

Title	居住エリアにおける持続的なタイポ・モルフォロジー：東京とマドリッドの比較研究
Sub Title	Sustainable Typo-morphology for residential areas: a comparative study between Tokyo and Madrid
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Abstract	<p>本研究は東京とマドリッドにおける住宅を比較することにより住宅のタイポ・モルフォロジーと公共空間の賑わいの関係性について検討した。東京では高層建築地域及び低密戸建住宅地域、マドリッドでは郊外の中層ブロック地域を対象に調査を行った。研究結果より高層建築では人口密度を上昇されるにも関わらず都市の賑わいに貢献しないこと、低層地域では明確に賑わいを生み出すが今後のコンパクトシティーへの考慮が必要であること、中層地域では人口を上昇させるが賑わいをもたらす地上レベルのインターフェイスのデザインが欠如していることが明らかになった。本研究は自然発生的都市の賑わいを生むインターフェイスのデザイン例も含む。</p> <p>By comparing cases of residential areas in Madrid and Tokyo we address the relationship between several residential typo-morphologies and public space vitality. In Tokyo we examined cases of high-rise areas, and dense low-rise areas of detached houses. In Madrid we examined the medium-rise perimeter block suburban ensanches (meaning "city extensions"). As a conclusion we observed that the high-rise cases examined do not seem to contribute to urban liveliness compared to adjacent public spaces. Low-rise areas create a more clear sense of liveliness but they need to be reconsidered in the light of the need for higher population densities. The medium-rise scale found in Madrid increases density, but it lacks the architectural interface design at the street level to support liveliness. This research includes samples of designs that attend to these interfaces and can be considered as examples that enable the natural emergence of public life on the streets.</p>
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研究課題名(和文) 居住エリアにおける持続的なタイポ・モルフォロジー：東京とマドリッドの比較研究

研究課題名(英文) Sustainable Typo-morphology for Residential Areas: A Comparative Study between Tokyo and Madrid

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研究成果の概要(和文)：本研究は東京とマドリッドにおける住宅を比較することにより住宅のタイポ・モルフォロジーと公共空間の賑わいの関係性について検討した。東京では高層建築地域及び低密戸建住宅地域、マドリッドでは郊外の中層ブロック地域を対象に調査を行った。研究結果より高層建築では人口密度を上昇されるにも関わらず都市の賑わいに貢献しないこと、低層地域では明確に賑わいを生み出すが今後のコンパクトシティへの考慮が必要であること、中層地域では人口を上昇させるが賑わいをもたらず地上レベルのインターフェイスのデザインが欠如していることが明らかになった。本研究は自然発生的都市の賑わいを生むインターフェイスのデザイン例も含む。

研究成果の概要(英文)：By comparing cases of residential areas in Madrid and Tokyo we address the relationship between several residential typo-morphologies and public space vitality. In Tokyo we examined cases of high-rise areas, and dense low-rise areas of detached houses. In Madrid we examined the medium-rise perimeter block suburban ensanches (meaning "city extensions"). As a conclusion we observed that the high-rise cases examined do not seem to contribute to urban liveliness compared to adjacent public spaces. Low-rise areas create a more clear sense of liveliness but they need to be reconsidered in the light of the need for higher population densities. The medium-rise scale found in Madrid increases density, but it lacks the architectural interface design at the street level to support liveliness. This research includes samples of designs that attend to these interfaces and can be considered as examples that enable the natural emergence of public life on the streets.

研究分野：工学

科研費の分科・細目：建築学、建築設計、都市設計

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1. 研究開始当初の背景

Background at the start of the research

An increasing number of Japanese cities including Tokyo are implementing policies to reach the model of the "compact city" by rising the population density. However, there are many different ways to distribute the same density and allocate open spaces on a site. A number of significant projects have shown that each configuration of built mass has consequences in the quality of urban life produced in the open spaces between buildings.

Tokyo has been developed based on low-rise high-coverage typo-morphologies of single-family houses but since 2000 there have been multiple redevelopments based on high-rise low-coverage typologies (popularly known in Japanese as "tower mansions"). A number of land developers like Mori Building, actively defend the idea of transforming Tokyo into a 'vertical green city'. However, these high rise residential buildings have been also criticized for their environmental (wind turbulences, shadows), and social impact (loss of community and local neighborhood shopping streets). Additionally, recent events after the Tohoku Earthquake have revealed the vulnerability of residential towers in relation with electricity, water and gas supplies (called "lifelines" in Japanese) in case of disaster. For these reasons, it is relevant and specially urgent for the Japanese city to develop medium-rise, medium coverage residential typo-morphologies. Madrid offers a great variety of medium-rise residential types designed by prominent architects and actively promoted by the authorities. As a case of European compact city, a comparison with Tokyo may offer valuable insights on how to develop new medium-rise residential for the Japanese city.

