

EDITORS

Johan De Walsche
Susanne Komossa

ARCHITECTURAL RESEARCH VIS-À-VIS RESEARCH-BY-DESIGN

PROTOTYPES AND PARADIGMS

The city as the model of itself

DIAS COELHO

Today, significant emphasis is apportioned to the relationship between research and project development. More specifically, this relates to how the disseminations of research can contribute to the outcomes and reflections of conceiving the city, and its engrained architectural composition.

It is suggested that this topic is one that is far beyond the phenomenon of tendencies that easily shift with the passing of time. In addition, this attitude is also one that contradicts the outlasting conceptualisation of the production of an entirely new utopian city, which in turn, would erase the existing imperfect city.

Engrained within the Faculty of Architecture of the University of Lisbon, the research laboratory FORMA URBIS LAB is exploring this subject matter. In addition, and due

to being composed of mostly architects, the scope of the investigation is never dissociated from the engrained composition and production of the city's framework.

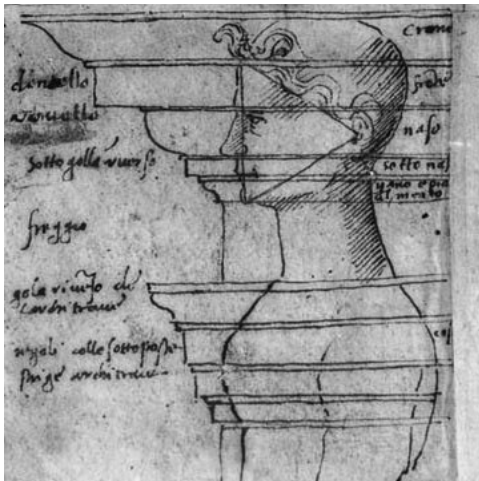
The first issue that should be approached concerns the city that is our analytical object. A noteworthy extent of thought was allocated: (i) to the urban organisational models, which in majority, originate from the substantial amount of edification during the XX century; and, (ii) to the utopias which pursued the perfection of both urban form and organisation. Such efforts, however, fell short in meeting the delicate equilibrium between city form and that of socio-communal poise.

The expedition for this knowledge is not one that quests for the city with the perfect structure, with purely logistical schematics, nor with simple descriptions. On the contrary, this assessment is directed at the real city, with its inherent imperfections that continually transposes upon the daily lives of its users and aesthetically moves us. It is this reflection upon city dwellers that echoes its admired organisational complexity, and remarkably emphasises the capacity to be understood by the society it accordingly accommodates.

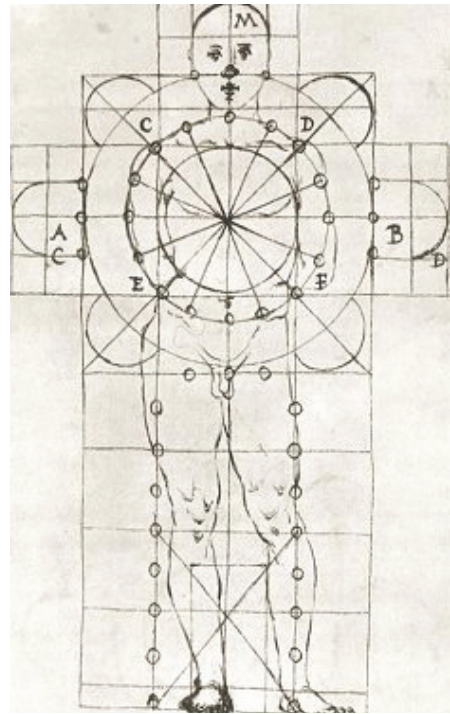
In this way, architects that contribute to the production of such form should firstly understand the city itself, which in turn, implies the grasp of its engrained physical dimensions, and production processes. Notwithstanding, this knowledge goes beyond the three dimensional spectrums that compose the physical

Such a city, one that is both experienced and experimented with, assimilates every era of its existence and actuality. Its streets, squares, blocks, buildings, monuments, spaces and overall organisation are the result of the progressive sedi-

mentation of urban elements that have been successively reinterpreted and reassembled.



(1a)



(1b)

Interpreting the city

One can thus question the relationship between the existing city and its interpretation, which resultantly, relates to its informed production. The fact is, if Painting during certain eras made reference to Nature, and Architecture strived to justify the canonical system of proportions in the human body dimensional RATIOS, the city has always used itself as a reference for its conception. (FIGURE 1)

During particular periods, the cities of Jerusalem, Rome, Paris and New York were primary references for the construction of the Western city. These specific and precedential cities were far from the crystalline nature of idealistic or utopian city models. Although bound by defects and problems, they nonetheless possessed a genre of complexity that surpassed that of any speculative model.

If one is to consider any specific city, one will promptly identify a multitude of spaces and buildings that might be integrated both in similarity or evolutionary lines. It is worth noting here that such examples are especially evident in more conventional urban components. These evolutionary traces are those that correspond to the production of intelligible components, and to the progressive adaptation of the respective societies that comprehended them. Only in this way can one explain the typological series, their temporal evolution, and finally, their moments of interruption and/or cessation.

As it can be conceived that the urban object that is incomparably richer than any urban model ever designed, it is through its interpretation and appreciation that one can contribute to its production. In this way, one shall stray away from the obsessive compulsion to reject the existing city due to the conscientious rejection of its engrained imperfection. Therefore, and as a first step, the formal quality of the built city should be accentuated in order to justify the need to study its urban fabric as an informer of its own production.

Qualities of the urban fabric

From the fertile arena of qualities and characteristics that can be attributed to the urban fabric (of which also include both experiential and aesthetic qualities), three exemplar shall be extrapolated: complexity, diversity, and identity. It is argued that these elements are those that clearly assert the formal richness engrained within the urban fabric.

Complexity

The difficulty associated to the comprehension of the urban fabric (and consequently its constitution), originated as a result of a fundamental misconception after the emergence of

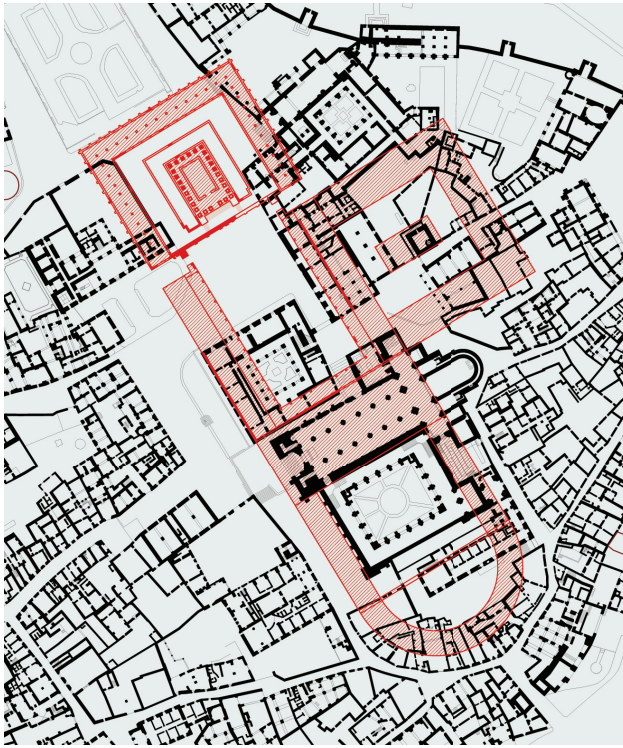
urbanism as a discipline during the late nineteenth century. More specifically, the arrival of the discipline propagated the belief in total control upon the organisation and shape of the city from its very conception to its actual construction. Such postulation was the cause of significant city planning during the xx century, and whereby the discipline of urbanism would become a practice of an unalloyed science.

