

BOOK OF ABSTRACTS

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Krasnoyarsk 2018. 5-9 July

**Urban Form and Social Context:  
from traditions to newest demands**



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## PRESENTATION

The XXV ISUF " Urban Form and Social Context: from Traditions to the Newest Demands" at Siberian Federal University in Krasnoyarsk is devoted to the study of the impact of social phenomena and actions of society on the urban form. The theme of the conference logically continues the issues of the former conferences: Urban Morphology and Post-Carbon City (Montreal, Canada, 2011), Urban Shape at the Edge (Brisbane, Australia, 2013), Our Common Future in Urban Morphology (Porto, Portugal, 2014), City as an Organism (Rome, Italy, 2015), Urban Morphology and the Resilient City (Nanjing, China, 2016), City and Territory in the Globalization Age (Valencia, Spain, 2017):

Therefore, the urban form is estimated traditionally in terms of history and geography. On the other hand, the conference extends the view to the understanding of the laws of the formation of cities, deepening knowledge in the field of urban morphology:

- from the perspective of globalist trends and the importance and sustainability of local features;
- from the perspective of "natural" development of the city structure, forming sustainable urban forms regardless of the policy of states, regulations, the degree of development of construction technologies;
- the conference examines the result of the introduction of modernist forms of urban development, having high social goals and particularly widely used in a number of countries since the early 1960s. Currently, they require immediate renovation, so their history of formation and the existing urban form are actively studied. This research group is united under the name of "post-socialist urban form";
- the conference discusses the results of scientific research in urban morphology theory, concepts, methods, sources, techniques, tools and analyses. They have commonalities with, and take a global approach to different disciplines concerned with urban morphology.



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**ARCHITECTURAL TYPOLOGY HISTORY,  
DEVELOPMENT, TENDENCIES**



## **The impact of dwelling-street interfaces on the morphology of domestic floor plans**

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### ***Abstract***

A house requires access to a more complex street network to provide inhabitants with functions not obtainable inside their own dwelling. Spatially, this requirement manifests itself in a geometric adjacency between a house and a street – referred to in this paper as a dwelling-street interface (Palaiologou et al, 2016). The functional one to one interface between a house and a street network does not exclude, however, the possibility of more adjacency-based connections.

In this paper, we explore the impact that the number of interfaces has on the morphology of domestic floor plans in Gosforth, a district of Newcastle upon Tyne, England. An empirical analysis was conducted based on a sample of 1128 floor plans distributed between three major British housing typologies – terraced, semi-detached and detached houses. The topological structure of floor plans with a single dwelling-street interface is compared to those with multiple interfaces using space syntax measures.

We observed two approaches in the morphology of houses with more than one interface. Either configuration of the floor plan was adjusted to accommodate the additional interface or, as in 63% of cases, the floor plan followed the morphology common to the housing type without addressing additional interfaces. However, the majority of houses that did not accommodate additional interface(s) in their floor plan had to introduce further measures to mitigate the impact of multiple interfaces, such as erecting a high boundary to separate the house from the additional street. We found that some of the measures introduced while improving the condition of the plot had a negative impact on the street

Our conclusions suggest that the number of interfaces between two urban domains has an impact on either their morphology or state. Not addressing the interface is more likely to deteriorate the condition of one or both spaces.

### ***Keywords***

*Dwelling-street interface, domestic floor plans, housing typology, urban morphology, space syntax*

**Roaming on the lane of The City Wall**  
**Case study on the inner circumferential district of the City Wall in Xi'an, China**

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***Abstract***

Xi'an's City Wall, also known as the City Wall of Ming Dynasty, is the largest and the most complete preservation of the ancient city wall existing in China. The City Wall, as a kind of element of architectural mega-structure, defines the urban form of Xi'an's main urban area. The inner circumferential district of the City Wall also forms a typical type of architectural space and derives various social behaviors. This paper will proceed from the continuity point of view, focusing on the historic architecture's evolution under the established form of urban space, in order to match modern people's the necessity of needs in material and cultural. Taking the investigation and study of "The inner circumferential district of the City Wall" (the Lane of the City Wall) as the core case, the author analyzes the incommensurability of the old space types in modern society and studies how to awaken, transform, stimulate the old space types and give new types and forms Block vitality. The conclusion part will use supplementary cases to explain that the mode of influence of architecture on urban morphology is a common organization that is coordinated by a specific space type and multi-point space.

This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region > (Grant No.51678412).

***Keywords***

*The City Wall, historical & cultural, space type, transformation*

## **Study on the inheritance of Chinese traditional space structure in SHUIANSHANJU reception center in Hangzhou, China**

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### ***Abstract***

There are many kinds of spatial structures in traditional Chinese space, such as the courtyard which is commonly used in residential buildings, the spatial layout of Suzhou gardens, the traditional village layout, etc. These spatial structures are being applied in physical practices more and more frequently in the last 20 years. Many Chinese architects are trying to translate the traditional Chinese space structure into architectural language and add the traditional space to their own architectural works. Chinese architect Wang Shu received the Pritzker Architecture Award in 2012 and he became the first Chinese to win this award. In most of his architectural practices, the native intention of Chinese architecture is often adopted. This article will take Wang Shu's architectural work – SHUIANSHANJU reception center in Hangzhou, China as an example to introduce the contemporary inheritance of Chinese traditional space structure. The paper analyzes the types of spatial structure of traditional Chinese gardens and traditional villages through the method of correlation analysis. From the three aspects of entrance space organization, internal space organization and plan space structure, this article analyzes the inheritance of traditional structure in Wang Shu's work, SHUIANSHANJU. The article also analyzes the concrete manifestation of Wang Shu's design concept in SHUIANSHANJU from a critical perspective and examines the rationality of the traditional spatial structure inheritance.

It is pointed in the article that SHUIANSHANJU reception center lacks objectivity in inheriting the growth randomness of traditional space-based villages and functional rationality should not be sacrificed to realize the inheritance of traditional space structures. This paper is subsidized by NSFC project which is named as <Research on Technical System of “Downtown Factory” Community-oriented Regeneration in Yangtze River Delta Region>, NO.51678412..

### ***Keywords***

*Inheritance, Chinese traditional structure of space, SHUIANSHANJU, traditional village*

## **Exploring the typological process of residential unit in Lilong housing in Tianjin, China**

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### ***Abstract***

Lilong housing in Tianjin was derived from the Chinese traditional courtyard housing. From mid-19th century to first half of 20th century, Lilong housing were constructed in large quantities and varied in type. It was the most representative dwelling house in modern cities. Researches on the classification of Lilong housing were mainly based on the graph of overall layout and single building. The influence of culture background on type and the continuity of typological process were neglected. Based on the method of Italian typology, this paper divides the typological process into four continuous phases and analysis the inheritance and development of residential units in typological process. In a conclusion, the residential unit is more easier to combine in form and includes more specialized rooms in function, which reflect the trend of more intensivism and complexity in Lilong house. It's the first time to apply Italian typology to the study of Lilong housing in this paper. Many questions still need to be answered. But it provides a new perspective for the future research on Lilong housing in Tianjin.

### ***Keywords***

*Lilong housing, Tianjin, typological process, residential unit*

## **Wood frame construction evolution**

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### ***Abstract***

Construction using wood was always been topical. The use of wood as a structural material has been known throughout the existence of humankind since the first dwellings of ancient man. 1400 years ago, tall pagodas in Japan and China, were built up to 150m in building height from wood, at present time it corresponds to the height of 50-storey building. These pagodas, built in high seismic and wet climate environments, are still standing and functioning today. By presented time, structures of wood above that height, had not been built. Religious buildings with wood frame structures were also common in European countries such as: Poland, Norway, Sweden etc.

