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## THE NOTION OF GROUND: A DEFINITION OF URBAN PERMEABILITY IN HONG KONG AND BARCELONA

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## THE NOTION OF GROUND: A DEFINITION OF URBAN PERMEABILITY IN HONG KONG AND BARCELONA

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### Structured abstract

#### Objective

The famous plan of Rome by Nolli (1748) illustrates the permeability of the urban structure of the city using a figure-ground representation and for the first time including the courtyards and internal areas of public buildings as civic spaces. This paper is concerned with the question of identifying and describing the notion of urban permeability through analysing two paradigmatic cities, Barcelona and Hong Kong.

#### Methodology

In this article the symbiotic relationship between architecture and city, urban public spaces and the built environment will be explored using a comparative analysis. With the aim to clarify the notion of urban permeability in different spatial contexts, various urban phenomena will be analysed to understand the contrasts, similarities and specificities of both cities.

#### Conclusions

In the historic centre of Barcelona, the intricate sequence of squares and strategic passages are an extraordinary example of urban permeability at ground level. On the other hand, the financial district of Central Hong Kong Island demonstrates how the pedestrian flows circulate like a dense fluid through a three-dimensional network of buildings, subterranean passages and skywalks. This system generates a series of collective spaces at different levels and creates vertical circulation which connects directly to the public transport system.

#### Originality

The degree of urban permeability influences the exploration and the perception of the urban environment. However, there are no specific studies on how this quality characterizes the spatial structure of Hong Kong and Barcelona. This article will address this knowledge gap by analysing these two dense and complex urban forms.

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## 1. Introduction

Permeability is a measure of a material's capacity to allow fluids to pass through it without altering its internal structure. This physical property has often been associated with the city. The famous plan by Nolli (1748) illustrates the permeability of the urban structure of Rome using a figure-ground representation and for the first time including the courtyards and the internal areas of public buildings as civic spaces.

The expansion of public space at ground level is a necessity which frequently arises, extending the functions and the public realm of streets, squares and parks. In the compact city, this expansion may be achieved through creating a porous system of pedestrian paths, urban spaces and episodes of the city.

Cities and its spaces are imagined as a "complex adaptive assemblage" (Dovey 2012, p.349), their urban forms generate different urban conditions that provide the scenarios for a great variety of human activities.

According to its spatial configuration, an integrated street network can significantly increase the opportunities for citizens to circulate on foot, offering a variety of alternative ways to explore the urban environment (Bentley *et al.*, 1985).

The central question of this study is therefore to clarify the notion of urban permeability in two different urban forms such as Barcelona and Hong Kong.

According to Tieben (2017, p. 57) "...Hong Kong and Barcelona are often cited as cities that achieve sustainability based on their compact and dense urban form". However, both cities are symbolic examples of how density can generate two diverse urban forms, where the key difference may be summarized with the idea of a horizontal compact city versus an intense vertical city.

The symbiotic relationship between architecture and city, urban public spaces and the built environment will be explored to understand how this quality can contribute to defining their spatial structure.

## 2. Porosity and urban spaces

The sequence of public spaces and streets allows the circulation of pedestrians to flow through the urban structure like a fluid through a permeable material. Permeability is in turn dependent on porosity which is one of the key factors that facilitates this passage.

Walter Benjamin provides a definition of porosity in his description of Naples: "As porous as this stone is the architecture. Building and action interpenetrate in the courtyards, arcades and stairways" (Benjamin, 1985 p.169).

The quality of these urban spaces lies essentially not in whether they are public or private, but in their ability to create intermediate places capable of representing the complexity of the city.

Urban spaces are based upon civic qualities, multi-functional uses, and above all upon being repositories for the wishes and ambitions of the citizens (Pérez Bourzac, 2018) who value them for the opportunities they create for meeting, relationship and transaction. We might also consider urban spaces independently from their ownership; urban places may be a public space, or more broadly, a collective space in the city where, despite occasionally confused distinctions between public and private, the various activities of the community may take place. The symbolic places of a city may not necessarily be entirely public - two of the most appreciated urban spaces in Manhattan, Paley Park and Seagram Plaza, were also corporation-funded public projects that were built without the financial contribution of the city of New York (Moelsae, 2014).

In the streets of Naples, the private and public spheres often merge, as Benjamin (1985, p. 174) explains, “just as the living room reappears on the street, with chairs, hearth and altar, so, only much more loudly, the street migrates into the living room”.

According to Stavrides (2007, p.175) porosity “...characterizes above all the relationship between private and public space, as well as the relationship between indoor and outdoor space.”

In their figure-ground studies, Colin Rowe and Fred Koetter (1978) showed how the modernist city was, in terms of solid and void, the inverse of the traditional city. The notion of porosity appears more evident in the figure-ground of the traditional city, where the mass of the buildings is eroded by a connected sequence of public spaces.

The ground floor is usually associated with the urban relationship between the horizontal plane of the street and its connection on the same level with buildings. During the Modern Movement, this concept gained in complexity, and in the most congested cases, buildings became taller while at the same time, both for technical reasons and in order to connect to transport systems, they began to occupy several below-ground levels. This concentration has also often required the occupation of the first floors above ground, creating podiums with uses more directly related to their proximity to public space. In these new scenarios, PLUG-INS and interfaces become fundamental elements.

This tendency of the contemporary city to unfold in various overlapping and interconnected levels is key to understanding how the historical relationship of public space in one single geometrical plane has given rise to these new paradigms.

One extreme case is the Central Business District in Hong Kong, where the pedestrian space fades away at ground level, occasionally disappearing altogether, while at other times forming complex urban spaces, such as the subterranean access to the metropolitan public transport system or in the walkways which join buildings at different heights. In the metropolitan sphere, Hong Kong appears as a city without a ground floor (Frampton *et al.*, 2012) or that is to say, a city with multiple grounds.

### 3. Public Spaces and the Collective Domain

Amanda Burden (2014), urban planner and former director of the New York City Department of City Planning, stresses that cities are fundamentally about people, and hence, where people go and where they meet are central to the functioning of the city. In her view, the public spaces between buildings are even more important than the buildings themselves; some of the most transformative urban initiatives are currently occurring in these public spaces. Similarly, Crowhurst-Lennard & Lennard (2015) argued that urban public space is the single most important element of a city's liveability.

Public space is one of the key elements of urban structure. Although there is no specific formula for a successful public space, qualities such as accessibility, safety, comfort and the capacity to facilitate social activities are crucial (Project for Public Space, 2008). As Montgomery (1998, p.94) observes, "it is a relatively simple task to think of a successful place, but it is much more difficult to determine why it is successful, and whether similar success can be produced in other places."

