



José Adirão Arquitecto, Rua dos Fanqueiros 73-85, 1st floor, Lisbon, Portugal, 2010. Living room and kitchen. © Fernando Guerra | FG+SG.

Housing and Contemporaneity: Recent Renovations in Lisbon's *Baixa Pombalina*

BY CATARINA WALL GAGO

The Plan of 1758 for the reconstruction of Lisbon's *Baixa Pombalina* followed principles of unparalleled efficiency and regularity. The grid of rectangular urban blocks with pre-designed street façades had a lasting impact on urban identity. Today, the original features of the blocks of flats allow renovation strategies that address changes in domestic life and present-day comfort demands: making use of alcoves and the enfilade to address intimacy; turning kitchens into social areas; using multiple entrances for flat division; introducing lifts according to staircase design. Recent renovations show how the flats' original features contribute to unconventional flexible layouts adapted to contemporary living.

In the words of José-Augusto França, Lisbon “is the last of the old European cities and the first of the modern cities”¹. The destruction due to the 1755 earthquake was followed, three years later, by an innovative integrated plan for the rebuilding of the downtown area (Figure 01). Lisbon's *Baixa Pombalina* — so-called after its main instigator State secretary for the Kingdom, Sebastião José de Carvalho e Melo, the Marquis of Pombal — is a coherent ensemble comprising a grid of repeated units of rectangular blocks with a narrow lightwell, each with several blocks of flats.

The regularity of the *Baixa Pombalina*'s urban plan and of its façades were long criticized as monotonous². Likewise, its floor plans were described as lacking corridors, room specification and alcoves or rooms with direct light³. The moder-

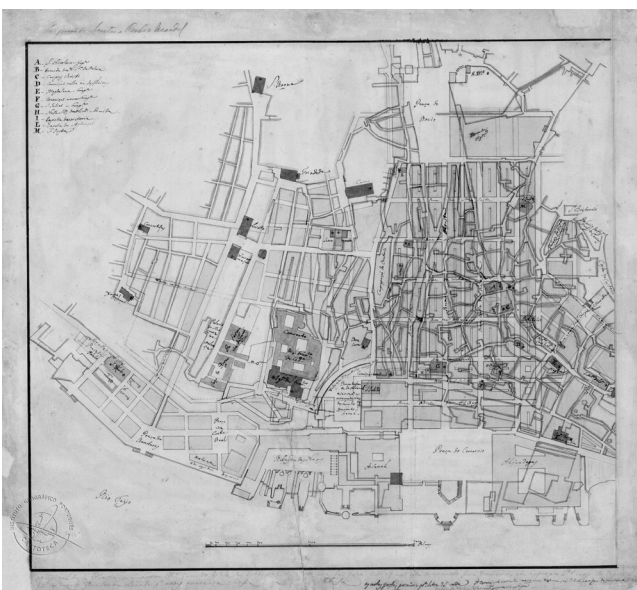
nity of the rebuilding plan started being recognized in the 1930s, as described by Ana Tostões in the in-depth article “Precursors of modern architecture and town planning”, published in the exhibition catalog *Lisbon: The Baixa Plan Today*. According to the author, it was the very regularity of the *Baixa* that was praised by the architect Carlos Ramos in the 1930s and, mainly, by Porfírio Pardal Monteiro in the following decade⁴.

The seminal work by José-Augusto França⁵, *Une Ville des Lumières*, in the 1960s, brought to light the innovative qualities of the 1758 Plan and of its building blocks. Since then, several authors⁶ have examined their urban and domestic features. More recently, the *Baixa Pombalina* was featured in the *Monumentos* thematic journal⁷ and in the aforementioned exhibition catalog, which focused on plan modernity and avant-garde character. Maria Helena Barreiros⁸ latest articles are, as far as could be established, the most recent up-to-date work describing the domestic spaces.