The act of controlling the city through the dependence on variables that are ultimately based on cause and effect implied a gross simplification of reality. Resultantly, this approach led to the confusion between an idealistic planning model, and that of actual veracity. This logic is disputably one that relays to the production of a building rather than that of a city. However, if such construction of a building can result from a simple relationship between a promoter and an architect, and within a temporal scope, the production of a city is an outcome of infinite interventions with divergent interests. These interests can moreover entirely contradict themselves, and furthermore, be distributed throughout considerably disperse temporal timeframes.

The urban fabric condenses events of very distinct periods and logic, which overlap and sediment through time. These do not necessarily imply a chronological succession of intention, project and action, although such a conception process is not excluded.

The complexity of the urban fabric should not be dissociated from its production method, and associated temporal scope. The presence of such fabrics which suffer no sedimentation, and are a result of a wholesome intervention project, are an exception to this rule; and are frozen in the way in which they were conceived. Nevertheless, the question remains of whether such urban components shall resist the test of time, especially when buildings reach the end of their physical life, and as a result, have compulsorily to be replaced. Following this line of reasoning, various interrogations can be made: What shall remain of the urban interventions from the 1950 's and 1960 's for example? Which elements and reminiscence of these fabrics shall resist such sedimentary process? With the exception of fabrics that have resulted from very recent urban interventions, every exemplar reveals the sedimentary markings that might be displayed through the characterization of significant phases of formation of the urban fabric.

As an example, and referring to the case of Évora at a relatively fine scale (FIGURE 2), and using only the roman city and the existing context (i.e. the area within the old fence), one can verify the perpetuity of elements between these two periods. Such elements include the continuity of diverse constructive structures, alignments and markings of plots. The city's entire central area



(2)

corresponds to the successive long term reuse of the same space. More specifically, one can verify the location of the cathedral, palaces, or simple residential units as a result of territorial persistency, or in other terms, by the of the resistance of the composition elements of the urban fabric. In this particular case, the emphasis upon the roman forum's monumental structures is largely tangible.

The case of Évora is unique predominantly due to its clear evidence of a temporal sedimentary process, one which also includes more recent development projects in new urban areas. In such examples, the remnants of formerly established plots and structures are clearly identifiable.

The disclosed subject matter is intriguing not as much due to the renovation, and creation, of a new city, but especially due to the unblemished persistency of the structures during their transiency over various centuries. Additionally, one must note that some elements that lost their original existential purpose or functionality had the ability to be reinterpreted throughout the time.

Diversity

Presented by an object that is permanently developing, and whose results are from a process of divergent interests, wills and fatalities, it is natural that they considerably diverge from the purity of urban models. This takes place even in cases in which such models inform implementation measures at an early phase.

Although all of these occurrences are based upon a clear and coherent idea (i.e. grounded upon articulable, repeatable and simple premises), when one deliberates upon the built city, one can verify how a component of the urban fabric originated, and evolved, into differing urban manifestations. Furthermore, and for the same urban elements or compositional system, various distinct concepts and models were produced, by different authors and agents, hence resulting a broad scope of departure points for each of them.

This theme can be exemplified through the morphological inventory of squares in Portugal.

Based on the identified question, which refers to the urban square, from the approximately 130 cases identified and researched, each represented the urban square in Portugal in different territorial contexts, and each of the 130 squares presented different outcomes (FIGURE 3). Regardless of the scope of the research, or the number of selected cases, the same conclusion would inevitably be reached. One can logically organise the 130 squares by their respective typology, basic configuration, origin, or by any other classification and typological parameter.

Notwithstanding, each correspond to different squares, as to be expected in the study pertaining to elements such as the “street”, the “urban block”, or any other for that matter.

Identity

The third quality that merits further examination into the understanding of the richness within the urban fabric results from the configuration of its various components that contribute, despite the specificity of each individual element, to the overall formal coherence of the urban fabric. It is this coherence that propagates the overall comprehension of the urban fabric’s engrained identity. The capacity to understand a given fabric does not require its concrete knowledge; instead, it entails recognising the elements that compose it. This being said, local identity does not depend only upon the formal consistence of each element, but the articulation, and relationship between one another. It is in this permutation within the urban fabric that confers its unique characteristics and composition. Likewise, two distinct types of urban fabric, each with their distinctive identity, can share similar urban elements. The city of Lisbon distinguishes itself by its fertile

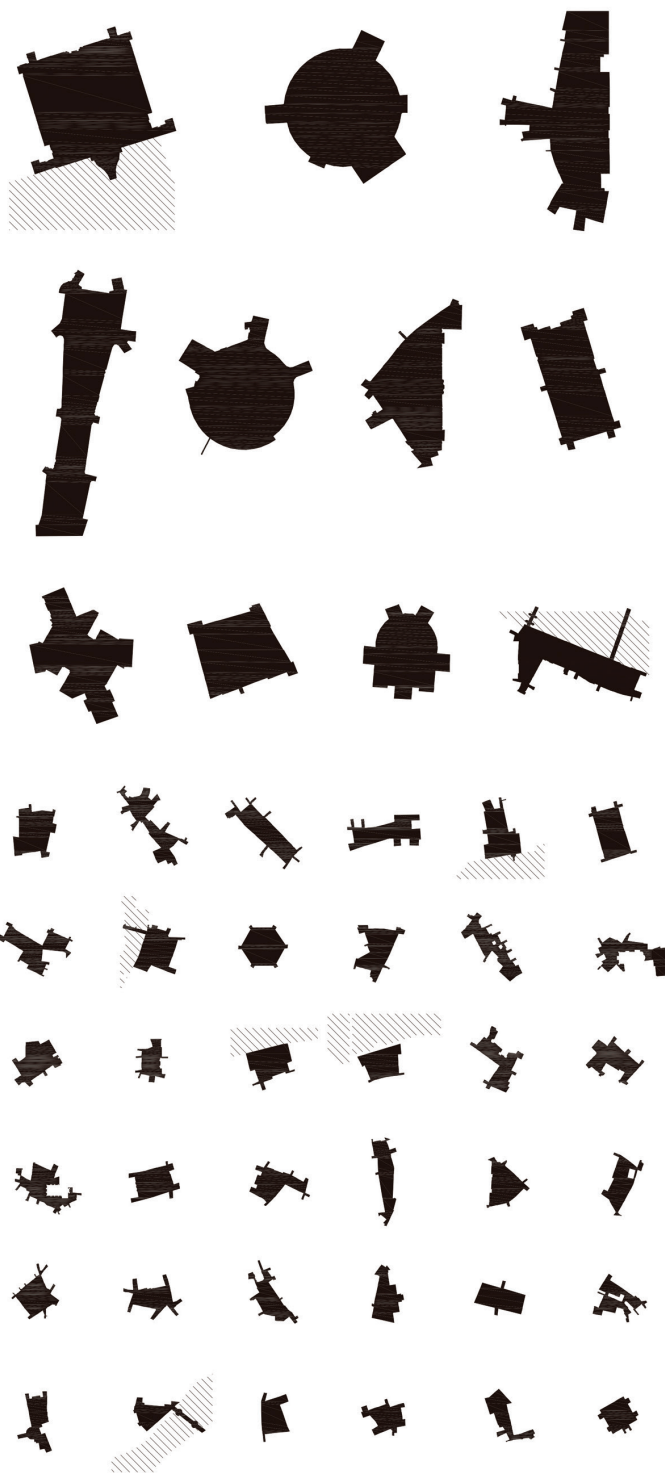
scope of urban identity amongst the city's diverse urban fabric. Following this line of reasoning, the city of Lisbon alone offers a broad range of examples that permit an in-depth examination into the concept of urban identity.