Public space is often only considered successful when it is highly used by the citizens, however the contemporary forms of use may be extremely varied. The types of appropriation generated by social activities are of great importance and may be encouraged by means of planning and the design of public space. As a reaction to the conventional top-down planning system, new forms of urbanism based on a people-centred perspective have begun to generate more sensitive and adaptive urban strategies using a bottom-up process.

This concept of a more flexible and people-centred urbanism implies the contribution of citizens to the production and management of public space, a concept, which is becoming increasingly relevant.

In recent years, civic initiatives and temporary events, such as architecture festivals and place-making events initiated by urban activists, architects and neighbourhood associations, have flourished with the aim of improving the unattractive or dysfunctional spaces of our cities.

Usually these experimental projects open up the opportunity for citizens to participate in the transformation of their own urban environment. The use of bottom-up actions can be a valuable tool for promoting new social relations among the citizens as well as rethinking existing weaknesses in the conditions of the city's public spaces (Rossini, 2018).

These tactical actions influence the everyday spaces which delineate the physical domain of everyday public activity and stands in stark contrast to the abstract principles generated by a generic top-down strategy (Chase, Crawford & Kaliski, 2009).

Furthermore, sociologists and anthropologists are seeking to discern the specific qualities of day-to-day life which public space currently offers. The sociologist and philosopher Zygmunt Bauman (2000) argues that change is highly characteristic of modern society, and the concept of liquid modernity offers an original approach for analysing the complexities of social change in the contemporary world (Lee, 2005).

But if the needs and expectations of society are in a continual state of change (Bennis and Slater, 1998), how does this apparent instability influence the urban life of our cities? And how should the planning process be responsive to the population's needs?

In Barcelona, as in Paris and many other European cities, public space is an integral part of the public realm, providing places where citizens tend to find their social dimension. However, the advent of the Modern Era has substantially changed this relationship creating new complex meanings in which social, political, economic and cultural processes influence the public sphere.

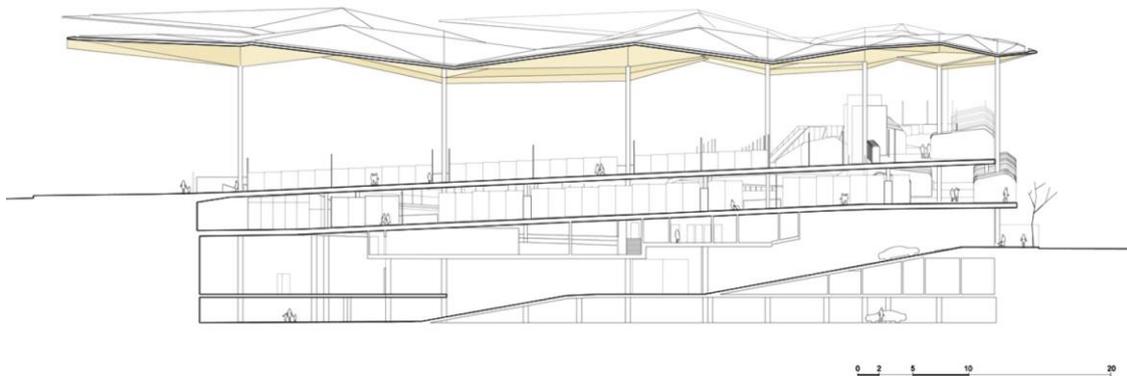
While in the pre-modern era, public space reflected a powerful collective identity which made society cohesive, from the end of the 19th century this paradigm changed with the growth of public opinion and the quest for social consensus (Habermas, 1962).

Over the course of the 20th century, the public sphere seems to have become increasingly fragile. Richard Sennett (1977) argues that the privatisation of people's lives is generating the end of public culture. Social, political and economic factors of modern society are changing our use and perception of the public domain.

Public life is traditionally associated with public spaces, however as Banerjee (2001) observes, it is increasingly flourishing in private places such as coffee shops, bookstores and other such tertiary places. Similarly, Pérez Bourzac (2018) remarks how nowadays shopping centres, hotel lobbies, and rooftop terraces are becoming the urban spaces of the contemporary society. According to Manuel de Solà-Morales (1992) the urban richness of the contemporary city resides in the collective spaces that are not strictly public or private, but both simultaneously (Figure 1).

Public space should influence the private sphere giving a public character to buildings and places that, without it, would be only private. In other words, urbanizing the private: that is, making it part of the public realm.

Figure 1. The market *dels Encants*, Barcelona



Note: The public market *dels Encants* in Barcelona, an example of permeable collective space. Source: Drawing courtesy of Fermín Vázquez.

In this context, there is a gradient of intermediate conditions between public spaces that are used for private activities and private spaces that allow for collective use, and it is worth noting how the collective domain may assume a dominating role in the definition of space. These spaces, such as theatres, schools, libraries, and museums, are places where everyday life takes place, presents itself, and it appears in the form of memory.

Paraphrasing Yi-Fu Tuan (2014), a place can be understood from the perspectives of the people who have given it meaning, embodying their experiences and aspirations. Here, Yi-Fu Tuan relates this definition strictly to people, focusing on experience and meaning without taking into consideration whether a particular place is public or private.

However, regarding the function of the public realm as a place for social interaction, reserve, distance and the preservation of anonymity take precedence in these encounters between citizens. Consequently, public spaces can offer fertile ground for social subversion and conflict, forming a part of urban life which confronts the wishes of the established powers who plan and design it in order to control it. A principal issue is the passivity of perception and the difference from others – both of which have been accentuated by different factors over the last two centuries.

It can be argued that open and accessible public spaces are valuable for far more than just recreation. From a more optimistic perspective, contemporary public space continues to be a space for meetings between strangers, places of active citizenship, in which personal identities are constructed through unmediated social interaction (Németh, 2008).

In order to organise and structure the urban settings for public life, Government departments implement overarching strategies at different levels to control urban development, organizing and defining the uses of land, and thereby affecting the use of public space. It is important therefore to note that urban planning continues to have a critical role to play in improving the quality of life in our cities.

#### 4. Barcelona

Barcelona is not only a paradigm of the European compact city, but a forerunner and international reference for public space policies transforming the compact city. The reconstruction of Barcelona undertaken during recent decades has in part been based on the role of public space and has affected the entire city (Martí, 2004).