The blocks of flats: original features

The large-scale enterprise of the *Baixa Pombalina* enabled the testing and stabilizing of the blocks of flats. There were usually two or, otherwise, one flat per floor, generally replicated between floors. Even though flat layout was mostly left to the constructors' designs, there were various stable features⁹, due to the regular rhythm of the street façades, to the anti-seismic wooden cage building system — the *gaiola*¹⁰ —, and to common distribution principles of the time.

Reception rooms intended for public display faced the street, generally in enfilade, that is, a sequence of two or more of intercommunicating rooms, giving “the necessary status to social appearances”¹¹ of reception rooms. Emphasis was placed on their separation from the kitchen, usually placed next to the lightwell. Access separation between reception and service areas was most often done through a distributing passage from the entrance. Otherwise, the



01 Eugénio dos Santos and Carlos Mardel (attributed), drawing of the evolution of the Baixa Plan, Lisbon, Portugal, 1756/1758. © *Direção-Geral do Território* (www.dgterritorio.pt).

02 Pedro Reis, *Calçada do Correio Velho 3*, 1st floor, Lisbon, Portugal, 2006. Changes introduced by the renovation project, new walls in black, removed walls in grey. © Pedro Reis, drawing adapted by Catarina Wall Gago. (BR - bedroom | DR - dining room | K - kitchen | LIB - library | LR - living room | OFF - office | ST - storage)



03 Pedro Reis, *Calçada do Correio Velho 3*, 1st floor, Lisbon, Portugal, 2006. Kitchen and dining room after renovation. © Fernando Guerra | FG+SG.



distribution within the flat usually took place directly between rooms. A single or double layer of interior rooms parallel to the façade — generally termed alcoves — completed the set. Alcoves were small inner rooms, often described as sleeping chambers, which usually gave onto the larger rooms giving onto the street or back façade. These rooms would indirectly provide them with light and air.

According to Barreiros³², apart from the kitchen, room function was predominantly flexible in the flat plans, becoming more specific throughout time. As we shall see in examples of recent renovations, it is the very functional and distributive flexibility of the flats that allows for interventions that are also adaptable to the residents' needs throughout time.

Contemporary renovations

Renovation of historical housing is necessary to avoid the loss of cultural values, to address changes in family life and comfort demands, and to ensure building safety. When renovating, it is both a challenge and an opportunity to find design solutions that make use of original layout features to address present-day housing programs.

There are recurring issues that renovation projects frequently need to address. One of them is the addition of new domestic functions, such as the placement of one or more bathrooms, as well as the privacy of bathrooms and bedrooms. Nowadays, the almost systematic location of bedrooms in rooms with windows next to the building façades often calls for room function reorganization. Moreover, the reduction or elimination of household staff, related to the new role of the kitchen in the house's social life, have led architects to rethink the previously hidden service spaces in relation to the rest of the house. An additional issue is the creation of more housing units, often brought about for economic reasons and by the demand for more diversified housing in the city center. Nowadays, upper floor flats are valued for their views and privacy from the bustling street,

in opposition to the original situation, in which they were generally the most disadvantaged. A strategy that is often put in place is the promotion of greater accessibility to all floors through the introduction of elevators. This changes the buildings' vertical variation of social standing at the time of building by allowing access equality to all floors.

Being alone, being with others: alcoves and the enfilade

One of the most significant transformations in flat layout from the late 18th century to the early 20th century was an increase in room specification and in mediating spaces giving access to a room without passing directly through another³³. Privacy is the leading motivation for these changes. In recent renovations, we identified two main strategies to address privacy issues while making use of the existing enfilades and alcoves: using the alcoves to place bathrooms or storage spaces (dressing rooms, pantries, libraries etc.); using the enfilade as a progression from more social to more private areas, placing the bedrooms at the beginning or at the end of the circulation.

Calçada do Correio Velho 3

This one flat per floor building is located in a block built on the eastern edge of the *Baixa Pombalina*. It was one of the properties owned by the future Marquis of Pombal in the period immediately following the earthquake³⁴.