2. 研究の目的

Research goal

Tokyo and Madrid represent two different city models that however share a similar metropolitan condition and an intensive urban life. By comparing specific study-cases of residential areas in both cities,

this research aims to clarify the relationship between the different high population density urban forms found in each city and the intensity of use of the public space that they generate.

3. 研究の方法

Research method

The method is based on three steps. Review of relevant literature, collection of relevant architectural and graphic information (maps and architecture drawings) and finally, on-site fieldwork and behavior observation.

4. 研究成果

Research results

By comparing the cases of the metropolitan areas in Madrid (as an European compact city) and Tokyo, this research clarified several relationships between different typo-morphologies (the combination of housing types and urban forms) and the vitality of the public spaces generated between buildings. In Tokyo metropolitan region we have examined the high-rise "tower-in park" areas (like Musashi-kosugi, in Kawasaki), and the dense detached-house "metropolitan villages" (like those along the Toyoko train line). In Madrid we examined the newly developed medium-rise perimeter block "suburban ensanches" (like the southern suburbs of San Blas and Carabanchel) to explore the possibilities of latest designs in the residential medium scale.

If we focus on public space we can observe the following. In the "tower-in-park" developments in Musashi Kosugi we observe that public space is not much used by residents nor by non-residents compared to adjacent parks. On-site interviews also showed that residents prefer to go to a public park rather than using the open public space (or "kokai-kuchi") on the ground. In the case of the metropolitan villages the street space is not much used either, but liveliness in these areas comes from the remnants of activity to be seen along all streets, such a small greenery and personal objects, and the multiple openings and connections between the private and public realms (windows, doors, porches, etc).

The suburban extensions in Madrid tried to follow the design of the 19th century perimeter block (the so-called “ensanche” or city extension), but as the “tower in park” examples, we found few public life on the street. Unlike the 19th century “ensanche”, most new blocks have only one entrance, and the activity is enclosed in a central patio, leaving the streets almost empty. The shops along the street are also scarce, since most of the retail space concentrates in big-box stores and commercial centers.

As a conclusion we can say that the examined examples of high-rise “tower in park” developments do not seem to contribute to the liveliness of public space, although they clearly densify the population. Low-rise high-density areas create a sense of liveliness but they also need to be reconsidered in the light of the trend toward a more compact and dense city. Using the medium-rise scale found in Madrid it is possible to increase the population density, but the small detail design at the eye level is necessary to recreate the liveliness of the 19th century block. The position of openings (entrances, windows, entrances), the layout of vegetation and semiprivate spaces becomes essential to create active edges along the street. This research includes design examples in which the medium scale has been employed attending to the architectural design of the ground-level façades in order to support the natural emergence of urban liveliness.



(Upper photograph: street in a Tokyo low-rise residential areas. Lower photograph: blank walls along Madrid suburban perimeter block)

5 . 主な発表論文等

(研究代表者、研究分担者及び連携研究者には下線)

Publications

Several publications are underway. Below is a list of articles published or accepted by May 2014.

〔 雑誌論文 〕 (計 件)

〔 学会発表 〕 (計 件)

〔 図書 〕 (計 4 件)

1. Almazán, Jorge (2014) Eco-relational settings, in J. Aparicio, *Arqueología contemporánea*, Maireia Libros, Escuela Técnica Superior de Arquitectura de Madrid (accepted for publication)

2. Almazán, Jorge (2014) Edges of Intensity: Redesigning the Urban Block, in S. Honda, *Mn'M Workbook 3: Future Urban Intensities*, flick studio co., pp. 88-93
3. Almazán, Jorge (2013) Urban drift from Hiyoshi to Shinjuku, in D. Radovic *Mn'M Workbook 2*, flick studio co., pp. 90-91
4. Almazán, Jorge (2013) Metropolitan and Local Urban intensities in Tokyo, in D. Radovic, *Mn'M Workbook 1: Intensities in Ten Cities*, Flick studio co., pp. 54-61

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6 . 研究組織

Research members

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