The city has a compact historical centre with rich and varied public spaces characterised by streets, squares and passageways. These often take the form of narrow alleyways which interweave through the ground floors of buildings, giving continuity and common borders to the spaces concerned and creating complex urban layers and networks. In certain cases, we might describe this in terms of urban porosity or capillarity, or to paraphrase a particular interest of Manuel de Solà-Morales (2010), in its 'material urbanity', given that urbanity is found not only in economic and social activity, but also in architecture. According to Carmona *et al.*, an 'urban' architecture "...responds to and contributes positively to its context and to the physical definition of the public realm." (2010, p. 184) It follows therefore that architecture may be urbane through its use of materials, which may be the material of the floor or the walls of buildings, or light and

colour; sometimes this urbanity is implicit in public space –irrespective of whether it is full of people or empty– however, this is not always the case.

Often strategic shortcuts or connections, which are pleasant places in themselves, have already created this condition of urbanity. This is often the case in historic buildings, but also sometimes occurs in more contemporary reformations and projects which have attempted to introduce alternative solutions to areas in contact with the street.

In his '*Teoría General de la Urbanización*', Ildefonso Cerdà remarked that there is a perfect analogy, and there should also be an intimate correlation between the horizontal and vertical planes of the city (Cerdà, 1867).

This is the case in the Mediterranean Building by Antonio Bonet Castellana, on Consell de Cent Street, between Borrell street and Urgell street in the Eixample. This building subtly extends the level of the pavement into the interior of the building, widening the public space with a stepped rhythm of pilotis which support the building (Figure 2).

Here there is a clear understanding of the opportunity that the intersection between building and city provides to create an attractive collective space. The porosity of the arcade creates an intermediate space which perfectly represents the symbiotic relationship between private and public domain.

Within the rich variety of situations and connections which Barcelona presents us with, it is also important to mention the new scenario where the interior patios of many blocks in the Eixample have recently been restored, transforming spaces which had previously been occupied mainly by one or two storey industrial or warehouse buildings.

Figure 2. **Buildings and public spaces**



Note: The building designed by Antonio Bonet Castellana in the Eixample. Source: Photo by Jofre Roca

In recent decades, this recovery, although not as fast as might have been desired, has led to the discovery of different types of public spaces separated from the traffic of the surrounding streets and connected via passages, sometimes open to the sky, situated on the ground floors of the surrounding buildings.

Figure 3. Superblocks, Barcelona



Note: Diagram of current and future circulation networks based on Superblocks. Source: Excerpt from BCNecología

We might therefore consider that if such passageways were opened in all four sides of a block, this would generate pedestrian networks, which could establish an efficient model of pedestrian circulation complimentary to the intentions behind the introduction of superblocks, with their subsequent aim to pacify the interior streets through their new traffic arrangements (Figure 3).

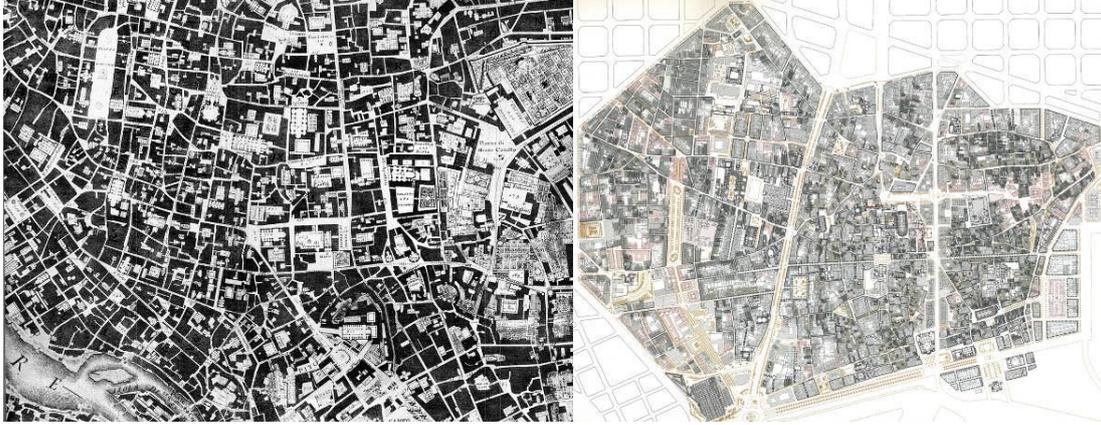
The street network of Barcelona, especially in the historical centre, represents an excellent model of urban permeability. It is worth noting as an example the passageway incorporated into the ground floor level of the hotel Citadines, by architects Esteve Bonell and Josep M<sup>a</sup> Gil. Besides giving access to the hotel, this passage also provides an easy and fast pedestrian connection between Villa de Madrid square and the cosmopolitan Rambla.

Along its edges the Rambla expands the influence of the public realm generating different types of collective spaces within the buildings. Examples include the famous theatres of the Liceu, the Principal and the Poliorama and their respective foyers; the convent of Santa Mónica with its exhibition gallery; the Moja palace and its patios; and the Hotel Oriente with its cloister converted into a dining room (Moro, 2017).

All these urban episodes create a sequence of interconnected places that are popular destinations for the citizens of Barcelona. According to Carmona *et al.* "...Successful people places may be destinations in their own right, but, more likely, they are also places on the way to many other places." (2010, p. 202).

Another typical case is that of the Palace of the Virreina located a few meters away from Liceu theatre. This has a ground floor with an axis perpendicular to the facade creating a penetration in the form of an open passage between the Rambla and Saint Galdric square.

Figure 4. Plans of Rome and Barcelona



Note: On the right the plan of Rome by Giambattista Nolli. Source: La Nuova Topografia di Roma, 1748; on the left the historic centre of Barcelona. Source: Busquets 2003, *The Old Town of Barcelona: A Past with a Future*

And if we carefully analyse the ground floors of the buildings of the historic centre of Barcelona and combine them together, in the manner of Giambattista Nolli in 1748 in his plan of Rome, we find a rich scenario of possible connections and penetrations (Figure 4).

Other exemplary cases of urban porosity occur throughout the Gothic city, perhaps most notably where the public space of the street expands into the medieval courtyards of Montcada Street, and where, in many cases, the space also extends transversally. The ground floors of the Gothic palaces now occupied by the Picasso Museum have a network of internally connected semi-public courtyards running parallel to the pedestrian Montcada Street (Figure 5).

Figure 5. Picasso Museum, Montcada Street



Note: Montcada Street; Passageway connecting courtyards transversally in the Picasso Museum; Relationship of the semi-public courtyards with Montcada Street. Source: Drawings by Sebastian Harris

We find this urbanity in many different forms and situations over the course of history with contemporary buildings which have also attempted to introduce alternatives regarding the surface in contact with the street.

In his own way, Enric Miralles played with sophisticated methods of connecting spaces in his scheme for the Santa Caterina Market complex. Miralles scheme creates a transversal link across the southern part of the site in order to improve connections with the surrounding urban fabric. Santa Caterina Square with the new Joan Capri square, and also through making visual connections between the dark Massanet Street and the community patio located between the residential blocks.