The recent renovations of the first floor by architect Pedro Reis (Figure 02), and of the second floor by architect João Felino (Figure 04), illustrate how localized interventions can have a significant impact on circulation and privacy, addressing both the residents' present-day comfort needs and the preservation of the house's identifying historical features. The existing enfilade was used to establish a progression from the most public to more private spaces. In the inner rooms, the interventions placed

04 João Felino, *Calçada do Correio Velho* 3, 2nd floor, Lisbon, Portugal, 2006. Changes introduced by the renovation project, new walls in black, removed walls in grey. © Joao Felino, drawing adapted by Catarina Wall Gago. (BR - bedroom | DR - dining room | K - kitchen | LIB - library | LR - living room | OFF - office | ST - storage)



05 João Felino, *Calçada do Correio Velho* 3, 2nd floor, Lisbon, Portugal, 2006. Main bedroom, dressing room, entrance and passage after renovation. © Enric Vives-Rubio, 2009.



additional functions — such as bathrooms and storage — and introduced alternative circulation to access more private areas. On the first floor, one bedroom was located near the entrance, and two bedrooms were placed at the end of the enfilade circulation. The couple's bedroom is paired with a closet room, and located at the more private end of the circulation; the children's bedroom is between the latter and the library. The placing of an extra dividing wall in one of the alcove spaces allowed for an alternative access to the bathrooms and bedrooms. The residents praise the house's versatility, which will allow for small changes when it proves necessary. One of those changes could be to use the dual access to the middle room to turn it into two separate bedrooms when the children are older and need more privacy.

On the second floor, the re-partition of mediating spaces was planned differently. The inner central space was divided by a long cupboard that forms a 3-part corridor with multiple degrees of privacy. The first part serves mainly the social area, connecting the front living rooms to the kitchen; the second is a backstage dressing room for the master bedroom (Figure 05); the third is a shared access to the family bathroom for both rooms.

Rua de São Mamede 31

The renovation of this one flat per floor building by architects Appleton & Domingos (Figure 06) illustrates the partial reorganization of the distribution of a flat placed in the center of a block. The changes are concentrated in the house's central area, where alcoves were originally located, introducing additional mediating spaces giving access to bathrooms and bedrooms.

Originally, the flat had a sequence of three intercommunicating rooms giving onto the street façade, probably dedicated to social functions. One of these rooms had an independent entrance from the staircase landing, where

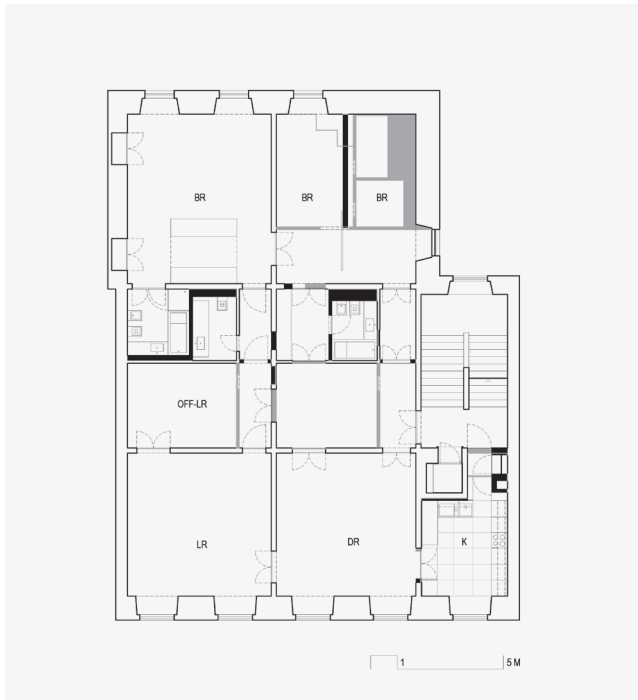
guests could have been received. Another entrance gave onto a passageway distributing the rooms on the street side and on the courtyard side, where the kitchen was located. In the center, there were two lines of alcoves giving onto the main rooms. The entrance passageway and another passageway between the street and the courtyard side rooms provided a secondary access to the alcoves.