The height restriction of buildings from the wooden structures was introduced in the Middle Ages because of the devastating fires in the UK, Canada and America. This restriction lasted until the end of the twentieth century.

A new surge of construction of large buildings with the use of wood as a bearing material is associated with innovation in the field of wooden constructions and improvement of fire prevention measures. On this basis building codes have been changed in Canada, Norway, Finland etc. These changes resulted in the construction of buildings with a height of 9 floors in London and Milan, 10 floors in Australia, 14 floors in Norway etc. The architects propose tall wood-frame buildings up to 42 floors in the conceptual projects.

Despite the natural wealth, modern wooden frame house only starts to develop in Russia. The Russian government has been working out the program of wooden housing construction development, since 2016 making appropriate changes in the design standards of building from wood and wood-based materials. These changes undoubtedly should serve as the basis for promoting the idea of a multi-storey wood construction in Russia.

### ***Keywords***

*Evolution, wood, wood-frame construction, high-rise building*

## **Compaction of space in contemporary Japanese megalopolises**

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### ***Abstract***

Japan is one of the countries where the problem of urban overconsolidation and, correspondingly, the lack of vacant space, has been for a long time and acute. Since ancient times, the Japanese have learned to accept things that cannot be changed, and find forms of the most comfortable and productive coexistence with this or that inevitable factor. The problem of high density was not an exception. If it is impossible to eliminate the population density and the construction boom of large cities, Japan has developed a compensatory mechanism capable of make the negative sides of high density less evident. Reduction of space manifests itself in many elements of urban development: miniature residential buildings have proliferated, capsule-type hotels, gardens and tea houses have shrunk to extremely small sizes.

Housing construction in big cities of modern Japan continues to follow the path of increasing density. The individual dwelling house has firmly taken its place in the space of Japanese cities. A small apartment house has become one of the leading types of projected residential architecture in Japan in recent years. Even in a very small house, architects can find almost limitless use for space.

The research of modern Japanese architects, aimed at the optimal ratio of the size of space with the amount of time that a person spends in it, led to the emergence of capsule hotels. A fair assumption about the absolute minimum of personal time, which a business man needs, staying for the night in a hotel, entailed a reduction in personal space.

The architects of Japan regard with great respect and interest such a type of buildings as tea houses, experimenting with the construction, building materials, and their location. The tendency of sharp decrease in space manifests itself here as well.

Sharp reduction of space hasn't passed Japanese gardens by too. The Japanese who can perfectly embody their artistic genius in small areas, in recent decades have been placed in the conditions of almost complete lack of space for the installation of gardens. By XXI century Japanese gardens have also acquired new species according to the demands of the times.

### ***Keywords***

*High density of Japanese megacities, micro-houses, capsule hotels, modern types of tea houses*

## **Historical and genetic model as a method of structuring and choice of settlement development strategy**

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### ***Abstract***

The urban structure as a complex historical system have their own forms of development inherent in its laws and the genetic code ( Kubetskaia L. Kudriavtseva N. , 2017, Mazur L. ,1998). In the urban planning structure there are different zones, with particular architectural qualities, in other words genetic parts:the Kremlin, the Posad, Sloboda . There are already clearly depicted in the urban structure and morphology to the XVI century (Salat S, Bourdic L, 2012). individual elements of the monasteries, trades, social systems, "interesting originality of their forms, images and essence"( Mokeev , 1971), typology of the plan of the Russian city( Mokeev, 1980). The purpose of this study is to build a historical and genetic model, containing established evolutionary system, representing the cultural heritage. In order scientific equipment of the territorial planning requires the use of methods of investigation of the urban structure in accordance with the sequence of procedures, based on the fundamental developments of domestic scientists. There are used the works of L. M. Tverskoi, I. V. Makovetskii, V. A. Lavrov, T. F. Savarenskii, V. A. Bondarenko, G. Y. Mokeev V. P. Orphinskogo, Y. S. Ushakov etc. In part methodological and criterial apparatus used research A. S, Chenkova, M. P. Kudryavtseva, L. Mazur , I. S. Krasovsky, E. A. Shevchenko, and also scientific practical experience, A. Trenin.

Now the territorial planning requires the use of the method of of the object s research developed by the authors, including primarily: 1-consistent study stages of evolution; 2-comparison of the time of construction: religious dominants, social complexes; 3-fixation of changes in morphology; 4- the dynamics of territorial development: growth urban shape comparison of historical boundaries, (Spiro Kostof, 1992); 5-graphometric procedures for analyzing the location of dominantes; 6-topological styling of the genetic zones and elements; 7 - analysis of genetic relationships in systems; 8-qualitative analysis (stylistic, homogeneity); 9 - morphological analysis plan; 11-analysis of the degree of preservation components. As a result, we obtain knowledge about: the laws of the formation of the urban planning structure, historical-genetic model as the basis for genetic zoning and forecasting the future development of the territory.

### ***Keywords***

*Urban structure evolution, genesis, genetic development code, settlement systems, regional tradition, historical-genetic model*

## **Architectural and planning features of educational institutions of the late XIX - early XX century as a characteristic of the identity of the historic center of a small town**

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### ***Abstract***

Today, the problem of identity of small towns is one of the most priority. This is connected with the threat of the disappearance of a number of objects of the historical and cultural environment as an holistic formation under the growing influence of the urbanization process of historical centers of small towns. In this regard, it is important to preserve regional historical and cultural characteristics, to broadcast the regional identity of the environment, to preserve and adapt the objects of cultural heritage in the modern urban environment. The study highlights the educational system in Russia, the creation of progymnasium and male and female gymnasiums for teaching children of all classes. Considered architectural and planning peculiarities of educational establishments of the late XIX - early XX century as a characteristic of the identity of the historical center of a small city on the example of Graivoron in the Belgorod region. The aim of the study is to identify regional and national features of preserved cultural heritage sites in small towns of the late XIX and early XX centuries with the purpose of their full-fledged use in the modern urban structure. An analysis of the historical and cultural sites of the historic center of Graivoron revealed that 33.5% of the preserved monuments of history and architecture are educational buildings. In the XVIII century in Russia education was a privilege of the highest nobility, but already in the first quarter of the XIX century it became widespread in the aristocratic environment, and in the post-reform period (after 1861) and among the merchants, philistinism, craftsmen. The principles of integration of objects of cultural heritage in the modern urban environment are formulated: centrality and coherence of the spatial composition of the historical city; the natural evolution of the composition of the plan of historical city; the stability of functional and spatial relationships; typological continuity. The practical importance of studying objects of cultural heritage is conditioned by the subsequent development of design documentation for their restoration and adaptation for modern use and development of protection zones.

### ***Keywords***

*Historical and cultural heritage, architectural monument, reconstruction and restoration of architectural heritage, history of architecture*

## **Preserving the wooden housing estate as important part of Yeniseisk historical and architectural environment in XIX - XX centuries**

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### ***Abstract***

Yeniseisk is a historic Siberian city kept wooden housing estate dated from XVIII - XIX centuries. In present time wooden farmstead estate dominates in the Yeniseisk historic part built in XIX - early XX centuries. The wooden building is architectural dominant – temples' three-dimensional environment creating a unique holistic environment of the ancient city.

