at Av. De Roma, Lisbon, Portugal. “Do not park here! I stupidly got a fine of €120. This is a poorly signposted place for disabled people!” A testimony to people’s willingness to contribute to the construction and improvement of public space. Photo by the author, 2010.

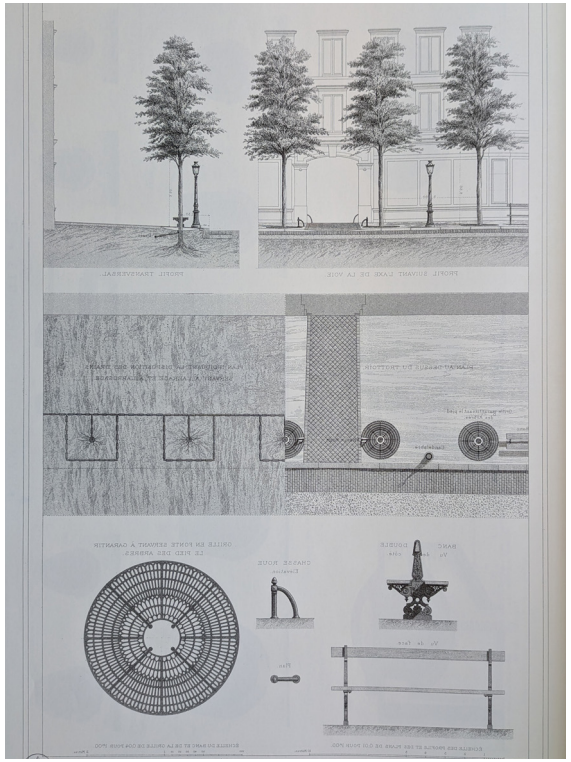
28
Improvised chairs on a street in Estefanilha, Setúbal. 2020. Photo by the author.

29
Via dell'Abbondanza at the ruins of Pompeii, Italy. 2013. Wikimedia Commons https://commons.wikimedia.org/wiki/File:Via_dell%27Abbondanza_3.JPG



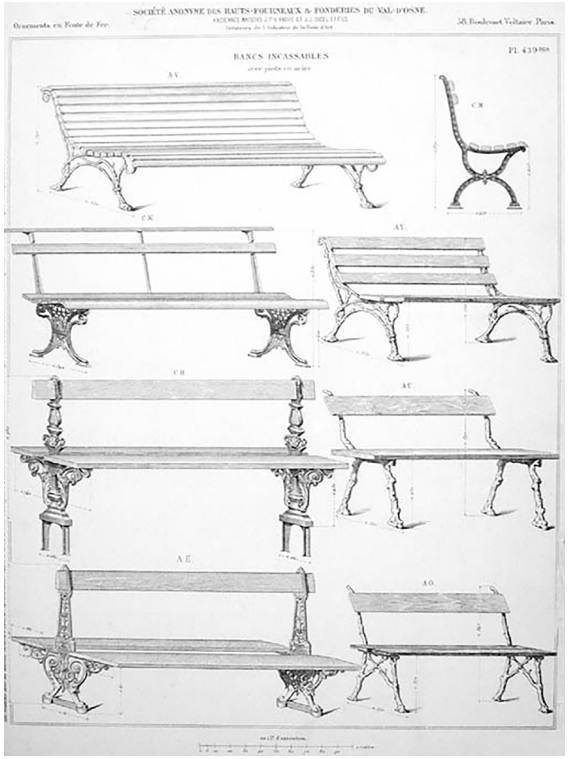
30
Profils des Voies Publiques. Les promenades de Paris. Alphand, J.-C. A. 1867.

32
Voie Publique – Candélabres. Les promenades de Paris. Alphand, J.-C. A. 1867.



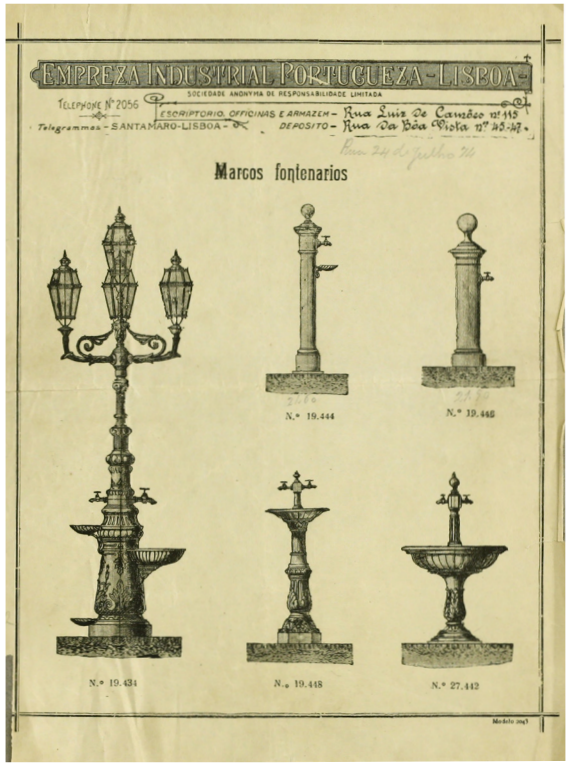
31

Voie Publique – Détails. Les promenades de Paris. Alphand, J.-C. A. 1867.