A key aspect of the recent renovation was the reorganization of part of the alcoves and passages in the center of the flats. The aim was to introduce new functions — bathrooms and storage spaces — and additional mediating spaces providing more privacy to bedrooms and bathrooms. The flat layout is now structured around the entrance hall (Figure 07), which became an antechamber to the rest of the house. It gives access both to the social room enfilade on the street side, and to the three passages serving the more private areas. The alcoves were used to place the bathrooms. An additional passage from the hall was introduced so that the three bedrooms and bathrooms could each be accessed independently through a mediating space. These passageways were essential to keep the room proportions and the enfilade distribution next to the courtyard, thus avoiding the introduction of longer corridors that would fit in less with the house's original character. The dual access allows for a greater flexibility: the bedrooms can be closed off or intercommunicating, and the two smaller bedrooms can be used separately or as one.

Much more than a kitchen: new domestic sociability in service areas

The kitchen is one of the few spaces whose function can usually be assertively determined due to the presence of the original chimney. Service spaces in *Baixa Pombalina* flats were kept within distance of the reception areas and of the public eye — the street. As such, the kitchen gave almost invariably onto the back façade¹⁵.

06 Appleton & Domingos arquitectos, *Rua de São Mamede* 31, 1st floor, Lisbon, Portugal, 2009. Changes introduced by the renovation project, new walls in black, removed walls in grey. © Appleton & Domingos arquitectos, drawing adapted by Catarina Wall Gago. (BR - bedroom | DR - dining room | K - kitchen | LIB - library | LR - living room | OFF - office | ST - storage)



One of the topics that is frequently addressed in renovations is bringing the kitchen closer to the social areas. The fact that it can now be part of or accessible through the dining or living room attests to less embarrassment and to the greater participation of activities that take place in the kitchen, such as food preparation, in social life. They also attest to the reduction of permanent household staff.

According to each house's original features, three strategies were used in renovations: using the original kitchen as a main social area; moving the living room closer to the kitchen; bringing the kitchen closer to the living-room on the street façade.

In the example on *Calçada do Correio Velho*, the kitchen was large enough to house a dining or living area, thus becoming the house's main social space (Figure 03), directly accessible from the staircase through the original service entrance. The distinction between the original main entrance and the service entrance is thus altered to fit in with the houses' new living arrangements.

In other examples where the kitchen was not as large, this reasoning was sometimes taken one step further. In the flats on *Rua de São Mamede* 31 (Figure 06), the kitchen was moved to the previous reception room next to the street façade. Moreover, it now makes use of the reopening of the separate entrance from the staircase. This allowed the bedrooms to be placed on the quieter courtyard side, making the kitchen a part of the social area on the busier street side.

Rua de São Mamede 15

This one flat per floor building is located in a block on the eastern limit of the *Baixa Pombalina* as it joins the pre-existing neighborhoods uphill. A map referring to 1807¹⁶ already

07 Appleton & Domingos arquitectos, *Rua de São Mamede* 31, Lisbon, Portugal, 2009. Entrance hall. © Catarina Wall Gago.



distinguishes between the block and its south-facing gardens. This feature – quite unlike the ones in the center of the *Baixa* – is particularly to its advantage. Not only does the ground floor flat have a terraced garden but the flats above have balconies and receive substantial natural light (Figure 09).