When comparing the samples of urban fabric and their engrained components, the cases of Alfama, Baixa e Alvalade (FIGURE 4) demonstrate a strong coherence between their compositional elements. More specifically, this logic can be acknowledged amongst the elements themselves, their formation and composition processes, and individual characteristics that all congregate into both an articulate and hierarchical relationship.

In this fashion, one can verify a dimensional relationship between the public spaces in each of the disclosed cases. However, it should likewise be noted that there is a clear contrast between elements from the three distinct urban fabrics.

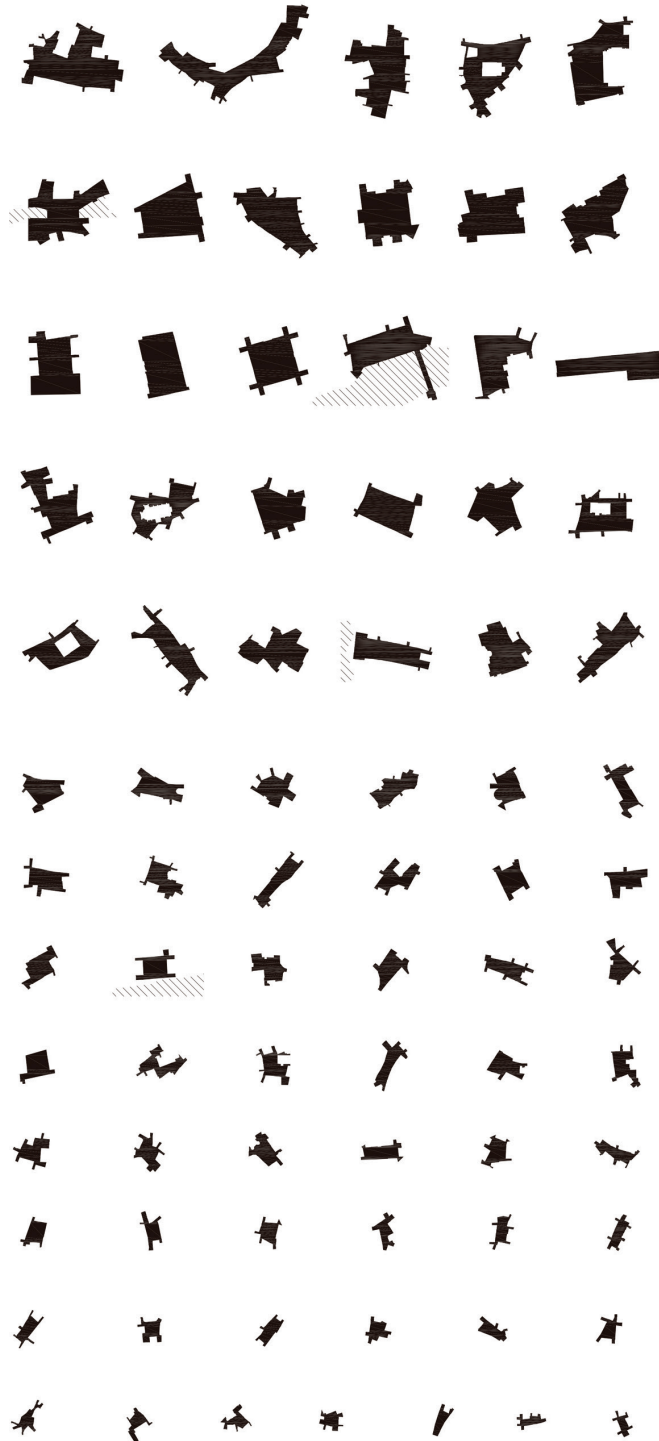
The square of São Miguel in Alfama has practically the same dimension of one of the towers of Terreiro do Paço, and if it was located in Baixa, it would seem a formal mishap. However, the association of the square of São Miguel with the surrounding streets of Alfama permits one to grasp the square's prominence and reference due to its configuration, dimension and building characteristics. In the comparison between Terreiro do Paço with the square adjacent to São João de Brito's church in Alvalade (the square of Frei Heitor Pinto), although the two spaces result of a planned intervention project, the latter seems particularly disarticulated. Additionally, and irrespective of its formal regularity, the space lacks configurative preciseness. Nevertheless, in terms of its context with the fabric of Alvalade, the square adjacent to the church plays a clear role and contains a well-defined urban configuration. This is especially salient given its articulation with the axis of Avenida da Igreja - Church Avenue .