The historic city center the main dwelling stock consists of one or two storied wooden houses built second part XIX – in the being of XX century. About 60 houses have been recognized as cultural heritage objects. Most of the houses are the historical environment objects. There are a lot of old low engineering improvement houses to be inevitably replaced. Whereas new construction objects will be located in the preserved area of monuments and in the zones of housing estate regulation, their design must be controlled. While designing new building one should aim to preserve city wooden housing estate architectural integrity. It is necessary for builders to formulate obligatory construction requirements, concerning physical size, scale and proportional, the principles of composition of the facades, that is those parameters that allow to fit the new buildings in the historical environment.

The development of such requirements must be based on the research of typological, architectural and artistic aspects of the historical wooden housing estate of Yeniseisk.

The research is carried out at the Chair of architectural design School of architecture and design SFU. The constructive and planning and three-dimensional characteristics description of the Yeniseisk wooden houses was made up and facade features of architectural decoration were found out. The results of the research were taken into account in the learning design of the estate houses city historical centre.

### ***Keywords***

*Architectural legacy, cultural heritage, a monument of architecture, wooden housing estate, variety, preservation*



**FRINGE BELTS,  
DEVELOPMENT WITHIN THE NEWEST DEMANDS**



## **A comparative study of Inner Fringe Belts**

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### ***Abstract***

Eighty years ago, Herbert Louis proposed the concept of fringe belt in his study on the growth and physical form of Berlin, identifying how the outward spread of housing areas was punctuated by standstills when other areas with other physical characteristics (in terms of streets, plots and buildings) and land uses were created at the fringe of the residential built-up area. After renewed residential growth, these non-residential areas became embedded and tended to remain as a distinctive zone marking a phase in the city's history. Since the first half of the twentieth century, the concept of fringe belt has been attracting the attention of many urban morphologists, notably MRG Conzen and JWR Whitehand. This paper focuses on one specific fringe belt, the Inner Fringe Belt, and develops a comparative study involving three different cities, Mersin, Newcastle-upon-Tyne and Porto. In particular, the paper aims at addressing the main transformations that have occurred in plots within each of these Inner Fringe Belts in the three selected cities, since they have been laid out until present days through successive initiation, expansion and consolidation phases. The common aspects and main differences between the three case studies are described and explained, bearing in mind the most relevant literature on this topic.

### ***Keywords***

*Fringe belts, inner fringe belts, plots, historico-geographical approach, comparative studies*

## **Active borders, polycentric cities, miscellaneous makers**

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### ***Abstract***

This article presents the results of research conducted on emerging polycentric spatial structuring processes, in two cities, Rio de Janeiro and Niteroi, Brazil, based on changes of land use and users observed on the border zones of selected centralities. Borders have been conventionally regarded passive frontiers between different areas, or, as ‘urban frames’ to a main attraction that defined a centrality. The research revealed different urban roles that inner border zones performed, when and where informal urban change process were accepted.

From the inherited notion of fringe belt, the study focus on how inner borders have multiplied and were reinvented to serve the purposes of city-making and support the livelihood of a variety of miscellaneous makers. A brief revision of the concepts of urban fringe belts, evolutionary perspective, multicultural space in contemporary cities and moving relational spaces are presented. The methodological procedure adopted address the issue of cumulative temporal aggregation of uses, users and meanings, changing urban form bordering contemporary urban interventions. The active border idea was associated with singular attributes in one or more qualitative dimensions, visually perceived but not necessarily spatial, surrounding a given centrality, that aggregated cumulative multiple individual initiatives with collective repercussions. It usually contained routes of access whose margins have also benefitted from the same attractiveness.

This paper argues that permission to new usages was the major asset. Accepted informal processes of urban change nourished different land uses, both temporary and permanent, street traders, producers, organizers, all with different forms of space appropriation. Otherwise unrevealed potential space consumers, particularly, but not only, those unattended by the services offered in central areas, emerged. Active permissive borders can help to enhance the attractiveness of the centrality it surrounds and, in some cases, overlap with neighbor boroughs borders, strengthening connections between different centralities and defining new networks.

### ***Keywords***

*Active inner borders, polycentric cities, morphogenesis, informal urban processes*

## **Urban fringe-belts and suburban area: similarities and differences**

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### ***Abstract***

Areas around the cities played a significant role throughout their history. The adaptation of city peripheries for various economic and domestic needs occurred in the early stages of the emergence of different cities. In each cultural context distinctive concepts and definitions were used to designate the edge of cities and suburban area. Generally, the developments of suburbs were unplanned with a lack of perspective view of the city further development. Subsequently, urban fabric “leapfrogged” these areas, which characterized by distinctive road network, variety of land-use units and large areas of green spaces. Thus, peripheral territories were embedded in the city boundary preserving their functional characteristics and structure. In the theory of urban morphology such areas are defined as an urban fringe-belts a specific part of the internal structure of the city.

At the present time the concept of urban fringe-belts had not been recognized in urban planning practice. Nevertheless, the existing suburban areas are in the focus of urban planning and design practice and continuing to play a special role in the cities life. A comprehensive land use plans of suburbs areas are developed as part of strategic spatial planning and regional development. At the same time differences in the understanding of the term “suburban area”, structure of land uses, its borders and sizes had been formed historically in different countries.

The paper analyzed the developed approaches to the definition of the suburban area, areas around the cities and urban fringe-belts. Similarities and differences of these concepts, the internal structure of their land use and their role in urban development are emphasized.

### ***Keywords***

*Urban fringe-belts, suburban area, urban morphology, land use*

## **Financing mechanisms for the reconstruction of the city's fringe belts**

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### ***Abstract***

The relevance of the complex reconstruction of the existing urban areas is due to a number of social, urban and economic factors. Social factors are connected with low quality and potential accident of habitation, high maintenance expenses for its maintenance. Urban planning-with low intensity of land use in the presence of a growing shortage of territory for the time-replacement of construction. Economic — with high investment attractiveness of the territories of housing accommodation at the low market value, with decrease in volumes of endowment maintenance of habitation.

In the reconstruction of the outskirts of cities, as a rule, it is about streamlining planning structure and development of environmental measures. An effective plan for the reconstruction of such territories should provide answers to many questions: how the reconstruction is adapted to the demands of the residents, whether residents will be able to participate in reconstruction, whether they will be able to stay in the old place after reconstruction, whether it is possible to carry out reconstruction without resettlement of inhabitants, etc. It is necessary to calculate the ratio of expected benefits and costs for reconstruction and restoration of the facility.

One of the main issues of ensuring the economic efficiency of reconstruction of residential development of cities at the present stage is the complexity of its realization and determination of sources of financing of reconstructive works. In this regard, the economic justification of investments is relevant both for the investor and the customer and for the owners of the housing stock.

Complexity of the investment process consists in attraction to financing of complex reconstruction of the territory of various participants, which can be the municipality, commercial banks, construction firms, development companies, managers Housing organizations, owners of housing and other structures interested in obtaining the investment result.

The article considers the mechanisms of financing the reconstruction of the city's suburb belts for different types of such territories, reveals their advantages and disadvantages, presents forecast calculations and estimates.

### ***Keywords***

*Urban fringe-belts, suburban area, urban morphology, land use*

## **Study on metropolis Greenbelt Area planning: a case study of Shijiazhuang**

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### ***Abstract***

In the course of rapid urbanization, the central urban area expanding rapidly and the Greenbelt Area undermined constantly, which caused menace to the ecosystem of the metropolis. It is urgent to control the planning and construction of Greenbelt Area. The study uses the methods of ecological space efficiency analysis, construction land spread analysis, eco-environment sensitivity estimation, industrial suitability analysis and village layout factor analysis, taking the Greenbelt Area of Shijiazhuang as empirical, analyzing the characteristics and problems of the situation, summarizing its space evolution from the land price difference, income gap and management authority, putting forward the planning strategy of classifying partition of the space control, priority conservation of natural ecology, adjusting the primary sector, limiting the secondary sector, prospering the tertiary sector, focusing on gathering adjust village location, urban and rural efficient and equitable facilities, so as to profit the planning and development of the metropolis Greenbelt Area in China.