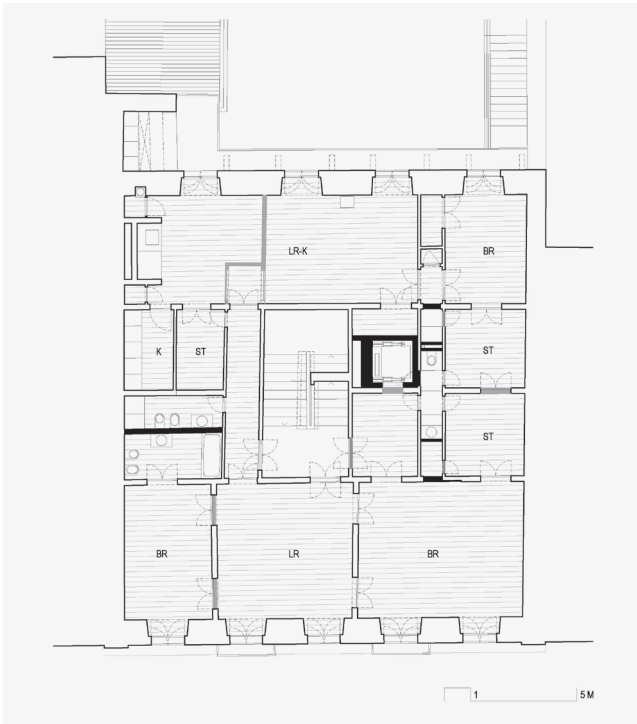
The renovation of the third floor by architect Alberto de Souza Oliveira¹⁷ in collaboration with João Botelho (Figure 08) addresses the kitchen's new role in domestic sociability in a particularly significant way. In spite of this being a large flat occupying the entire floor, its original layout followed most of the main features of the time. The flat had multiple entrances from the same staircase landing: one led to a distributing passage, another to the three rooms next to the street façade connected in enfilade. The kitchen was originally placed next to the courtyard, as were two other rooms. In between, there were two parallel lines of alcoves.

This building had the specificity of having the kitchen on the south side. One of the main transformations was to place the living and dining room areas on this side next to the kitchen, thus placing two bedrooms and a more private living area towards the street. In order to constitute this food preparation-eating-living area a non-structural dividing wall was removed. The inner rooms next to the kitchen serve as pantry and dishwashing area (Figure 08).

A smaller place to live: from multiple entrances to flat division

The blocks of flats in the *Baixa Pombalina* usually had one or two flats per floor¹⁸. Nevertheless, it was sometimes possible for there to be fewer larger flats on the lower, nobler floors, which were divided into more flats above¹⁹.

08 Souza Oliveira Arquitectura & Urbanismo, in collaboration with João Botelho, *Rua de São Mamede* 15, 3rd floor, Lisbon, Portugal, 2006. Changes introduced by the renovation project, new walls in black, removed walls in grey. © Alberto de Souza Oliveira, drawing adapted by Catarina Wall Gago.



09 Souza Oliveira Arquitectura & Urbanismo, in collaboration with João Botelho, *Rua de São Mamede* 15, 3rd floor, Lisbon, Portugal, 2006. Back Façade with balconies. © Alberto de Souza Oliveira.



The fact that this division could be done by closing a few openings while using a very similar layout attests to the buildings' flexibility.

The importance of separating service areas from the reception spaces often resulted in the presence of multiple entrances, especially in larger flats, which presumably housed wealthier residents with a more numerous staff. Consequently, many flats had two entrances (occasionally three), one closer to the service rooms, and another usually giving access to the social area of the house. One of the strategies used to divide upper floor flats was to take advantage of the multiple entrances to constitute different flat entrances.

Nowadays, whether it is to maximize an investment or to provide a more varied offer in terms of flat size or price, some renovation projects divide existing flats into smaller ones. In recent projects, we identified two strategies that employ existing features to establish new divisions: using multiple entrances to the flats as new flat entrances; transforming the interior passages into common distribution spaces. These strategies minimize the impact of flat division on the staircase landing by keeping the original accesses and entrance doors intact while using them in a different way.

Rua dos Fanqueiros 73–85

This block of flats dating from 1784²⁰ is located in one of the repeated rectangular blocks that form the urban units in the heart of the *Baixa Pombalina* (Figure 11). The renovation of the building by architect José Adrião (Figure 10) is an example attesting to the use of multiple entrances and corridors as new distributing spaces.