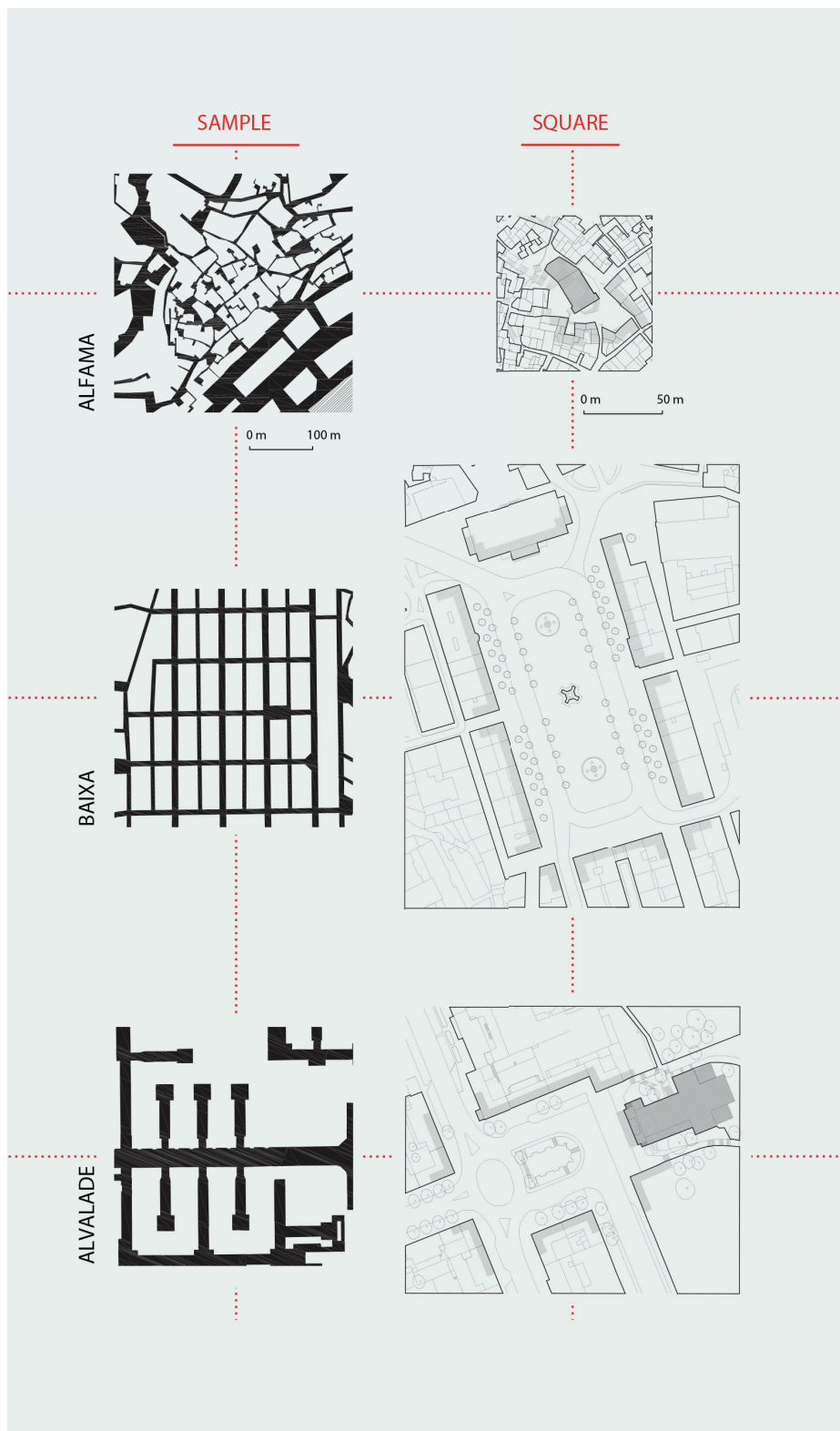
Regardless of the urban element at hand, one can verify the interlacing with the other elements enclosed in the same urban fabric and a smaller or greater maladjustment with the elements of other urban fabrics. This fact could be plausibly expected if it considered only the predesigned fabrics, where logically, the conception process aims at articulating its distinctive components. Yet, it also applies to urban fabric which is resultant of a slow sedimentation process, hence revealing its re-use and consequential re-interpretation, by either collective or individual operations, regulatory principals, or even territorial distinctions. It is here where the idea of a collective urban object is reinforced, and one which shall ultimately be expressed upon the actual urban fabric.

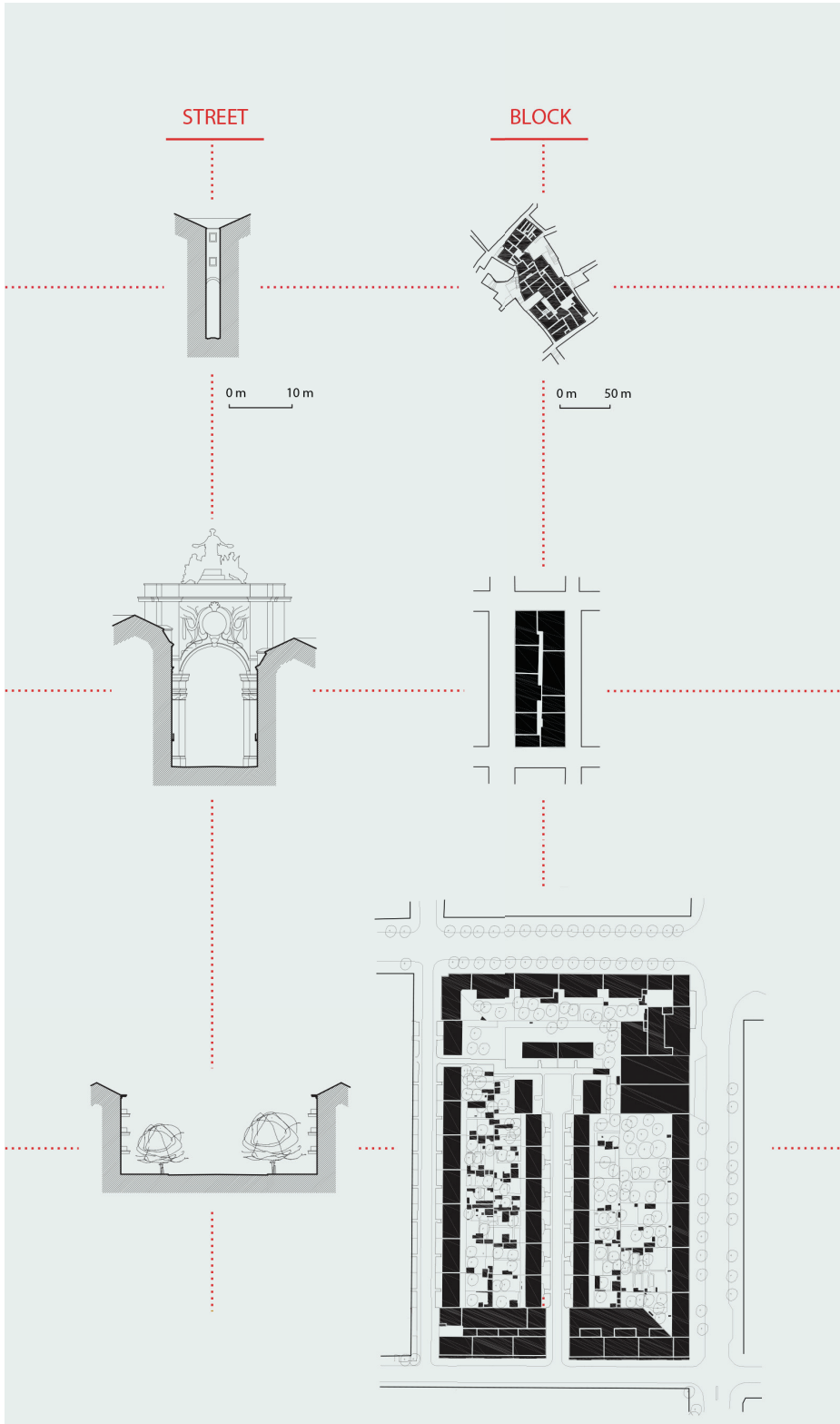


(3a)

(3b)







Research base

As a method to approach the city that includes grasping both its interpretation and potential urban evolution, the research group FORMA URBIS LAB was launched during 2006 with the aim of constructing a Morphological Atlas that uses the Portuguese city as the focus of its study.