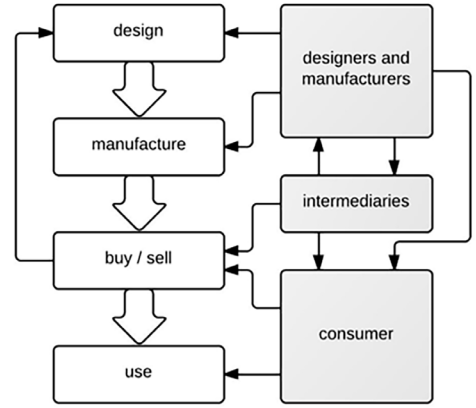
33

Bancs Incassables, Catalogue from Société des Hauts-Fourneaux et Fonderies du Val D'Osne.
One of the pages of a vast catalogue of equipment for public spaces.



34

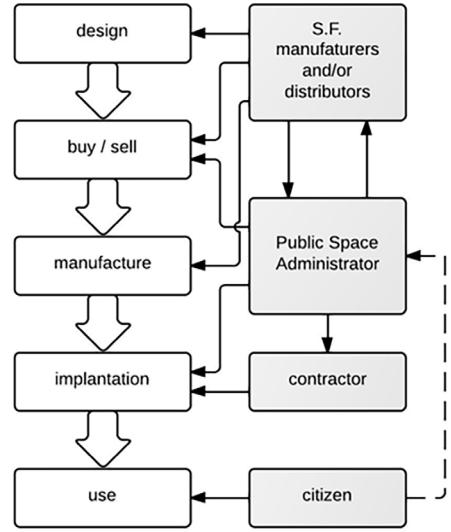
© Arquivo Municipal de Lisboa | "Fountain markers", page from the catalogue of Empresa Industrial Portuguesa de Lisboa. PT/AMLSB/CMLSBAH/PURB/006/00956



simplified common process for consume products

35

Most common process for producing consumer products.
Created by the author. 2012.



simplified common process for street furniture

36

Most common process for producing urban furniture.
Created by the author. 2012.

37

Alameda Roentgen, Lisbon. Photo by the author, 2010. Citizen – urban furniture – public space – city. By using and enjoying public space through urban furniture, citizens take advantage of its shared services and uses and create relationships with the city and its places.

39

Lamp on Av. de Madrid, Lisbon. Photo by the author, 2005. One of the lamps from the origins of the urbanisation of the Areeiro neighbourhood. It was made by Cavan in turned and polished concrete. Dating back to the 1940s, the lamps were replaced in the 2000s under protest from local people.

38

"Mar Largo" [Wide Sea] pavement in Rossio, Lisbon. Photo by the author, 2002. The Portuguese pavement is an example of the importance of the closest scale, an equally important dimension for the physiognomy of the city and its public space.

40

Mobile chairs in the Luxembourg Gardens, Paris. Photo by the author, 2003.

41

Equipment project for the Avenidas Novas Parish Council. Ana Carolina Ferreira, Adriana Franck and Joana Pratas, within the scope of the CU of Urban and Interior Design I of the Master's Degree in Equipment Design at FBAUL (2019-2020) and supervised by Raúl Cunca and Cristóvão Pereira. Photo by the authors. The equipment shows that it is possible to combine concrete modules in a larger garden.

42

Signage project for the University of Lisbon. Joana Soares, Mariana Francisco and Susana Gomes, within the scope of the CU Urban and Interior Design I of the Master's Degree in Equipment Design at FBAUL (2014/2015) and supervised by Raúl Cunca and Cristóvão Pereira. Photo by Leonor Fonseca. Implementation of two components of the system in Alameda das Universidades.

43

Signage and information project for the Polytechnic Institute of Setúbal. Cristóvão Pereira, Tiago Girão, João Costa, João Rocha, Diogo Lourenço and Sara Joaquim (FBAUL). Photo by Cristóvão Pereira. Image showing a type 1.1 component – Sign at the pedestrian entrance with the campus plan.

44

Signage and information project for the Polytechnic Institute of Setúbal. Cristóvão Pereira, Tiago Girão, João Costa, João Rocha, Diogo Lourenço and Sara Joaquim (FBAUL). Photo by João Costa. Image showing a type 1.2 component – Directions to pedestrian routes.

45

Signage and information project for the Polytechnic Institute of Setúbal. Cristóvão Pereira, Tiago Girão, João Costa, João Rocha, Diogo Lourenço and Sara Joaquim (FBAUL). Photo by Cristóvão Pereira. Image showing a type 1.3 component – Information and identification of buildings.

46

Signage and information project for the Polytechnic Institute of Setúbal. Cristóvão Pereira, Tiago Girão, João Costa, João Rocha, Diogo Lourenço and Sara Joaquim (FBAUL). Photo by Cristóvão Pereira. Image showing a type 2.1 component – Indication of road routes.

47

Signage and information project for the Polytechnic Institute of Setúbal. Cristóvão Pereira, Tiago Girão, João Costa, João Rocha, Diogo Lourenço and Sara Joaquim (FBAUL). Photo by João Costa. Image showing a type 2.2 component – Identification of car parks.