Even though the flats were quite transformed throughout the 20th century, most of the original layout was identifiable: one line of bigger interconnecting rooms parallel to the street façades, the kitchens towards the back façade, and a few alcoves and passageways in between. According to the earliest archive plans²¹ for transformation purposes, the first floor originally housed one flat with three entrances, while the upper floors were divided in two just by closing a passage between rooms. One of these upper floor flats had one entrance; the other had two from the same landing.

The intervention divided the floors into three separate flats. One of the flats uses one of the original entrances; the other original entrance gives access to a previously existing passageway. This space distributes the two remaining flats. Even though they are smaller, the new flats also address issues examined in the previous examples. Some of the bathrooms were placed in inner rooms. The kitchens were brought next to the street façade. Moreover, they attest to the surpassing of a prerogative at the time of building, that is, that access to the kitchen be possible without being visible from the reception areas. On the contrary, in these flats the kitchens are only accessible through the living rooms (Figure 10).

Going up? How staircase design influences the introduction of elevators

Until the greater use of the elevator, top floor flats were less valued due to access difficulty, paired with a greater exposure to the elements and lower ceiling heights. In Lisbon, this distinction sometimes implied a greater number of flats per floor on the highest floors. During the 20th century, the increasing introduction of the elevator changed the vertical

10 José Adrião Arquitecto, Rua dos Fanqueiros 73-85, 1st floor, Lisbon, Portugal, 2010. Changes introduced by the renovation project, new walls in black, removed walls in grey. © José Adrião Arquitecto, drawing adapted by Catarina Wall Gago. (BR - bedroom | DR - dining room | K - kitchen | LIB - library | LR - living room | OFF - office | ST - storage)



11 José Adrião Arquitecto, Rua dos Fanqueiros 73-85, Lisbon, Portugal, the block and the *Baixa Pombalina*. © Fernando Guerra | FG+SG.



hierarchy of floors, leading to a greater valuation of the upper floors, which had better lighting²².

As we can observe in the numerous survey plans included in Jorge Mascarenhas's¹⁸ PhD thesis, the staircase was usually located within a central axis when it served two flats per floor, which was more economical and allowed for greater structural stability. When there was one flat per floor, it was placed against a party wall. Staircases were most often located either against the back façade, where they could receive light through a window, or in the center of the building, where natural light came from a skylight and stairwell. It was less frequent that staircases be placed next to the street façade, since they would take up space destined for the largest, most privileged rooms²³. A less frequent staircase design was the presence of an extra flight at the back of stairs. This situation was significant since it allowed for a separate access to reception rooms, next to the street façade, and to the kitchen, next to the lightwell.

In renovation projects, the original staircase features are fundamental to the location of an elevator. This is especially true when there are several flats per floor, since the staircase landing is often the only common space at the same level as the flats. In these cases, the introduction of an elevator is often confronted with the possible replacement of a flat entrance with the elevator. This is naturally easier in the examples where at least one of the flats had more than one entrance, or when an additional entrance can be introduced, as in the renovation of the building on *Rua dos Fanqueiros*.

Some staircase features can facilitate the introduction of elevators. If the stairwell is large enough, an elevator can be placed inside it with minimal modifications to the staircase. This was, in fact, a common location for the elevators originally located in early 20th century houses. This type of intervention rarely suits buildings in the *Baixa Pombalina* due to little available room. Nevertheless, in the examples with an additional flight of stairs for separate service access, there

was also usually a small compartment next to the stairs on all floors. This feature allows for the introduction of an elevator without changing the flats' layout or the staircase design. Architects Pedro Reis and João Felino plan for the future introduction of an elevator in this compartment on *Calçada do Correio Velho* (Figures 02, 04) whenever this proves necessary. As shown in the example on *Rua de São Mamede 15* (Figure 08), another possibility is to use an inner room next to the landing as a common hallway for the elevator, as long as the circulation within the flats can be assured.