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### ***Keywords***

*Greenbelt Area, metropolis, urban sprawl*

## **National mentality as a factor in the morphogenesis of the city suburbs (on an example of Krasnoyarsk)**

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### ***Abstract***

Mentality - a relatively stable set of vital installations of the individual or society. Mentality to a la The originality of the mentality of the inhabitants of Siberia defined a number of factors (historical, climatic, political). A set of economic and political processes has led to the uncontrolled growth of the city suburbs at the expense of private, including unauthorized construction. Residential and dachas outskirts of Krasnoyarsk have very low aesthetic qualities, which is explained by the peculiarities of the mentality of the inhabitants of Siberia. Over time, the outskirts of the territory stay become marginalized sections of society.

Sleeping areas on the periphery of the city grows garages boxed type and basements in residential backyards.

Growth of Krasnoyarsk has led to margin entered the main fabric of the city. The structure of these territories has acquired a number of characteristics.

Growth of Krasnoyarsk has led to margin entered the main fabric of the city. The structure of these territories has acquired a number of characteristics.

In today's Russian society, there is a transition from the old to the new social order. The administration of the urban development process is not aimed at solving existing problems. On registration of property rights law to illegally constructed buildings will aggravate the situation. The solution of many problems of the city to a greater extent does not refer to the professional competence of the architect and to the administrative and legal sphere.

### ***Keywords***

*National mentality, urban outskirts, unauthorized construction, administration*

## **HISTORICAL URBAN FABRIC**



## **Morphological characteristics of the Roman origin towns today: a comparative analyses from Anatolia and Italy**

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### ***Abstract***

A morphogenetic survey of old Anatolian and Italian towns that are shaped in the manner of culture from Roman founding to today is the main concern of this paper. The Roman Empire is taken the origin point that the civilization had a great influence on historical towns throughout adjacent territories of Italy, Europe, Middle East and North Africa. The underlying point of this research is the urban fabric in Anatolian towns, built on similarities with settlements in the Italian Peninsula during the Roman Empire, which have changed with the arrival of different cultures from Anatolian Turks to Ottomans under Islamic influence. The different planning cultures that gave form to their peculiar urban fabric in both peninsulas are studied comparatively on the selected samples of the eight Roman origin towns. The pairing between these towns is based on the time they were established and specific elements like location, importance and status in the state they belong to. Based on the numeric outcomes, morphological values of the towns and quantitative values obtained through "Space Syntax" establish the methodology of this study. Interrelation between these values are used for the association of cultural and religious buildings to the whole town tissue to comprehend how cultural alteration influences towns from a mathematical point of view. Morphological results show that the urban tissue in both Anatolian and Italian Peninsulas are different from each other today by block size and segment length. While legacy of the Roman Empire still exists in Italy, the influence of Islamic tradition has completely changed the urban pattern in Anatolia. This is also confirmed by mathematical interpretations.

### ***Keywords***

*Culture, Anatolia, Italy, Urban Morphology, Space Syntax*

## **Micro-regeneration for Traditional Residential Areas: The Case of Nanhu Community in Nanjing, China**

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### ***Abstract***

The article discusses the characteristics and evolution of historical urban fabric in traditional residential areas based on historical review and plan analysis, and how to inherit its texture of the space into the regeneration process to enhance the urban identity during the progression of globalization.

City betterment and ecological restoration is the latest concept in China to restore or regenerate the urban environment with high landscape quality, urban fabric and place vitality through the maintenance, remediation and renewal activities for the shrinking or poor condition of the built environment.

As one of pilot implementations in city betterment and ecological restoration programs in Nanjing, China, Nanhu community is a typical traditional residential area which constructed as a resettlement by the municipal government in 1982 to solve the housing issue of the back of the educated youth who went and work in the countryside during the Culture Revolution. This kind of traditional residential area has many values of historical urban fabric worth preserving in terms of architectural structure, cultural landscape, neighborhood organization which portrayed the history, the culture and the way people live in it at that time.

However, many traditional residential areas like Nanhu community struggle with slow development and unable to meet the demands of rapid development of social economy and residential' living level due to the lag of infrastructure renewal and dysfunctional geographical arrangement. At the same time, the convergence of urban fabric on the basis of globalization, urban high-speed development and urban blindly construction, which lead to the chaos of urban character and the absence of urban identity.

Thus, the article investigates on the characteristics and evolution of historical urban fabric in Nanhu community to create a new mode of continue the historical context in regeneration of traditional residential areas.

### ***Keywords***

*City betterment and ecological restoration programs, urban micro-regeneration, traditional residential areas, historical fabric, evolution of urban form*

## **Transformation mechanism of historical urban fabric in Hankou, Wuhan**

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### ***Abstract***

This article selects Hankou old town in Wuhan as the research object, summarizing the current situation of the historical urban texture. Then the author analyses the historical development and transformation mechanism of the urban texture from the traditional model to model of Chinese-Western integration, due to the intervention of western culture. And it will provide references to the future research on historical urban fabric.

The historical analysis of the historical urban area of Hankou is the background of the whole study. This part analyzes the main historical events in the process of urban development in Hankou, and focuses on the historical and cultural elements related to the formation of urban fabric. Then based on the historical development of the area and the intervention of western culture, the transformation mechanism is revealed. Hankou can be seen as the ‘Chinese and Western Collage City’, so it has gradually formed a mixture of traditional Chinese urban fabric and Western fabric. The fabric of ancient urban area is irregular, and the fabric of modern urban area is regular geometry. These two kinds of urban fabric combined together, very harmonious and permeated each other. And finally it formed the present situation of the urban fabric in Hankou historical urban area.

Therefore, the overall analysis of the characteristic of Hankou’s urban texture and transformation mechanism research of it can provide references for the related research and the repairing strategy of the texture in some old towns.

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### ***Keywords***

*Transformation mechanism, urban fabric, Hankou historical area, historical research*

## **Visual impact analysis in Urban Morphology: the case of Ayvansaray, GOLDEN HORN**

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### ***Abstract***

This dissertation seeks to find scenic attributes of the Historical Peninsula within its environment. By morphological understanding of its structure and space, the study will help to increase recognition for urban plazas and pedestrians with the management of visual impacts. It is a fact that Istanbul has been hosting some of the world's historically significant structures and predominantly, they located in historical peninsula. The historical peninsula was the former capital of the Byzantine and Ottoman empires therefore in present day it carries the culture and historical assets that overlapped on top of each other. The Bosphorus and the hilly topography of Istanbul together serve as a strong bounding element between the historical assets and it creates broad prospect among them. Those views carries a potential to capture and decode the spatial configurations and reveal the embedded patterns within the urban form. This paper will be an empirical study to designate the views from Ayvansaray district which is located on the seventh hill of the historical peninsula, along with Golden Horn. Designated views seek for building defined corridors and plazas referencing the viewing point and landmark connections. These connections will be supported by enhanced public and pedestrian accessibility. The purpose is to strengthen the strategic views by highlighting Historical City Walls, revealing embedded patterns and designate corridors among them to clarify visual integrity and ease the management of visual impacts. Benefiting from the Silhouette of Historical Peninsula and protecting it, carries significant importance therefore seek to deeper understand the city structure. To be able to accomplish the purpose, the study firstly will follow a method to understand and protect the characteristics in the historical background and designate plazas considering foreground, middle ground and background of the views. These provided inputs will be integrated with each other regarding to physical and visual aspects; in a manner of historically important structures, urban plazas and linear, panoramic views along with Golden Horn prospect. Therefore visual impact analysis will act as a supporter instrument.