Most importantly, Miralles has managed to make the building porous in a longitudinal direction. For example, the roof of the building is prolonged beyond the line of the main market facade in the form of a pergola. This, as well as limiting the excessive visual width of the public space created by the opening of Cambo Avenue, forms an intermediate space between this space and the market, inviting access to it. To the rear of the building, the old market facade is broken down creating a new square called Plaza Joan Capri – to the east on the opposite side to the pre-existing Santa Caterina Square.

Figure 6. The permeability in Santa Caterina Market, Barcelona

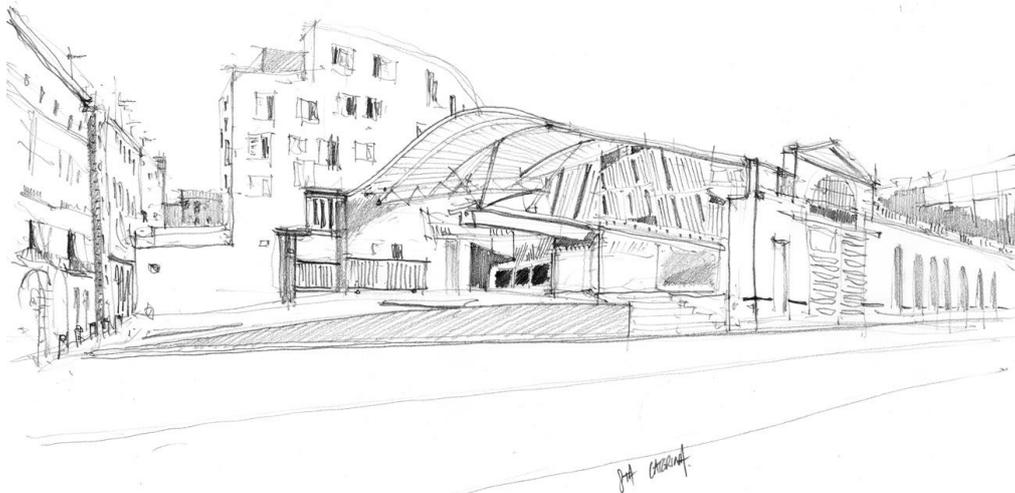


Note: The new intervention of Santa Caterina Market allowed a greater longitudinal permeability between the Cathedral and Santa Maria del Mar, as well as better transversal visual relationships between urban fabrics. Source: Drawing by Antonio Moro.

The new square extends towards the interior of the market in a series of irregular forms, fusing with the community patio of the residential buildings. Within all this, a longitudinal route is created from the Cambo Avenue to Colomines Street through the interior of the market and the successive squares (Figure 6).

This 'capillary system' continues in the direction of the sea, splitting into four small alleyways which share the flow down to Carders Street, and then continuing down Montcada Street towards Santa Maria del Mar.

Figure 7. **Santa Caterina Market, Barcelona**

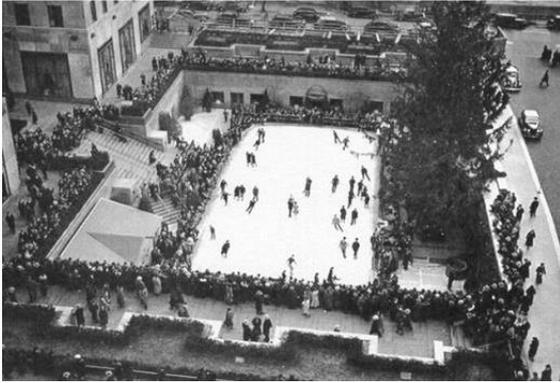


Note: Santa Caterina Market, showing new interconnecting squares. Source: Drawing by Sebastian Harris

Manuel de Solà-Morales (2010) observed that urbanity is created by permeability, sensuality and respect, of which these cases mentioned above are all good examples. But the condition of permeability, which at the same time gives a better mannered town for the pedestrian, also requires sensuality, as Richard Sennett (1994) argues in his famous book 'Flesh and Stone', commenting on how the human body relates to space.

In these cases mentioned, among others, we discover a respect of the new for the old. The presence of new design interventions alongside preserved pre-existing elements requires harmony and dialogue, and a good syntax between elements and the relationships between them.

In Barcelona, civic life has tended to occupy the public spaces in contact with the ground floor in its many different formats, however, when this has been unfolded, the results have not always been beneficial. This city still has much to learn from important paradigms elsewhere which demonstrate material and social urbanity, both actively and positively. We now refer to two such cases where the horizontal ground plane has been unfolded with an urbane quality: the public spaces of the Rockefeller Center in New York and Sergel's Torg in Stockholm.

Figure 8. **Sergels Torg, Stockholm**

Note: Rockefeller Center. Source: DUOT Archive



Note: Sergels Torg. Source: Photo by Laia Aguilar

Manuel de Solà-Morales (2010) highlighted the Rockefeller Center as an excellent model of 20th century urban architecture, a space in which the architecture configures not only the form but also the actual quality of the public space. In other words where the quality of the public space is determined by the quality of the architecture which configures it, as well as the three-dimensional condition which is created through the new relationship between ground level and the square located on the level below.

We might also discuss the urban context of Sergels Torg by Sven Markelius, which is more complex, given the greater mixture and diversity of uses, defining itself as an urban 'agora' which provides access to a transportation hub (Figure 8). Bearing in mind designs in cross-section can give rise to magnificent urban solutions, Sergels Torg is an exceptionally successful public space in sociological terms, one which certainly silences those critical voices who describe transport spaces as anonymous. In our opinion, the great challenge of the future hinges around achieving excellent designs for modal transport interchanges, because the future of the city is heading towards a metropolitan system reinforced with networks and nodes, among them transport hubs which can make the unavoidable commute through the urban system more enjoyable (Moreno & Roca, 2016).

## 5. Hong Kong

Hong Kong has been defined as an 'IntenCity', a word that expresses a combination of different urban qualities (Figure 9). These include concentration, density, complexity and verticality, whose overlap exhibits a new level of intensity that is somehow more than the sum of its parts (Shelton, Karakiewicz & Kwan, 2011).

It has often been observed, that this high-density environment causes a series of negative implications including over-crowding, lack of urban greenery, lack of open spaces and pedestrian connections, which makes circulation at ground level difficult in various districts of the city (Lau and González Martínez, 2012). However, the skywalks, buildings and metro stations, together form a complex system of passages and connections that cross the urban structure at multiple levels (Rossini, 2014).