Final remarks

Coherent planned urban ensembles such as the *Baixa Pombalina* are closely related to the definition of types of housing and to the stabilization or development of house building systems. The integrated Plan of 1758 outlined block dimension, alignments, pre-designed façade modularity, and promoted a standardization of building materials and techniques which influenced the buildings' inner proportions and layout.

The strength of a renovation project lies in the in-depth knowledge of an existing reality in order to act upon it. We identified renovation strategies that made use of the houses' original features to address changes in domestic life and current comfort demands, in order to inform future interventions responding to both aspects.

The types of observed renovation strategies each respond to different objectives related to current domestic life: intimacy, sociability, flat dimension, and a facilitated access to the floors. As examined in recent renovation projects, the features of the floor plans in the *Baixa Pombalina* can be enriching to contemporary living. The original flat layouts allow for flexible uses, sometimes by varying room function and by taking advantage of the original distribution systems, other times through the introduction of localized changes, most often in the houses' central areas. Unlike the

criticism that was once addressed regarding this type of layout, its flexibility can be a main strength today. Far from the destruction this patrimony has experienced, renovating by using the original layout and building features as guidelines means, in this sense, to find a middle ground by making use of existing elements to respond to objectives that are sometimes different from the ones for which they were originally designed.

The combination of the existing and new features produces unconventional original layouts that contribute significantly to contemporary housing production.

Notes

This article presents part of the author's broader research concerning the contemporary renovation of late 18th and 19th century housing in the cities of Lisbon and Oporto, in Portugal, and Geneva, in Switzerland. Some sections of the text pertain to the author's PhD thesis.

- 1 “Esta é a última das antigas cidades da Europa e a primeira das cidades modernas.” in José-Augusto França, *Lisboa Pombalina e o Iluminismo*, Lisboa, Livraria Bertrand, 1983 [1962], 305. Translation by the author.
- 2 Cyrillo Volkmar Machado and *A Construção Moderna* (1911: n.º 1), cited in Ana Tostões, “Precursors of Modern Architecture and Town Planning”, in Ana Tostões and Walter Rossa (Coord.), *Lisboa 1758: The Baixa Plan Today*, Lisboa, Câmara Municipal, 2008, 170, 186.
- 3 J. B. F. Carrère, *Voyage en Portugal et Particulièrement à Lisbonne*, Paris, Chez Deterville libraire, 1798, 32–33.
- 4 Ana Tostões, *op. cit.*, 170.
- 5 José-Augusto França published extensively on the development of Lisbon and of the *Baixa Pombalina*. See also *A Arte em Portugal no século XIX*, Lisboa, Livraria Bertrand, 1981 [1967], and the recently republished *Estudo das Zonas ou Unidades Urbanas de Carácter Histórico-Artístico em Lisboa*, Lisboa, Câmara Municipal, 2012 [1967].
- 6 See for instance: Jorge Mascarenhas, *A Study of the Design and Construction of Buildings in the Pombaline quarter of Lisbon*, University of Glamorgan, PhD thesis, 1996; Maria Helena Ribeiro dos Santos, *A Baixa Pombalina, Passado e Futuro*, Lisboa, Livros Horizonte, 2005 [1996]; Vítor Manuel Lopes dos Santos, *O Sistema Construtivo Pombalino em Lisboa em Edifícios Urbanos Agrupados de Habitação Colectiva*, Faculdade de Arquitectura, Universidade de Lisboa, PhD thesis, 1994.
- 7 Vasco Martins Costa (Ed.), *Revista Monumentos: A Baixa Pombalina*, Lisboa, Direcção-Geral dos Edifícios e Monumentos Nacionais, 2004.
- 8 Maria Helena Barreiros, “Unidades de habitação antes da letra: da radicalidade do projecto pombalino”, in *Habitar, Pensar, Investigar, Fazer*, Lisboa, Universidade Autónoma, 2013, 111–126; “Habitar a ‘Real Praça do Comércio’. Casas Pombalinas do Eixo Alfândega/Arsenal”, in Miguel Faria (Coord.), *Do Terreiro do Paço à Praça do Comércio: História de um Espaço Urbano*, Lisboa, Imprensa Nacional Casa da Moeda, 2012, 137–157; “Casas em Cima de Casas: Apontamentos sobre o Espaço Doméstico da Baixa Pombalina”, in Vasco Martins Costa (Ed.), *op. cit.*, 88–97.
- 9 The description of the most common layout features is based on the statistical analysis carried out in: Catarina Wall Gago, *Habitação na Baixa Pombalina: Análise de Tipos e Estudo de Intervenções*, Instituto Superior Técnico, Universidade de Lisboa, Masters dissertation, 2007.
- 10 The *gaiola* (literally “cage”) was a building system in which the wooden floor beams worked together with interior structural walls made of crisscrossed wooden elements filled with masonry. This type of structure had the objective of increasing earthquake resistance. For further details, see: Stephen Tobriner, “A gaiola pombalina: O Sistema de construção anti-sísmico mais avançado do século XVIII”, in Vasco Martins Costa (Ed.), *op. cit.*, 160–167; Mário Lopes, Rita Bento and Rafaela Cardoso, “Segurança estrutural da Baixa Pombalina”, in Vasco Martins Costa (Ed.), *op. cit.*, 176–181.
- 11 Gilles Barbey, *L’habitation Captive: Essai sur la Spatialité du Logement de Masse*, Saint Saphorin, Georgi, 1980, 72.
- 12 Maria Helena Barreiros, *op. cit.*, 2013, 120.
- 13 Monique Eleb, “Dispositifs et moeurs: du privé à l’intime”, in Monique Eleb