A project was organised based on the experiential account from other authors, namely, a special mention must be made to the pioneering work “Encyclopédie de l’Urbanisme” by Robert Auzelle and Ivan Jankovic edited during the 1950’s, the more recent “Great Streets” by Allan B. Jacobs, and the “The Dutch Urban Block” by Susanne Komossa and Han Meyer.

The construction project of the Urban Form Atlas of the Portuguese City, distinguishes itself by approaching the urban fabric and its principal components through a transversal and integrated method, one which also facilitates the correlation of all of the existing components.

The project integrated previous researches that were developed by the laboratory, and hence it will consist in the selection, graphical restitution and both illustrative and written descriptions of the different exemplars of the built fabric within Portuguese cities and their respective individual urban elements of composition. This collection aims for the composition of a representative set of typological diversities, evolutionary state, sedimentary processes, dimensions, and urban uses.

In the construction of the distinct sections of the atlas by the FORMA URBIS LAB, various projects were developed: “A Rua em Portugal – Inventário Morfológico”¹ between December 2007 and March 2011; and the project “O Tecido Edificado da Cidade Portuguesa – Inventário Morfológico”² that was concluded in September 2014. Furthermore, there was also the integration of previous projects from the same team, namely: “A Praça em Portugal, Continente – Inventário de Espaço Público”³ published in

- 1 Financed by the Foundation for Science and Technology (PTDC/AUR/65532/2006).
- 2 Financed by the Foundation for Science and Technology (PTDC/AUR-URB/111835/2009).
- 3 Financed by the Direção-Geral do Ordenamento do Território e Desenvolvimento Urbano

2007, and the project “A Praça em Portugal, Açores – Inventário de Espaço Público”⁴, previously published in 2005.

The project of the Morphological Atlas of Portuguese Cities is organised in three sections: (1) the city; (2) the public city; and, (3) the private city. Respectively, and, through a standardised method of characterisation, are approached: the urban fabric and the urban layout; the public space of the city through mutually scrutinising both squares and streets; the private space of the city, that at an initial phase determines the basic units of the edified fabric, the urban block and its plot structure, and at a latter phase studies the building typologies (FIGURE 5).

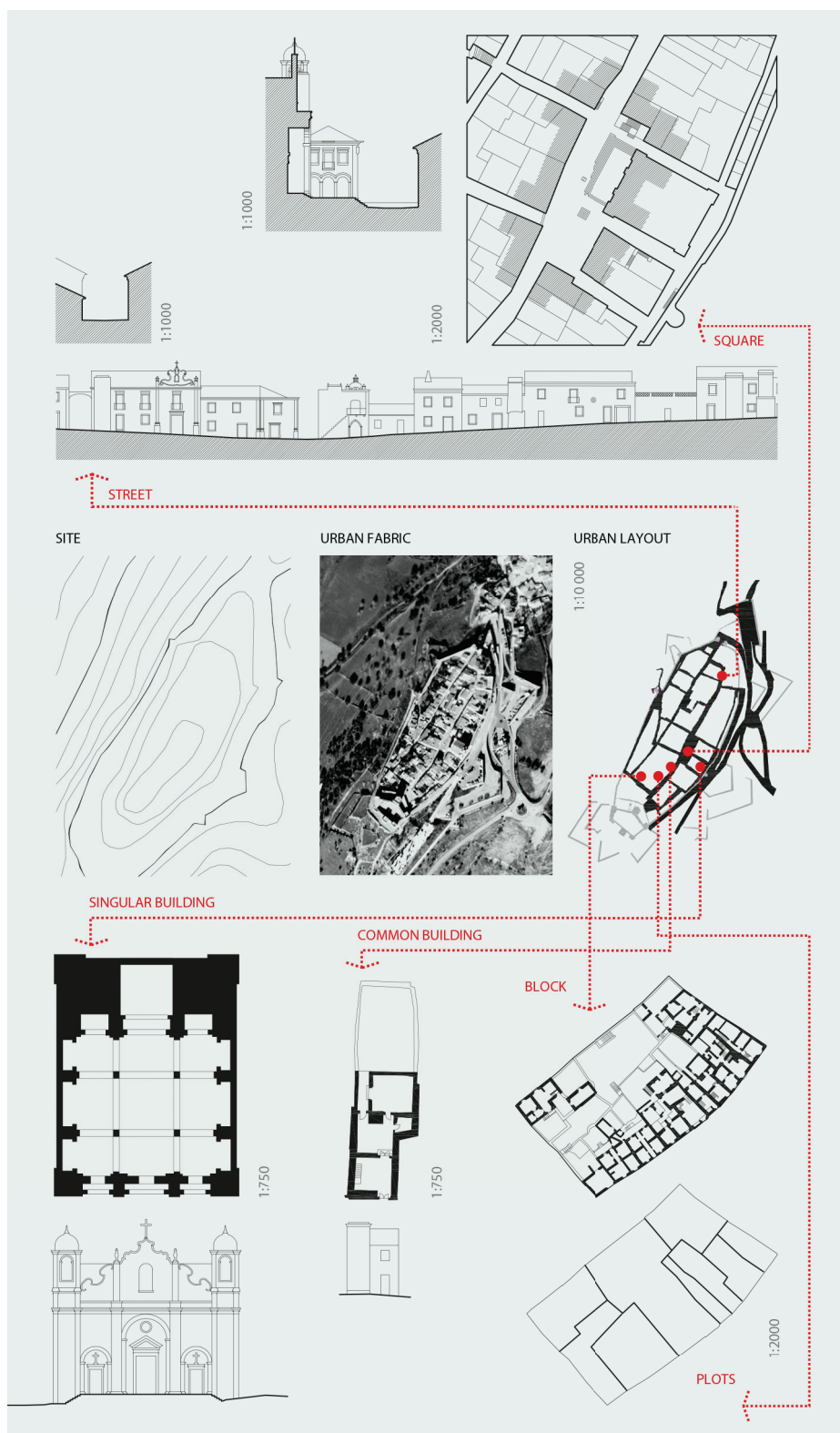
The objective of the analysis, one which is based upon an encyclopaedic approach, implies that the approached examples will be treated through a systematic approach, and through a unique model. This shall enable a comparison amongst the various chosen cases, and their integrated components. Consequently, an approach such as this will enhance the cellular nature of the latter within the composition of the urban fabric.