Figure 9. The intense urbanism of Hong Kong



Note: The multitude of high-rise buildings in Kowloon District. Source: Photo by Francesco Rossini

In 1961, the *Central Area Redevelopment*, was the first planning document proposed by the British colonial government to create an elevated pedestrian network across Central and Admiralty.

According to Tan & Xue (2014) this first early document was transformed into a more comprehensive vision in 1969, and had a deep influence on the future urban development of Hong Kong. The *Colony Outline Plan* of 1969 drafted by the Crown Lands and Survey, encouraged the use of an integrated mixed-use urban form, a 'multi-deck city' with offices, parking, housing, and retail spaces lying above a mass transport system.

In the 1980's, footbridges and subways started to become an interconnected system of elevated and underground pedestrian walkways (Figure 10).

The elevated walkway along Connaught Road at Central District is a successful example of this ambitious plan (Highways Department HKSAR, 2017).

The population of Hong Kong use this sophisticated spatial network on an everyday basis, circulating through spaces where the boundary between public and private is not clearly defined. This lack of distinction between public and private seems irrelevant for the local inhabitants; the legal definition does not affect the use of these collective spaces, which constitute an important element of urban structure.

Figure 10. Hong Kong and its skywalks



Note: The pedestrian connection between Central and Sheung Wan District. Source: Francesco Rossini

On the other hand, for various morphological, historical and cultural reasons, proper *public* open space is not a major asset of the city. Research into Hong Kong's open spaces has concluded that they are far from satisfactory in terms of both their quantity and quality (Tang & Wong 2008).

During the 1980s, in order to ensure the creation of public open spaces in urban areas, the government of Hong Kong established the policy of Public Open Spaces in Private Development (POSPD). Originally conceived in New York in 1960, the programme encouraged the private sector to provide spaces for the public either within or outside their buildings in exchange for greater density allowances in certain high-density districts. However, in recent years public accessibility and the standards of space provision under POSPD in Hong Kong have become a cause for concern (Development Bureau HKSAR, 2012).

As an example of the urban complexity of the city we may consider the International Finance Centre (IFC) in the core of Central district on Hong Kong Island. The IFC was completed in 2003 and is a mixed-use development well-known as a world-class business and leisure destination.

The complex mega-structure consists of a shopping mall, a luxury hotel and two skyscrapers, one of which is the second tallest building in Hong Kong.

Figure 11. The International Finance Centre in Hong Kong



Source: Photo by Francesco Rossini

The IFC can also be considered a transportation hub, below ground there is the Mass Transport Railway (MTR) station of Central from where the express train connects the centre of the city with the airport in less than 25 minutes. Elevated pedestrian walkways provide access to the piers with several day-time ferries connecting Hong Kong Island, Kowloon and Outlying Islands, such as Lamma Island, Cheung Chau Island or Peng Chau Island.

The IFC is linked through a series of skywalks and underpasses that enable pedestrians to flow easily through its spaces on a daily basis. These connections, both below and above ground, make this mega-structure a paradigmatic example of urban permeability.

This mixed-use structure overcomes the classic interface between streets and building providing multiple urban relationships which generate a new kind of porosity. One aspect to consider is that it is almost impossible to access this building at real ground level as the IFC is separated from the central district by Connaught road, a busy highway that crosses Hong Kong Island longitudinally. Furthermore, the ground floor is occupied by multilevel car parks and other technical facilities that do not allow room for other urban activities (Figure 11).

Metaphorically the IFC can be seen as a contemporary medieval castle, linked to the city through modern drawbridges. This mall concentrates a wide range of functions, including cinemas, supermarkets, restaurants and shops. The IFC is not properly an everyday shopping centre, all of the commercial activities are targeted towards a wealthy clientele, as the headquarters of financial institutions, international banks and business corporations are located in the office towers above. The internal space seems designed with the aim to make the most of the site's privileged position near to the waterfront - the extensive use of glazed curtain walling both allows light to penetrate the building and offers multiple views over Victoria harbour (Figure 12).

The rooftop of the building is a POPSD and is publicly accessible as the whole building is open 24/7. This space is not easy to find, there are no clear indications to guide the people there either inside or outside the shopping centre, but over the years, this rooftop has become very popular among different groups of users to enjoy the amazing views over Victoria harbour and for celebrating all kinds of events, including the Chinese New Year. During Sundays and public holidays, as in other spaces in Central, the rooftop is occupied by Filipino domestic workers, who gather to socialize, eat Filipino food and enjoy their day off (Law, 2002).

Figure 12. The rooftop of the IFC



Note: The rooftop is laid out on two levels and is publicly accessible from the shopping mall 24/7. Source: Photo by Francesco Rossini

This space occupies an area of almost 14.000 m<sup>2</sup> and is among the biggest open spaces in the district, but at the same time this area is privately managed, which involves “...the transfer of responsibility in the control of social space from the public to the private sector.” (Cuthbert & McKinnel, 1997, p. 295).

Another case to mention is Pacific Place, a commercial hub located at Admiralty, on the edge of Central district. Pacific Place is a complex of office towers, hotels and a shopping mall, and similar to the IFC, has pedestrian links to other areas of the city through skywalks and underground passages. The Admiralty MTR station is easily accessible from the atrium of the shopping mall, which is often used as an event space (Figure 13).

Figure 13. The multilevel pedestrian network in Admiralty



Note: The complex circulation network of the MTR station of Admiralty and the shopping mall of Pacific Place. Source: Drawing by Francesco Rossini.

Pacific Place was originally constructed in the 1980s, but the shopping mall was recently renovated by the British designer Thomas Heatherwick.

In terms of uses and activities and analogous to other shopping malls, this building complex has a wide range of cafes and restaurants, shops, cinemas and a supermarket.

Together with other buildings such as, Lippo Center, Admiralty Center, Queensway Plaza, United Center and Far East Finance Center, the shopping mall forms a complex circulation network which allows the pedestrians to walk through different spaces and conditions.

Morphologically, the podium of Pacific Place was conceived to resolve the sloping topography of the site. The podium allows connections at multiple levels providing access to different parts of the city.

From Queens Road, at the lowest level, it is possible to use the escalator of the shopping mall to reach Hong Kong Park, the Supreme Court Building and the British Consulate located on the upper levels. Office towers and hotels have pedestrian entrances from inside the mall and car access to the drop-off area located on the rooftop level.

The shopping mall is also linked to the nearby area of Star Street and Three Pacific Place by a 280-meter underpass. This extension was built to spread the atmosphere of Central Financial district eastward, and to successfully increase the commercial value of the area (Swire, 2009).

In terms of transportation, this area of Hong Kong is highly congested. The three-dimensional network of skywalks, buildings and subway benefits pedestrian circulation, which is seriously problematic at ground level due to the presence of the bus terminal, while at the same time, provides a wide range of activities and services that fly above the street level.