### ***Keywords***

*Urban morphology, visual impact assessment, city view management, decoding urban forms*

## **Historic Edifices of Ramna: An Embedded Heritage Route In Urban Dhaka**

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### ***Abstract***

For a city that started at the bank of a river, Dhaka shows a unique characteristic in its urban development pattern. The 400 years old city in its historical timeline shifted from the river towards the land giving preference to a certain area that is known as Ramna. The history of Ramna began in 1608 with the Mughal. It comprised two residential areas of the high officials of the Mughals. It once placed Mughal garden, green open spaces, garden houses etc. The British cleared the jungle of Ramna and built racecourse, boulevard for the elites to stroll in the evening. The planning of this area as the civil station of the newly formed province of East Bengal and Assam in 1905 saw construction of several edifices. It also witnessed the building of the first modern architecture by Architect Mazharul Islam of Bangladesh. A walk started from the mosque of Musa Khan tucked in between Curzon Hall and Shahidullah Hall towards the Institute of Fine Arts of Dhaka University would take us from Mughal to Modern Dhaka. The collections of buildings of Ramna from different historical phases tell the story of the past in a synchronized manner. The study reveals a diverse historic route of different timeline within the contemporary urban form of Dhaka.

Hence objective of this paper is to explore how the embedded connectivity of a historic urban segment can be traced down with the help of space syntax analysis to define a unique heritage route for future planning of the city.

### ***Keywords***

*Historic Edifices, Ramna, Heritage route, Urban Dhaka, Space Syntax*

## **Comparison study of typical historical street space between China and Germany: Take Friedrichstrasse in Berlin and Central Street in Harbin as examples**

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### ***Abstract***

The article analyzes the similarities and the differences of typical historical street space and urban fabric in China and Germany, taking Friedrichstrasse in Berlin and central street in Harbin as examples.

The analysis mainly starts from four aspects: geographical environment, developing history, urban space fabric and building style. The two cities have similar geographical latitudes but different climate. Both of the two cities have a long history of development.

As historical streets, both of the two streets are the main shopping street in the two cities respectively. The Berlin one is a famous luxury shopping street while the Harbin one is a famous shopping destination for both citizens and tourists. As for the urban fabric, both streets have fishbone-like spatial structure but with different densities; both streets are pedestrian-friendly, but with different scales; both have courtyards space structure but in different forms.

Friedrichstrasse was divided into two parts during the World War II and it was partly ruined. It was rebuilt in IBA in the 1980s and many architectural masterpieces was designed by world-renowned architects like O.M. Ungers, Aldo Rossi, Rem koolhaas, Jean Nouvel and I.M. Pei. However, Harbin was once occupied by Russian as the colonial area, so the buildings on Central Street are mostly Russian style.

The article tries to explore the relationship between the historical and geographical environment and the urban commercial street space and urban space texture through this comparison. The comparison is to play a reference role in the regeneration of the historical street in China.

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### ***Keywords***

*Comparison, historical street space, urban fabric, China and Germany, Friedrichstrasse, Central Street*

## **The Spatial Fabric Analysis of Harbin JingYu Historical Block Based on the Relationship between Culture and Morphology**

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### ***Abstract***

City, an organism, takes the urban fabric as the external manifestation, which contains a lot of historical and cultural information. And in this organism, JingYu Block is a typical representative of Chinese and western cultures in Harbin, a historical block integrating the baroque style and the traditional street lifestyle, also the core of "re-engineering" strategy. This paper mainly analyzes JingYu historic district in Harbin, China. First, it is a historical study of JingYu Block. Summarizing and analyzing the important events in the history and culture, so that we can have a deep research on the historical and cultural elements related to the urban texture morphology. Second, we analyse the historical background, the urban texture morphology of JingYu Historical Block, including macro and micro analysis--urban structure and urban space, in this process, the urban elements such as road, street, profile, open space, urban space pattern, architectural fabric are analyzed respectively, and sometimes we also compare it with other historical city texture. Finally, on the basis of morphological analysis, we continue to analyze the related urban culture, aiming to summarize the influence that urban plan has in different phases of historical development of Harbin city, to analyse how the plan goes, and then to show the development of urban texture of JingYu Historical Block on the time level.

### ***Keywords***

*Harbin Jingyu Block, Urban fabric, Historical study, Morphology*

## **Renewal Strategy Research on the Reconstruction of the Old Daowai District's Historical Block in Harbin Based on European Experience**

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### ***Abstract***

Historical blocks are the memories and carriers of human civilization. As an early urban area in Harbin, Jingyu Street of Daowai District is an excellent place for us to experience the typical life of people in Harbin, in which a multifunction of commerce and living is achieved. Working as a "witness" of the historical development of Harbin, Daowai District is of great significance for the people in Harbin.

In recent years, the government of Harbin has begun to spare efforts to repair and transform historical blocks of Daowai District. Meanwhile, it has made a replanning of the old district's formats, hoping to return to the citizens a new Daowai district with a clean environment and prosperous tourism. However, it proved that the relevant scholars and Harbin citizens are not very satisfied with the reconstruction. There are mainly three problems. First of all, citizens participate less in the process of transformation. There is a large number of indigenous people have to move away and the old firms as well as inns have to move out of the district, which results in the disappearance of the original business mode of "front shop, back factory". Secondly, the over-transformation of historical blocks appears. What is more, there is a bad phenomenon, that is, the true history is replaced by false antique, causing the Chinese Baroque lose its former glory. Lastly, it is commercial reconstruction that receives attention, neglecting the fact that residential buildings are still very dilapidated and the living environment of the residents is still poor. As a result, Harbin's unique court houses are turned into dangerous houses, which are confronted with being dismantled. It is therefore necessary to protect and renew the old historical blocks of Daowai District.

In order to put forward an effective way to reconstruct and renew the old historical block of Daowai District, this paper studies the transformation methods and feasibility of relevant European cases, comparing them with the actual situation of Harbin historical blocks.

### ***Keywords***

*Morphogenesis, elementary residential planning units, market colonization, adaptive redevelopment, micro district, neighborhood, community*

## **Morphological Study of Linear Marketplaces upon Fixation Line of Shanghai**

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### ***Abstract***

In Shanghai, over 60 marketplaces have been built upon the fixation lines such as deserted railways, covered rivers, boundary of planned future parks over the last three decades. These markets squeeze resources out of the linear and irregular strips of land, generating new places that are strongly connected to their surrounding neighborhoods. Since June 2016, the Shanghai government initiates several projects to gradually propel the regeneration of series of leftover urban spaces, including the majority of these marketplaces, which could eventually lead to their demolition. Hence, the studies to these unique forms of urban space in Shanghai are necessary both in retrospect and prospective dimensions.

From the perspective of individual building, fixation line is a linear space with a considerable width to contain a large marketplace over 5000m<sup>2</sup> (15 meters wide and 380 meters long, Hongzhu Market) , serving more than sixty thousand residents' daily lives. In China, marketplace is one of the most frequently visited public spaces for local citizens, whose layout shows clearly of the network of the plot. Hence, the morphological study of these market places (taking the Hongzhu Market for example, comparing with other relative cases) helps to reveal the mechanisms of the transformation of the fixation line in Shanghai, a city that has been growing so rapidly over the last century, swallowing and flattening barriers of all kinds.