In this sense, an identical and comparable graphic representation of the different elements is proposed, i.e., through the use of the same graphic representation codes and scales. This shall be catalysed from a conjunction of drawings, which are accompanied by photographs, interpretative drawings, and a synthetic characterisation text. These shall approach the constructed urban context in such a way that shall scrutinise its enclosed origin, morphology, and main uses. (FIGURE 6)

By conceiving and developing such a project, it is expected to construct a base of interpretative data that can potentially construct a fundamental tool for the research of the urban form. One that is moreover projected to also aid intervention projects within the contemporary city. In this context, the research, both the individual sections and wholesome approach, aims at accomplishing two predominant objectives.

The first consists in providing an educational and pedagogical instrument for the study and teaching of both architecture and urbanism, an instrument itself as essential as the cartography.

The second objective consists of producing an effective instrument that propagates the reflection and practice of





URBAN FABRIC

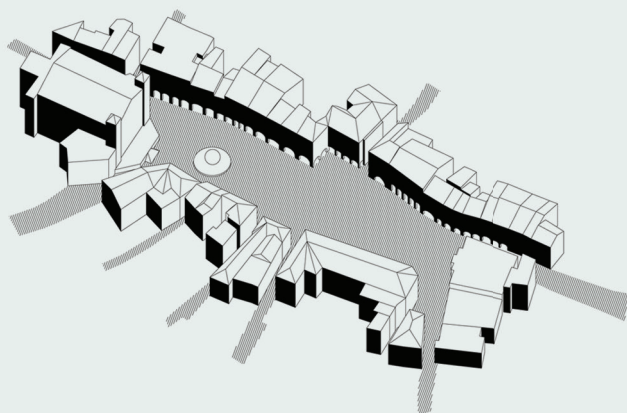


URBAN LAYOUT

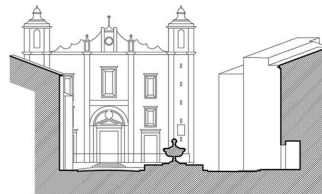


TOPOGRAPHY

(6a)



(6b)



(6c)

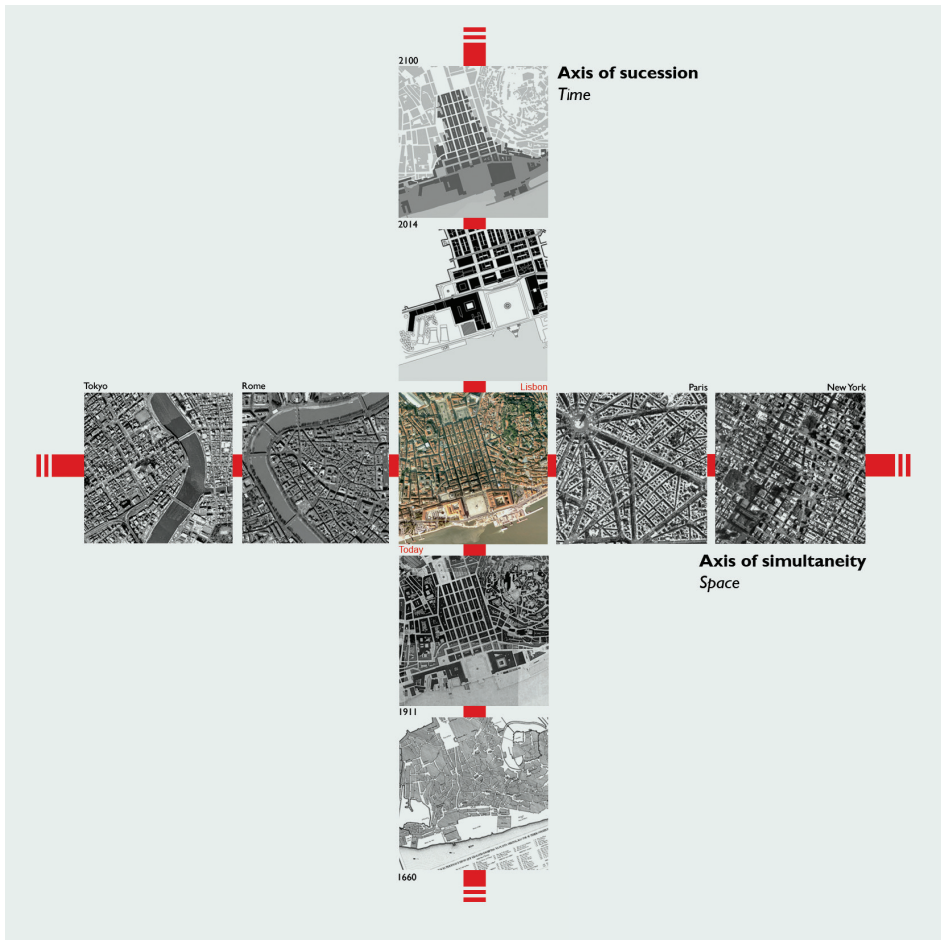
urbanism. This aim is one that is not directed at merely considering operative planning models, but to provide a set of types produced by concrete and reputable examples. Through this tactic, such examples aid the assembly of a solid typological base, which in turn, shall nurture the contemporary design and construction of the city.

Individual Projects

The availability and dissemination of the atlas has enabled its use by all of the team's researchers, particularly for the members and collaborators of the **FORMA URBIS LAB** that initiated their own individual researches or with other research teams with similar thematic lines of research. From these, various diverse projects can here be mentioned: "Genesis and form of the Portuguese city. Morphology, typology and sedimentation", developed by Sérgio Fernandes; "The diversity of the street in the city of Lisbon. Morphology and morphogenesis" by Sérgio Proença; "Emergent Streets. Type-morphologies and structure on the Portuguese urban context" by João Leite; "The 'Rua Direita' (Straight Street). Composition element in the urban fabric of Portuguese origin" by Ana Amado; "The persistence of urban forms: reading the pre-existences in the construction of the Portuguese city" by Pedro Martins; "The Lisbon urban block: from shape to type" by Rui Justo; "Urban form, evolution vs. conservation. The transformation of the monumental fabric in Portugal" by José Miguel Silva; or, "The city as a cultural creation", by Carlos Dias Coelho.

These researches, which search to address diverse concerns, always depart from the urban object, as it presently exists, and utilising its selected elements and systems, subsequently deconstructed and graphically treated for the construction of the Atlas. Furthermore, such urban elements and systems are interrelated and scrutinised by the factor of time.

Methodologically, the absence of referential absolute values for the urban object leads to the tactic of comparative analysis to approach it. This approach may be illustrated from the two axis proposed by Ferdinand de Saussure, in other words, one axis refers to similarities and the other refers to successions. In the first, the axis of similarities, is undertaken a comparison between urban fabrics, systems or urban elements in similar or even in dissimilar contexts. This comparison is however permanently stationary, and undertaken during the same temporal period. The second axis, the axis of successions, presents the journey of the same urban element, departing from the present and then historically regressing in order to justify its configuration in the present; and



(7)

towards the future, undertaken within the scope of an architectural project. (FIGURE 7)

This methodical approach permits the reading, interpretation and comprehension of a complex reality. Furthermore it opens the support and ground for conceptions and solutions for projects that respect such reality and endeavour to contribute to its temporal development.