Recently the atrium of Pacific Place has become a place for temporary art installations which can be seen as an attempt to insert cultural activities as a part of the commercial experience, but also aims to attract more users to this space harnessing the positive advantages for marketing (Figure 13).

The case studies of Pacific Place and IFC represent two examples of complex urban projects. These mixed-use hubs are based essentially on commercial experiences emphasizing the culture of consumerism, but at the same they offer a place for the collective domain in which a range of functions generate different forms of social interaction. However, there is almost nothing unpredictable in these spaces, the private surveillance of the activities that occur in them raises the question of the capacity of these spaces to become civic places where the public dimension can be fully represented.

## 6. Concluding remarks

In this article we have compared Barcelona and Hong Kong as two individual cases, which are certainly different in terms of urban morphology and with a substantial difference in the interpretation of the public realm. The dissimilarities between Hong Kong and Barcelona are in certain ways reduced if we examine these cities, or at least part of their structures, in terms of their urban permeability. The perception of urban space and its capacity to accommodate pedestrian flows, not only at ground level, can give us the measure of how this quality characterizes their spatial structure.

In Barcelona, the ground level continues to be called the city level. It is the level of public spaces, which provide the essential places for social interaction, conveying the image of the city and articulating the relationship between open space and built environment.

In fact, the socialised services and the quality of public spaces are to a considerable degree the result of this carefully organised relationship between space and infrastructure. In Barcelona, this adds considerable value to the inhabitants and users of the city, to a degree that would be unfeasible in other city structures (Ajuntament de Barcelona, 2011).

In Hong Kong, the lack of available land for development has determined the intensity of use, with the vertical layering of different functions, especially in the Central Business District, leading to the creation of overlapping circulation flows and generating a variety of unconventional urban spaces (Rossini, 2014).

This fascinating system, that recalls the avant-garde and neo-futuristic vision of Archigram (Cook, 1999), could create a sort of spatial ambiguity. As remarked by Yoos & James, (2016, p. 1) the stacked circulation levels "...can render the urban layers as fully independent realms. For that reason, skyways and tunnels are seen by many theorists as deviant or untenable urban forms."

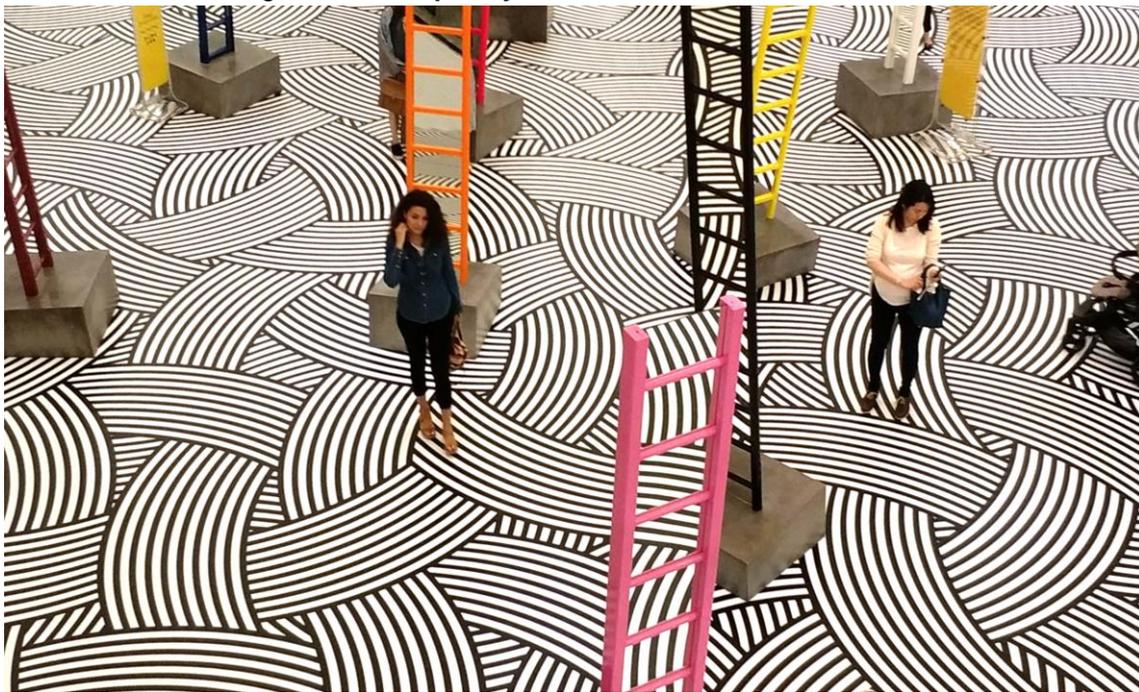
If this concern can be relevant in low density cities like in North America, in Hong Kong the public life takes place, inside or outside the buildings, at 20 meters above ground or at ground level with no apparent distinction.

In this complex urban structure (Siu Yu Lau, 2012), as described in the two case studies of IFC and Pacific place, the social activities occur most often in the internal spaces of the shopping mall. While the fast growth of online commerce is emphasizing the crisis of traditional forms of shopping, these climate-controlled mega-structures still remain successful hubs for the collective society (Figure14).

Every day millions of citizens in Hong Kong use these contemporary cathedrals of commerce, which are metaphorically replacing the collective functions of the churches and cloisters illustrated in Nolli's plan of Rome.

In Barcelona, the permeability of the ground floor is formed by an 'urban architecture', an architecture, which, to paraphrase Manuel de Solà-Morales (2010), has the power to absorb the city, helping to create the collective spaces of citizens' lives.

Figure 14. A temporary art installation at Pacific Place



Note: The installation 'Spiral Scratch' by Jim Lambie in the main atrium of Pacific Place. Source: Photo by Francesco Rossini

Both in Barcelona and Hong Kong, especially in the main areas, the grid layout and mixed land-use have encouraged economic activity and a vibrant street life. However, data from the UN Habitat study on Hong Kong's street pattern is insufficient to evaluate the quality of walking at street level (Tieben, 2017 p.58).

As we have described, in Hong Kong the collective domain is intensively distributed at different levels of the urban structure, and in this sophisticated spatial network the traditional relationship of building and streets, void and solid, public and private tends to disappear.

The intense urbanism generated by the vision of a vertical metropolis has produced a new paradigmatic example of urban permeability, where the network of skywalks and subterranean passageways and MTR stations, has substituted the spatial model of the traditional city.

These spaces are mainly focused on commercial activities which imply a certain selection of users, and one of the negative effects of this urban model is the generation of 'ambivalent' spaces where corporate power has control over the activities that occur in them (Cuthbert & McKinnell).