Although the building pattern of the marketplace shows clearly of the impact the fixation line, the research reveals that the actual network on site is on the other hand breaking down the pattern from the inside, making the maximum usage of the resources created by these former barriers of the city. The influences of both previous systems that form the fixation line and the current building pattern on site are affecting these linear market places simultaneously, which would bring about possible hints to both policymakers and designers dealing with urban regeneration projects.

### ***Keywords***

*Fixation line, market place, street system, building pattern, network on site, urban regeneration*

## **Resistance of Planned Old Town: A Case Study of Tainan, Taiwan**

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### ***Abstract***

According to Growth Pole Theory, the development dynamic in the urban area is much larger than rural. Practically, an urban plan is expected for development with growth as well. However, in large cities, especially in the old town, a modernised urban planning does usually not lead to the overall development but cause the deformed land, lead to the difficulties of constructions. As study case, Tainan, the oldest city in Taiwan, is observed in four periods. Firstly, since the building of the city wall in 1725, Tainan had been the former capital and most important trading ports in Taiwan. The urban tissue in this period was based on the narrow alleyways connected to city gates, high streets, ports and bureaucrat office. Secondly, since 1920, the wall has been demolished, and alleyways were transformed to the “boulevards” with orthogonal intersection and traffic circles, which were for hygiene and military reasons reconstructed. Thirdly, since 1938, urban planning with the concept of a combination of land-use planning, land subdivision and construction management was implemented. In this period, new buildings such as shophouses with arcades, markets and galleries were planned as leading types, but only on the street side. The city hall, the fire stations, the police stations and the weather observatory were established for public services. Lastly, in the period of post-war modernism, the zoning system as one of the important planning instruments was expected for not only clean-sweep planning but also urban renewal. Nevertheless, only less than one thousand building sites for the new construction can be found in the past 20 years, and the most of them are shophouses. The more than 400-year development in Tainan shows the persistence of urban formation, regardless of planning technologies. Although redundant conditions were forcedly added onto the original tissue directly and the urban blocks were over subdivided, the historical stratification can be systematically observed and formed as the urban landscape for the old town regeneration.

### ***Keywords***

*Urban formation resistance, Historical stratification, Urban landscape, Old town, Tainan*

## **Features of architectural and planning transformations of small towns of Central Siberia in the middle of 20th century (on the example of Uzhur and Bogotol towns)**

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### ***Abstract***

Territories transformation of small towns in Central Siberia in the analyzed period was primarily a consequence of government program industrial development of the USSR east region. The favorable position regarding the railroads - the Siberian railway and the Achinsk-Abakan road - was instrumental in obtaining the status of the town by the historical settlements of Bogotol and Uzhur in the first half of the 20th century. At this stage, in the absence of master plans, there were sporadic building, mainly by individual developers. Planning structure formation of the investigated small historical cities continued in the late 1940s – early 1950s. With the aim of streamlining the building cities process and working settlements of the Krasnoyarsk Territory, the Regional Department for Architecture Affairs, the "Rules for the Construction of Cities" (1953) were developed, on the basis of which the first master plan of Uzhur (1954, 1957) and Bogotol (1954). According to the new town planning documents, in both towns the old wooden blocks building were compacted, some of them were combined into larger planning units. For example, I. Smirnov, the author of the Uzhur master plan, proposed to organize the urban space through subordination of elements united by a system of highways, squares and landscaping. The main Bogotol compositional element, according to a new document, was the existing the town central square. Its development was supposed to be stone administrative, cultural and housing estate. Streets and quarters adjoining the central square were also planned to be built up with two- and three-storey buildings. With all the proposed transformations, a feature of the new master plans of both Uzhur and Bogotol was the maximum preservation of the existing streets and highways network. Conducted research also showed the peculiarities of the designers thinking, aimed at organizing spaces oriented to the broad masses of the people, and not to an individual person.

### ***Keywords***

*Small town, Central Siberia, industrial development, master plan*

## **Streetwall and Plot Pattern: Case Studies in Nanjing, China**

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### ***Abstract***

Streetwall is composed of street buildings, which form is the result of three aspects such as city regulations, land use indicators and plot pattern (Talen, 2012). As plot is the basic unit that city regulation and land use play their roles, it is proved that plots with its size, shape and quantity do affect the shape of the streetwall (Tang, 2017). But specific to the detailed mathematic relationships between plot pattern and the streetwall index such as continuity ratio, the study needs to be continued to ensure that the results can be used to control the streetwall in urban design process, especially in modern cities. Therefore, based on certain settings of city regulations and land use indicators, the paper tries to find the mathematical relations between plot size, quantity and indicators and the streetwall continuity. Firstly, several 500 meters' street samples are built based on the statistics of block size, plot size, plot quantities, plot orientation and land use indicators in Nanjing City, China. The samples correspond to several types of size combination, types of land-use combination, and types of land use indicators. Secondly, based on the existing urban regulations since 2007, numerous designs on the plots of different type are experimented, the intervals of the length, the setback, and the distance between buildings are calculated. Finally, building density, line rate of the streetwall samples is calculated and the mathematics relationships between them and plot size, quantity, indicators are established. The paper concludes in several mathematical formulas considering different types of street, and also concludes the minimum and maximum of the plot size and quantity which correspond to the most discontinuous and most continuous streetwalls.

### ***Keywords***

*Streetwall, streetwall continuity, plot pattern, street buildings*

## **The Impact of Island City in the Post- Apartheid South Africa: Focus on Bantustans**

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### ***Abstract***

Since the doctrine of apartheid as legislated racial separation was introduced following the National Party's assumption of power in 1948, it has been inextricably bound up with urbanization. At the national scale, the creation of so-called 'homelands' or 'bantustans' for the African majority of the population, was largely an attempt to constrain urbanization, with the notorious 'pass laws' controlling entry to the cities in a manner consistent with demands for labour. The South African cities were therefore subjected to artificial, unnatural growth patterns brought about by apartheid planning that legitimated exclusionary practices in the city and which created and maintained racial, social and class differences between people. This was even more so in the 1990s when it became clearer that urban forms and patterns in many parts of the world were going the way of intensifying segregation, fragmentation and splintering, resulting in deepening intra-urban inequality. More than two decades after the end of apartheid, urban settlement planning in a democratic South Africa has created secluded settlements with fragmented public services delivery such as police service, health service, emergency services, (fire trucks and ambulances), transport service and a host of other municipal services (waste removal, water and electricity provision). These settlements are isolated in any terms from mainstream city development and also reflect a mismatch to development trajectory of the country's economy, which is marked at the second largest economy on the continent. In this case, from the essence of this mismatch or misfit, sprouts the concept of an Island City. This paper therefore, discusses the concept of an island city from the backdrop of an apartheid city. It interrogates the perpetuation of spatial inequality in former Bantustan urban centres which in this context continue existing as "islands". The argument stems from a concerning challenge confronting the post-apartheid government to eradicate legacies associated with the apartheid regime.

### ***Keywords***

*Apartheid City, Island City, Bantustans, Townships, Rent seeking, Service Delivery, Post-Apartheid*

## **From «Urban Heritage Preserves» to Controlled Development of Historical Urban Environments**

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### ***Abstract***

Numerous concepts and theories have been developed concerning the conservation of architectural historical heritage. Given the recognition that the concept of "view of the world» is changing, the scientific community is recognizing that the "view of values" concepts are also changing. This means the process of historical architectural heritage conservation itself is undergoing transformations. The issue of architectural heritage conservation should now be considered on various levels: whole world, country, region, city, borough, and neighborhood. Moreover, the issue of historical architectural heritage conservation should be consistent with the latest globalization concepts.