On the other hand, the analysis of the urban fabric can and should be undertaken at diverse scales, from the scale of spatial planning to that of the architectural dwelling. In this way, the segments and components are related to one another during their respective interpretation.

The interpretation through decomposition and graphical representation

To facilitate the understanding of the utilised methodology, and particularly of the role of drawing as a fundamental tool in comprehending the urban form, three examples were selected that distinguish themselves in their analytical scales and axis.

The first case concentrates upon shifting the axis of succession, and focuses on the city of Braga, located in the north of Portugal, based on the theoretical reconstitution of its main phases of evolution. Hence, starting from the present, Sérgio Fernandes established four key stages that correspond to specific periods of the evolution of the city and retroactively identified: (1) the “transformation” - between the XIX century, and mid-XX century; (2) the “consolidation” - between XVI century, and mid XVIII century; (3) the “ruin or retraction” - between the VI century, and XV century; and, (4) the “settlement” - between first century, and V century.

This temporal phasing can justify the profound alterations that occurred in each of the periods, and the fashion in which this takes place as a result of the reinterpretation of the previously existing elements. In other words, this inverted chronological development consequently explains the existing form of the contemporary city.

(FIGURE 8)

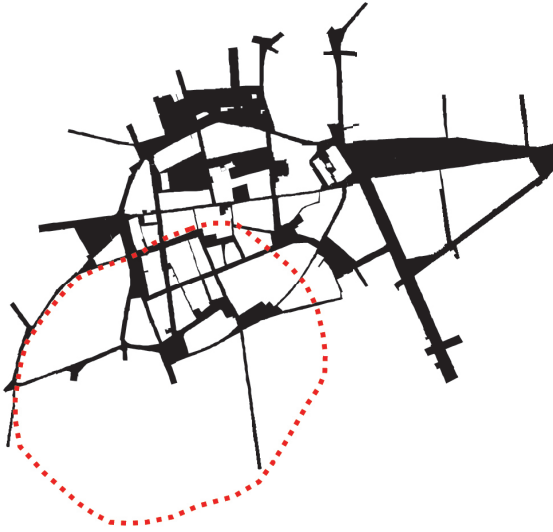
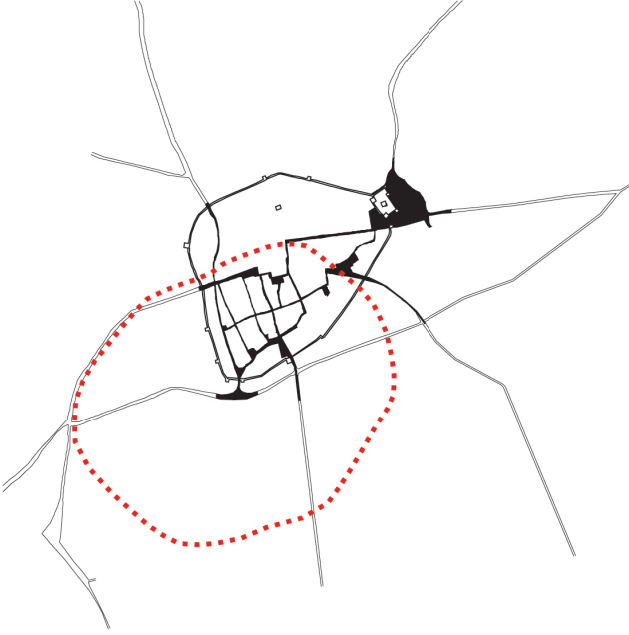
The second case illustrates the strata decomposition of an urban element in a formation phase; i.e. a peri-urban road that is in a state of metamorphosis towards its transformation into a street. João Leite defined the object of study, and broke it down in order to further use the obtained strata in a comparative process. Such process both enabled the comparison with similar cases and the establishment of the evolution of the object itself.

The process permitted the characterization of an emerging phenomenon, to identify the changing moment in the nature of the object, and above all, predict the possible paths of its evolution, both its territorial role as, at a finer scale, the alteration of the building typologies themselves. (FIGURE 9)

In the third case, various elements are presented by the work of Xavier Monteys regarding the three major common types of habitation within Lisbon after the mid XVIII century earthquake, namely: (i) the Baixa Pombalina habitation, which stabilised during the second half of the XVIII century; (ii) the “light well” housing, typical of the end of the XIX century, and early XX century; (iii) the “cod tail” housing building, characteristic of the mid XX century. Through a phenomenological approach, it was possible to identify stable elements in every one of these periods such as: (i) the façade facing rooms; (ii) the existence of an independent access compart-



(8ab)



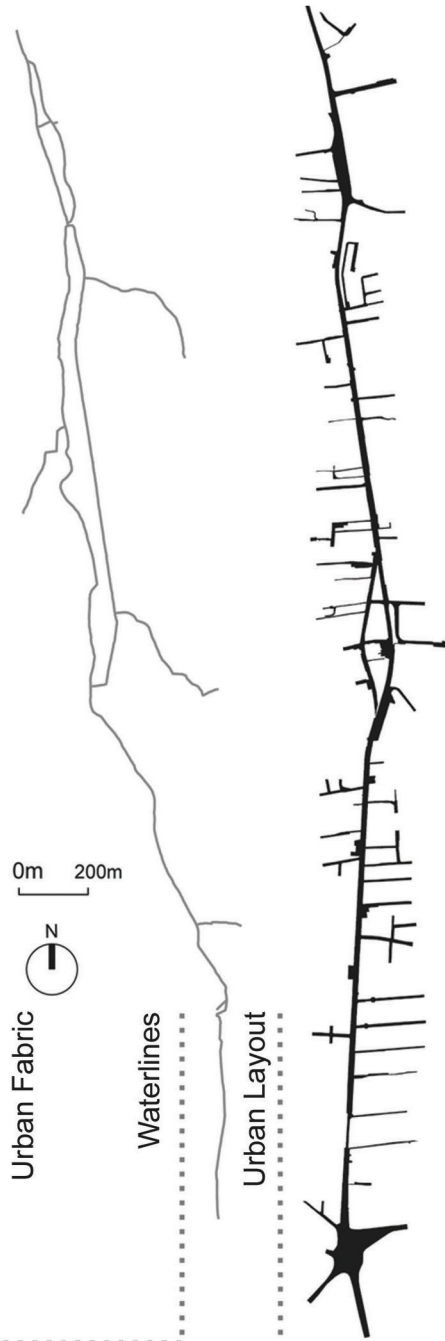
ment to the stairs; or (iii) the location of the kitchen. In addition, it was possible to recognise elements that constituted the typological evolution, and that characterise each of the periods (such as the corridors, the appearance of the dining room, and the relationship of the dwelling with the rear patio. (FIGURE 10)

The construction of models

Notwithstanding, all of the methodological procedures, that result in the project, lead to a contradiction. If the analysis and explanation of an existing urban object (or in any state of existence for that matter) refers to questions methodologically stabilized and procedurally recognizable, the project phase shall always imply a jump into a new ground, the ground of creativity and imagination.