Furthermore, this network ends to concentrate the pedestrian flows in the interior spaces of shopping malls, actually excluding the open public spaces of the city (Figure 15).

Figure 15. The atrium of Langham Place in Mong Kok District



Note: The atrium is characterised by two long escalators which connect the main atrium to the shops on the upper floors. Source: Photo by Francesco Rossini

In pursuit of economic development, the Hong Kong government has consistently sought to maximise the use of all available land. Compared to more revenue-generating uses of space, public space has always been undervalued in terms of both quantity and spatial distribution (Tang & Wong, 2008).

Over the last 30 years, the pressure for development has minimised the traditional role of government planners as the caretakers of public space, transferring the responsibility for managing social space from the public to the private sector (Cuthbert & McKinnell, 2001).

These collective spaces are a valuable asset in the urban structure of the city, but they cannot be seen as an alternative to the public spaces which should be inclusive and accessible to all residents.

Nowadays it is clearly necessary to find the right balance to support private interests and at the same time safeguard the public realm. The design of public space should be developed within an appropriate planning strategy in order to add sociocultural value to the city.

In Barcelona, public space has had a determinant role on the urban transformation of the city, contributing not only to the renovation of the urban environment but also to the improvement of the city's image. Public space is regulated by criteria that guarantee its quality and functionality, while private spaces for public use require similar regulations to ensure the same level of quality (Ajuntament de Barcelona, 2011).

Lastly, it could be argued that if on the one hand there is a need in Barcelona to intensify certain parts of the city, with isolated cases of intense urbanism in compact urban form, on the other, in Hong Kong it is time to rethink the urban and social dimension of the public spaces. It would be desirable that the spatial network of this extreme form of vertical urbanism could also generate great civic spaces that foster a positive contribution to the public domain.

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## Bibliography

BANERJEE, T. *The Future of Public Space: Beyond Invented Street and Reinvented Places*. In: Journal of the American Planning Association, 67 (1): 9-24, 2001.

AJUNTAMENT DE BARCELONA. *22 @ Barcelona. 10 Anys De Renovació Urbana / 10 Years of Urban Renewal*. Barcelona, Ajuntament de Barcelona, 2011. 245 p.

BAUMAN, Z. *Liquid Modernity*. Cambridge, Polity Press, 2000. 228 p.

BENJAMIN, W. *"Naples" in one way street and other writings*. London, Verso, 1985. 304 p.

BENNIS, W., and SLATER, P.E. *The Temporary Society: What Is Happening to Business and Family Life in America under the Impact of Accelerating Change*. The University of Michigan, Wiley, 1998.192 p.

BENTLEY, I.; ALCOCK, A.; MURRAIN, P.; MC GLYNN, S. and SMITH, G. *Responsive Environments: A Manual for Designers*. London: Architectural Press, 1985. 152 p.

BURDEN, A. *How Public Spaces Make Cities Work* [online video] In: Ted Talks, March 2014. [Access date: 23 April 2018] Available at: <[https://www.Ted.Com/Talks/Amanda\\_Burden\\_How\\_Public\\_Spaces\\_Make\\_Cities\\_Work](https://www.Ted.Com/Talks/Amanda_Burden_How_Public_Spaces_Make_Cities_Work)>

CARMONA, M.; TIESDELL, S.; HEATH, T. and OC, T. *Public Places - Urban Spaces: The Dimension of Urban Design*. Second ed. London and New York, Routledge, 2010. 392 p.

CERDÀ, I. *Teoría General De La Urbanización, Y Aplicación De Sus Principios Y Doctrinas a La Reforma Y Ensanche De Barcelona*. Vol. I, Madrid, Imprenta Española, 1867. 700 p.

CHASE, J.; CRAWFORD, M.; & KALISKI, J. *Everyday Urbanism*. New York, Monacelli Press, 2009. 224 p.

COOK, P. *Archigram*. New York, Princeton Architectural Press, 1999. 144 p.

CROWHURST-LENNARD, S. & LENNARD H. *Public Space Design*. In: MEHTA, V. Public Space: Critical Concept in Built Environment, London and New York, Routledge, 2015. pp. 95-121.

CUTHBERT, A.R. and MCKINNELL, K.G. *Public Domain, Private Interest – Social Space in Hong Kong*. In: MIAO, P. ed. Public Places of Asia Pacific Countries: Current Issues and Strategies. The Netherlands, Kluwer Academic Publishers, 2001. pp. 190-211.

CUTHBERT, A. R. and MCKINNELL, K.G. *Ambiguous Space, Ambiguous Rights - Corporate Power and Social Control in Hong Kong*. In: Cities, 14 (5): 295-331, 1997

DE SOLÀ-MORALES, M. *Espacios Públicos y Espacios Colectivos: Un Nuevo Reto, Urbanizar lo Privado*. In: La Vanguardia [online] 12May 1992. [Access date: 23 April 2018] Available at: <<http://hemeroteca.lavanguardia.com/preview/1992/05/12/pagina-4/33520483/pdf.html>>

DE SOLÀ-MORALES, M. *The Impossible Project of Public Space*. In: Anglès M., ed. In Favour of Public Space: Ten Years of the European Prize. Barcelona, Actar, 2010. pp. 24-32.

DE SOLÀ-MORALES, M. *La Urbanidad de la Arquitectura. Lección Inaugural del curso de la Escuela Técnica Superior de Arquitectura de Barcelona 2009-2010*. In: Vision, 7-25, 2010a.

DOVEY, K. *Informal Urbanism and Complex Adaptive Assemblage*. In: International Development Planning Review, 34 (4): 349-368, 2012.

FRAMPTON, A.; SOLOMON, J. & WONG, C. *Cities without Ground: A Hong Kong Guidebook*. Oro editions, 2012. 128 p.

HABERMAS, J. *The Structural Transformation of the Public Sphere*. Translated by Burger, T. and Lawrence, F., Cambridge, Massachusetts, The MIT Press, 1962. 328 p.

HIGHWAYS DEPARTMENT HKSAR. *Footbridges and Subways of Hong Kong*. In: Highways Department website [online] 2017 [Access date: 23 April 2018] Available at: <[https://www.hyd.gov.hk/en/publications\\_and\\_publicity/publications/hyd\\_factsheets/doc/e\\_Footbridges\\_and\\_Subways.pdf](https://www.hyd.gov.hk/en/publications_and_publicity/publications/hyd_factsheets/doc/e_Footbridges_and_Subways.pdf)>

DEVELOPMENT BUREAU HKSAR. *Public Open Space in Private Developments: Design and Management Guidelines*. In: Development Bureau website [online] 2012. [Access date: 23 April 2018] Available at: <[https://www.devb.gov.hk/filemanager/en/content\\_582/Guidelines\\_English.pdf](https://www.devb.gov.hk/filemanager/en/content_582/Guidelines_English.pdf)>

LAW, L. *Defying Disappearance: Cosmopolitan Public Spaces in Hong Kong*. In: Urban Studies, 39 (9): 1625–1645, 2002.