### ***Keywords***

*Historical architectural heritage conservation, globalization, architectural heritage research methodology*

**PSUF – POST SOCIALIST URBAN FORM**



## **A Comprehensive View on Evolution of Urban Spatial Structure of the largest Post-Soviet Cities in Russia**

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### ***Abstract***

The article describes the development trends of urban spatial structure of the largest Russian cities since the 1990s to the present. The author considers the urban density as a key concept in the description of a city's urban spatial structure. Other three key characteristics of cities are population size, the total area of the city and urban morphology. This paper discusses the analytical opportunities that recent data offer in regard to an objective and transparent measurement of urban density patterns of largest cities in Russia. The author applies this approach to 10 cities to demonstrate the analytical capacity of spatially-refined density indicators for the purposes of comparative urban research.

In so doing, the article examines the features of the change in the morphology of post-Soviet cities. Transformation of urban morphology is the performance parameters of the spatial organization of buildings, vertical functional zoning, changing the ratio of built-up and open spaces in the existing planning units of the urban fabric; new configurations of inter planning. The author has identified the factors influencing the change in the morphology of cities, including the conduct of the "global events". Eventful cities are most actively changing their structure, which is strengthened by various functional elements that correspond to the type of global events (sports, cultural, recreational and political).

Detailed study of urban development at the level of morphological units allowed us to formulate the following conclusions. First, the return to the use of historical traditional morphotypes in the projects of new residential development; secondly, the transformation of traditional historical morphotypes; in the third, the invasion of new morphotypes, urban blocks that were previously not peculiar to Soviet cities. The author gives the characteristics of new morphotypes (urban blocks) which are similar to the morphotypes of Asian cities (compounds).

The study contributes to a more comprehensive understanding of the concept of urban density in the analysis of urban spatial structure and urban morphology of post-soviet cities. The results of the morphological analysis of the development of contemporary Russian cities can be used for the prediction of the urban structure future development.

### ***Keywords***

*Urban spatial structure, urban morphology, morphotype, urban blocks, density measures, built density, post-soviet city*

## **Spatial imbalance of urban development of settlements and ways of its solution in modern conditions**

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### ***Abstract***

At present, spatial redistribution of emphasis and change in the proportions of population growth in cities of different sizes and places in the resettlement system are developing. This is indicated by the facts of losses from underutilization of the potential of small and medium-sized cities and excessive rates of extensive growth of large and large cities, the exhaustion of their territorial resources, irrational functional zoning of the territory, contributing to an unjustified increase in the travel distance. The article discusses the issues of regulation of urban development as part of resettlement systems in order to form a balanced socio-economic and territorial organization of resettlement in the country and its individual regions.

The concept of overcoming significant differences in the conditions and way of life of urban and rural population, resolution of regional socio-economic imbalances, inconsistency and incompleteness of development of resettlement facilities, lagging social, transport and engineering infrastructure. The socio-spatial trends in the development of resettlement systems are conditioned by new principles of social planning based on the achievement of greater social equality for the population living in cities and rural settlements.

The town - planning aspect of regulation in this case is based on identification and accounting of territorial conditions of overcoming of distinctions in living standards and provision with servicing infrastructures of various social and demographic groups thanks to scientific and technical achievements in the field of information and computer technologies of the last decades.

Stabilization and growth of economic potential of small towns and settlements will reduce the size of undesirable labor pendulum migrations, expand the spatial scale of social and functional interaction of settlements in the settlement system, ensure rational use of natural resources.

At present, the task of urban development is to find new ways to form dynamically stable spatial systems, to develop new approaches to architectural and spatial support of modern post-industrial social processes, the continuous development of cultural heritage.

### ***Keywords***

*Spatial imbalance, urban development, settlement system, territorial organization of cities, regulation of social and spatial development*

## **Utopia and crisis of the post-socialist city: historical transformations of the 19th and 20th century Moscow**

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### ***Abstract***

The urban history of Moscow, as well as the history of its masterplans, has been thoroughly described in many urban studies (French, 1995; Stanilov, 2007; Taylor & Kukina, 2017), not least in relation to the political processes of the 20th century that had an immense influence on the formation of cities in post-socialist block.

In this paper, the logic behind the historical evolution of Moscow in the 19th and 20th century will be discussed, and the aim here is to introduce another perspective of looking at the well-known history of Moscow urban transformations.

It is proposed, that the evolution of the city is the constant alternative process between the state of utopia and the state of crises. The state of utopia is usually featured by the new visions that are meant to solve the existing urban problems of that time. The state of crisis, that usually follows, is marked by the externality effects of realised visions and usually results into urban problems on another level of scale: again marking the necessity of new visions. Technological developments are integral to these processes: they are used as the instruments to solve urban problems, but at the same time, they cause unexpected outcomes that have to be dealt with on another turn of urban evolution of the city (Harvey, 2003; Read, 2009; Bobkova, 2014).

To demonstrate the concept, three key periods of Moscow urban evolution will be studied. First, the development of Moscow as the 19th – early 20th century industrial city will be analysed; second, the transformation of Moscow as the first socialist capital in the 1930s; and finally, – post-war development of the city that involved large-scale constructions of dormitory districts in urban periphery.

The intended outcome of the paper is to outline a more technical approach to the historical analysis of Moscow urban evolution. The technological space and the scale of interventions are crucial aspects here that enable us to understand the hidden logic of planning failures of the past, and, possibly, to reformulate more precisely, what are the particular features of post-socialist cities that make them so distinctive.

### ***Keywords***

*Moscow, urban evolution, urban history, technological space, scalar transformations*

## **Department store's role in modernization and “demodernization” of city centers in ex-Yugoslavia**

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### ***Abstract***

The period between 1966 and 1995 is characterized by a constant need for the modernization of society and cities. Department store, introduced as a Western economic model of consumer culture, was established in Yugoslavia after 1960's economic reform. This typology had great influence on the market and consumer society in Yugoslavia but had also changed the image and the way central areas in the former Yugoslavia functioned. This paper has two goals. On one hand, it should examine the influence of consumerism in the socialist society of Yugoslavia on the positioning, function, design and construction of the "Belgrade" Department Stores buildings. On the other hand, we believe that the politics of consumer society, mass production and consumerism integrated into the objects of department stores significantly influenced the planning and design of city development which can be followed through morphogenic approach.

Today, „Belgrade“ department stores, built in more than 30 cities with 44 buildings in total, cannot satisfy newest demands in shopping and trade, remain as such in central positions, but with marginalized function. They cannot be perceived only as an economic model, as it was done during the 2009 reconstruction, since this approach cannot provide an adequate solution for reuse, nor can their meaning be understood in the history of city development. These buildings have been printed on postcards, and as such presented a symbol of modernization and tradition as well as a hallmark of a time and ideology that is still insufficiently known. Research on department store's previous role in modernization and today's unfortunate contribution to demodernization of city centers can not only help establish a different approach in a contemporary design and reconstruction but can also address the need to bring them back the significance that they had for society and city or give them a new one.

### ***Keywords***

*Department stores, Yugoslavia, morphogenesis, modernization, demodernization*

## **Morphological transitions in Portuguese social housing: Lisbon, 1933-1974**

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### ***Abstract***

Between 1933 and 1974, during Portuguese dictatorship, it was established a national housing policy, which found materialization in a number of new housing neighbourhoods. In Lisbon, two of these neighbourhoods, 'Encarnação' (ca.1939-1946) and 'Olivais Norte' (ca.1959-1970) resulted therefore in two distinct morphological units.