If we return to the two axis that were proposed by Ferdinand de Saussure, and focus upon the object as it currently exists, the translocation in the similarity axis and in the temporal axis when looking into the past refer to a methodological approach which is characteristic of the Sciences. When considering the future of the temporal axis pertaining to an urban object, the intellectual process refers to that of creation and imagination. Yet, unquestionably, one must also must relativize or at least frame the act of creation on a long term of life span of a city. In this sense, the condition of a given urban fabric during a fragment of time is both the result of intentional reasoning and voluntary materialization and those which arise obligatorily as a result of involuntary events and of historical and geographical conditioning. Be it a cliff, an earthquake, a king, or a regulatory policy, all can have a significant influence upon the resultant form of the city. In addition, and even more pedantically, it could be the trivial day-to-day actions such as a mere construction of a shed intersecting a street, or an insignificant plot being paralysed due to a property dispute.

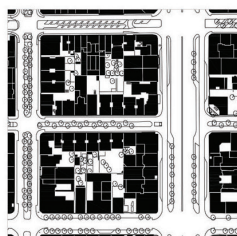
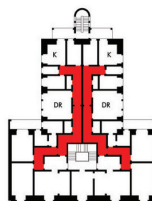
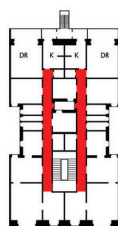
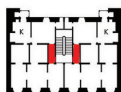
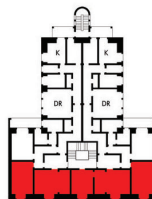
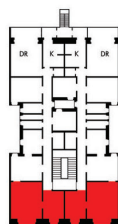
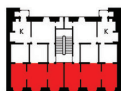
This statement only serves to reframe the role of the architect as the creator of the city, and not to omit it. Furthermore, it underpins that our role on the creation must be articulated with others, and it is the resultant mutual comprehension that fully enables the affluence of Man's built form. Therefore, when one is presented with questions regarding the future of our cities, there shall never be a concise answer but at least as many answers as the number of people that are questioned. A creative process is not independent of the concrete world in which it expresses itself; however, its richness lies in its ability to interpret itself. In this sense, we may advance an example of a structure of a concept for the intervention of a particular case, knowing that regardless of the location it will materialize (and be it through an entity or single handed) its richness shall be conferred by creativity.



Plots

Buildings

[illegible]



The example originated from a debate that took place during three years between the author and a responsible of the strategic planning of Lisbon's municipal council regarding the approach towards peripheral and suburban fabrics.

The response was a reaction to the propagated general consensus that exists in the two types of distinctive cities: (i) the consolidated city, defined by its centrality, and legibility; and, (ii) the peripheral city, defined by its disparity, unstructured and ineligible structure. In fact, from these two examples, two sides of the same coin, and urban organism, are revealed, thus one cannot resign to the idea that this dichotomy is indicative of an insurmountable reality.

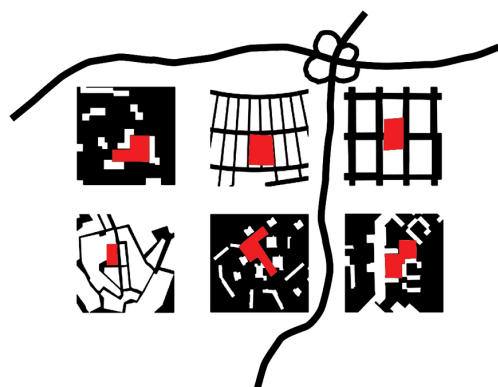
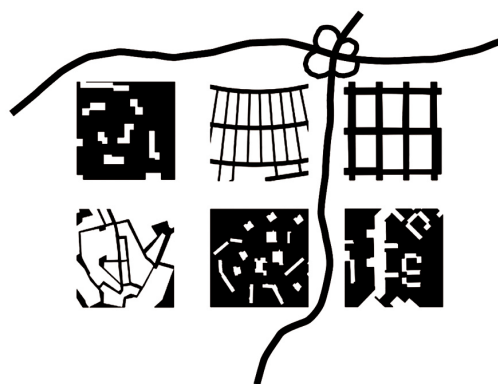
If one is to comparatively analyse the fabrics of these two examples, and using the case of Lisbon as an example, one can verify that both are constituted by homogeneous fabrics; which moreover, are based around a simplified matrix that do not necessarily have to be of great sophistication. Nevertheless they are dissimilar, due to consolidated fabrics being articulated by structural urban elements, whereas in segregated peripheral areas, a search for the articulation with the centre of the city is revealed by large scale infrastructures. (FIGURE 11 AND 12)

Although the urban fabrics of suburban areas are defined by their segregation and peripheral nature, these have been the object of substantial effort. Such efforts have witnessed requalification investments and embodied the super-development of road infrastructure and urban equipment engrained within the respective urban fabrics. Such equipment includes the construction of schools and social establishments that have led to an overall improvement of the urban space, without substantially modifying the fragmented nature of these discussed areas.

As a result, the starting point was set by the analysis of how different homogeneous fabrics were articulated within consolidated areas, and the engrained role of urban elements that came to structure, and assume a hierarchical role. Such role presented itself as being potentially far more essential than the homogeneous fabrics themselves as they establish the location of buildings, spaces and urban activities of greater importance and prestige. Through the establishment of this concept, a planning model was elaborated for the development of peripheral fabrics, one that proposes the dislocation of effort and investments made in each of them into the interstitial spaces that separate homogenous zones. In this sense, these interstitial spaces would become the mediation spaces between homogenous areas with the role of interrelating them and changing their conjunctive composition. (FIGURE 13)







This model was aimed at supporting and stimulating a debate that would reverse the segregation tendency that, ironically, end up being reinforced by the undergoing requalification policies in these areas.

CONCLUSION

Approaching the city in its built form requires it to be considered an imperfect object. This notion should refer to the two facets of the word: (1) imperfect due to inefficient assembly; and, (2) imperfection due to being unfinished.

When one refers to the city as a form of art, one must consider it as a whole. In other words, as an object that appeals to our emotions in all aspects of the built form and encapsulating landscape. Everything that is aesthetically close to the exemplar has the ability to absorb, attenuate and integrate what is not seen as such.

Forgetting, if not fighting, this reality is the source of considerable mistakes within the urban production of the xx century. Nevertheless, a lot of the fighting that took place has not questioned (on the contrary to what is customarily believed) the city of the past; instead it questioned the city of the present, one that contains all of the information from the past and also its future, which somehow we now experience.

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