LEE, R. L. *Bauman, Liquid Modernity and Dilemmas of Development*. In: Thesis Eleven, 83 (1): 61-77, 2005.

MARTÍ, M. *In Search of Contemporary Civitas. Towards an Urban Culture for Public Space: The Experience of Barcelona, 1979-2003*. Doctoral thesis Universitat Politècnica de Catalunya [on line] 2004, 508 p. [Access date: 23 April 2018] Available at: <<https://upcommons.upc.edu/handle/2117/94271>>, <<http://www.tdx.cat/TDX-1019104-172234>>

MOELSAE, A. *Public Space - Urban Spaces of Multiple and Diverse Publics*. Doctoral thesis, City University of New York [on line] 2014, 78 p. [Access date: 23 April 2018] Available at: <[https://academicworks.cuny.edu/gc\\_etds/494/](https://academicworks.cuny.edu/gc_etds/494/)>

MONTGOMERY, J. *Making a City: Urbanity, Vitality and Urban Design*. In: Journal of Urban Design, 3(1): 93-116, 1998.

MORENO, J. & ROCA, E. *La metrópolis del delta neerlandés. Crisis y actualización de un modelo urbano policéntrico*. In: Scripta Nova [on line]. 20(542): August 2016, vol. 20. [Access date: 23 April 2018]. DOI: <<http://dx.doi.org/10.1344/sn2016.20.16796>>

MORO, A. *The Rambla Traversed: An Asymmetric, Transverse and Lateral Construction Along a Former Ravine*. In: ROSSINI, F., MARTÍ, M., AND TIEBEN, H., eds. Learning from Barcelona: Reflections and Cultural Exchange between Europe and Asia on the Urban Project. Hong Kong Edizioni Graffiti, 2017. pp. 75-83.

NÉMETH, J. *Defining a Public: The Management of Privately Owned Public Space*. In: Urban Studies, 46(11): 2463–2490, 2008.

PÉREZ BOURZAC, M. T. *Espacio público contemporáneo en la ciudad del Siglo XXI. ¿Crisis o transformación?* En: ACE: Architecture, City and Environment = Arquitectura, Ciudad y Entorno, [en línea] Febrero 2018, vol. 12 núm. 36, pp. 131-140. [Access date: 23 April 2018] DOI: <<http://dx.doi.org/10.5821/ace.12.36.5300>> Disponible en: <<http://hdl.handle.net/2117/114751>>

PROJECT FOR PUBLIC SPACE. *A Guide to Neighborhood Place making in Chicago*. In: Placemaking Chicago website, [online] 2008. [Access date: 23/4/2018] Available at: <[http://www.placemakingchicago.com/cmsfiles/placemaking\\_guide.pdf](http://www.placemakingchicago.com/cmsfiles/placemaking_guide.pdf)>

ROSSINI, F. *Temporary urban intervention in the vertical city: a place-making project to reactivate the public spaces in Hong Kong*. In: Journal of Urban Design [online] 2018, 1-19. [Access date: 23/4/2018] DOI: <<https://doi.org/10.1080/13574809.2018.1507674>>

ROSSINI, F. *Nuevos Espacios Colectivos De La Ciudad Vertical Contemporánea: El Caso De Hong Kong*. Doctoral thesis, Universitat Politècnica de Catalunya [on line] 2014. Director, Prof. Estanislao Roca. [Access date: 23/4/2018] Available at: <<https://upcommons.upc.edu/handle/2117/95321>>

ROWE, C. & KOETTER, K. *Collage City*. Cambridge, Mass, MIT Press, 1978. 185 p.

- SENNET, R. *The Fall of Public Man*. London, Faber & Faber, 1977. 386 p.
- SENNET, R. *Flesh and Stone: The Body and the City in Western Civilization*. New York, W.W. Norton, 1994. 431 p.
- SIU YU LAU, S., and GONZÁLEZ MARTÍNEZ, P. *Sustainable - The urban model based on high-density, high-rise and multiple, intensive land use: The case of Hong Kong*. In: ACE: Architecture, City and Environment, [en línea] Octubre 2012, vol. 7 núm. 20, pp. 81-94. [Access date: 23 April 2018] DOI: <<http://dx.doi.org/10.5821/ace.v7i20.2574>> Disponible en: <<http://hdl.handle.net/2099/12642>>
- SHELTON, B.; KARAKIEWICZ, J. & KVAN, T. *The Making of Hong Kong: From Vertical to Volumetric*. London and New York, Routledge, 2011. 184 p.
- STAVRIDES, S. *Heterotopias and the Experience of Porous Urban Space*. In: FRANCK K. and STEVENS Q. (Eds.) Loose Space. Possibility and Diversity in Urban Life. London, Routledge, 2007. pp.174-192.
- SWIRE. *Star Struck!* In: Swire News [online] 2009, n. 1, pp. 10-15 [Access date: 23 April 2018] Available at: <[https://web.archive.org/web/20110721154531/http://www.swire.com/engineering/swire\\_news/1st2009.pdf](https://web.archive.org/web/20110721154531/http://www.swire.com/engineering/swire_news/1st2009.pdf)>
- TAN, Z. & XUE, Q.L. *Walking as a Planned Activity: Elevated Pedestrian Network and Urban Design Regulation in Hong Kong*. In: Journal of Urban Design, 19 (5): 722-744, 2014.
- TANG, B. S. & WONG, S. W. *A Longitudinal Study of Open Space Zoning and Development in Hong Kong*. In: Landscape and Urban Planning, 87(4): 258-268, 2008.
- TIEBEN, H. *Lessons from Barcelona for Hong Kong*. In: ROSSINI, F. MARTÍ, M. AND TIEBEN, H., eds. Learning from Barcelona: Reflections and Cultural Exchange between Europe and Asia on the Urban Project. Hong Kong Edizioni Graffiti, 2017, pp. 57-64.
- TUAN, YI-FU. *Space and Place: The Perspective of Experience*. Minneapolis, University of Minnesota, 2014. 226 p.
- YOOS, J. & JAMES, V. *The Multilevel Metropolis. On the radical origins — and mundane deployment — of the urban skyway*. In: Places Journal, [online] May 2016 [Access date: 23/4/2018] Available at: <<https://placesjournal.org/article/multilevel-metropolis-urban-skyways/>>