- and Anne Debarre (Coord.), *La Maison. Espaces et Intimités*, Paris, École d’Architecture Paris-Villemin, 1985, 219.
- 14 Attesting to that are the original plans and elevations dating from between 1759 and 1769, which constitute rare elements preserved up to this day. See Maria Helena Barreiros, *op. cit.*, 2004.
- 15 The kitchen’s position remained quite stable throughout the 19th and early 20th century, as examined in Joana Cunha Leal, *Arquitectura Privada, Política e Factos Urbanos em Lisboa: da Cidade Pombalina à Cidade Liberal*, Faculdade de Ciências Sociais e Humanas, Universidade Nova de Lisboa, PhD thesis, 2005.
- 16 Duarte Jozé Fava, *Carta Topographica de Lisboa*, Lisboa, Caza do Risco, 1831 [1807].
- 17 The renovation was carried out by several architects: Aires Mateus Associados (ground floor), Pedro Espírito Santo (first floor), João Botelho (second floor), Alberto de Souza Oliveira with João Botelho (third floor) and architect Horta (fourth floor).
- 18 According to the examination of the first floor plans pertaining to the metric surveys by Jorge Mascarenhas, *op. cit.*, annexes.
- 19 Maria Helena Barreiros, *op. cit.*, 2012, 149.
- 20 According to a historical study conducted by José Sarmiento de Matos and Jorge Ferreira Paulo for the next door building: *Estudo Histórico e Patrimonial: Prédio de Rendimento Sito na Esquina das Rua dos Douradores, 2–14, e Rua da Conceição, 28–34*. Lisboa [consulted through architects Appleton & Domingos].
- 21 *Arquivo Municipal de Lisboa – Obra 1590; Processo 3556/DAG/PG/1907*.
- 22 Monique Eleb and Anne Debarre, *L’invention de l’habitation moderne: Paris, 1880–1914*, Hazan and Archives d’architecture Moderne, 1995, 404–405.
- 23 Jorge Mascarenhas, *op. cit.*, 1996, 174.

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