While the first example can be characterized by the uniqueness of its two-storey semi-detached houses, placed in individual lots and distributed throughout a peculiar symmetric urban plan, which was centred on a main axis connecting the main focal points of public facilities; the second case, is characterized by collective residential typologies, distributed through tower blocks and horizontal bands, throughout an urban plan which privileged collective open spaces, distributed throughout a hierarchy of streets. Thus, if for the first case, the urban model seems to be a final nineteenth century rural perspective, on the second case the urban model is already inspired on the Athens Charter and its subsequent principles of modern urbanism, including however socio-cultural and interdisciplinary concerns advocated by CIAM after WWII.

Although based on distinct housing programmes, these two neighbourhoods correspond to two sequential periods of the same housing policy. The differences between the two urban realities express therefore, in a certain way, a paradox within the Portuguese dictatorial context, whose ideology was clearly expressed on the first housing programme, through the Economic Houses.

This presentation aims to discuss the results of an ongoing investigation, based on a contextualized typological analysis methodology, in order to identify the factors that sustained the identified changes of housing paradigm. We believe that these changes occurred in a specific period of cultural transition with deep impacts on the residential typologies, still little known, which certainly overcomes the Portuguese Congress of Architecture, in 1948, which is the most quoted reference in the history of modern architecture in Portugal.

### ***Keywords***

*Morphological changes, social housing, residential typologies, architectural culture, dictatorship, urban models*

**Skopje's urbanism of everything is possible – How does it compare to other post-socialist urbanisms?**

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***Abstract***

Almost all the Balkan countries have experienced a prolonged post-socialist transition. “Everything is possible”, the advertisement for Skopsko, the beer brewed by Skopje's Brewery, deeply reflects this transitional age.

These post-socialist countries inherited strong technocratic/bureaucratic planning institutions that suddenly faced a neoliberal paradigm. In the Republic of Macedonia, the notion that everything is possible turned entrepreneurs into bureaucrats and bureaucrats into entrepreneurs in the 1990s. The so-called urban mafia (entrepreneurial bureaucratic complex) shaped Skopje project-by-project, building-by-building for almost 15 years. Between 2006 and 2016, a new entrepreneurial government triggered an unexpected turn towards national romanticism while keeping a spirit of socialist technocracy/bureaucracy. This period had a profound effect on Skopje as a capital. The national government put roughly a half a billion euros on neo-baroque urban makeup of Skopje (officially vision Skopje 2014) that added an exotic post-socialist historical urban layer. Now Skopje has public spaces surrounded by Las (Skopj)V(egas) postmodern eclectic façades and gigantic sculptures that evoke immense surprise equally among citizens and tourists. The government won the election, but did not managed to make a governmental majority in 2017. The new government promise a swift removal of the national romantic period.

This paper argues that Skopje's urbanization of everything is possible does not compare to other post-socialist urbanisms. The relevance of Skopje 2014 is that it opens a debate for different futuristic pluralities for unique post-socialist urbanisms, not a quest for one transitional model for all Balkan countries. Las (Skopj)V(egas) might look as bizarre manifestation (in terms of kitsch architecture and sculptures) of national romantic technocracy/bureaucracy and governmental power, but it shows that if there is a vision and political support, (in this case unexpected) urban transformation and development can happen even in post-socialist Balkan countries stuck in lengthy transition and melancholy.

***Keywords***

*Post-socialist, urbanism, Skopje, futurism, pluralities*

## **Transformation experience of public spaces of residential areas in the second half of the XX century in Germany**

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### ***Abstract***

The degradation of panel areas in Germany has led to the outflow of the population in the most attractive and comfortable areas for housing. As a result this outflow led the Federal and local authorities of Germany to consider the transformation of areas and improve the quality of life in them in accordance with new requirements.

Spaces in the areas of panel construction of the second half of the twentieth century are characterized by an excess of open spaces and greenery. Consequently, these spaces are perceived as too empty, unused, uncontrolled and as reserve areas for the development of social infrastructure.

The study of the positive experience of transformable public spaces in the regions of Germany (Berlin – Fennpfuhl, Marzahn; Dresden – Prohlis, Gorbitz; Halle – Silberhöhe, Neustadt) was conducted from the standpoint of sustainable development in three areas - social, environmental and economic. In addition, architectural and historical features of the territories, types of housing and lifestyle, the mentality of the country, as well as the specifics of the legislation and regulatory framework were taken into account.

The study revealed changes in the functional and social use of public areas.

A large role in the development of public spaces is assigned to the issues of landscape organization aimed at preserving the natural features, identification of areas, environmental education of residents, involving them in the design process and the implementation of the project.

The creation of a continuous system of green spaces that leads to preserved or restored natural environment can be traced in some districts.

Such experience can form the basis of transformation of public spaces in residential areas of the "post-socialist" period in Russia and other countries.

### ***Keywords***

*Areas of panelized buildings, public spaces, transformation of architectural environment*

## **Problems of effective land use and environmental planning in cities: the case-study of Baku**

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### ***Abstract***

Urban environment is a dynamic system of interrelated elements which is adaptable to the evolution of human needs and aspirations. It includes natural and man-made factors, which should provide ecological balance and determine the living conditions. Urban development implies the use of significant areas and thereby it affects the transformation of the environment. This paper focuses on research of methods of effective land use control through urban planning to increase longevity and life quality in cities and suburbs.

Understanding environment problems are keys to effective planning of land use. Urban growth leads to increasing of technogenic loading on areas and land degradation. As a result, the quality and longevity of life falls down. On the other hand the increase in number of people in cities and the reduction of lands require a more intensive land use. Where is the red line? This paper will highlight some of key findings in recent researches, which show how economic and social aspects are connected to effective land use control through urban planning to increase life quality in cities and suburbs. The paper will then suggest how urban development of Baku city and its suburbs can be adapted to address the research findings. The method allows determining an optimal strategy of effective land-use and environmental planning in cities. These findings can be applied in design process of Baku city development and other cities of Azerbaijan.

### ***Keywords***

*Effective land use, environmental planning, Baku city, urban planning, economic and social aspects, life quality*

## **The Soviet legacy in the urban morphology of major Russian cities**

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### ***Abstract***

All post-Soviet cities look similar. They also demonstrate similar development trends, have similar issues and like no other illustrate the concept of 'path-dependency'. As a consequence of very specific political and economic conditions for their development, these cities have acquired distinctive features and elements of urban structure, and today's planners have to deal with the imprint left by the Soviet era.

Due to the longest history of 'socialist experiment' Russia became the main ground for implementing the Soviet urban-planning model and today its cities present a rich empirical base for studying the consequences of the systemic impact of the administrative-command system as a substitute to the market.

The study draws attention to the Russian cities with a population of over 1 million people since the typical problems and the need for the effective urban form are more pronounced there. The author consistently discusses a range of the urban form characteristics of the major Russian cities looking for the similar traits in their morphology. The aspects considered include settlement size and general density along with the spatial distribution of population evaluated by means of three indicators: density profile, density gradient and dispersion index, the structural form and the network configuration.

### ***Keywords***

*Post-Soviet, major Russian cities, quantitative indicators of urban form*

## **Rethinking Evolution of Spatial Structure of Russian Microdistrict on Post - Soviet Space**

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### ***Abstract***

The residential planning units are indivisible in their overall structure, morphologically identical, like the medieval city. Their self-sufficiency and viability of the structure is confirmed by the presence of planning boundaries, social institution in the form of churches, schools; open public core as a market, square; separation into formations of lower order (Lawhon, 2009, Patricios, 2002).

The first step of the morphological post-socialist evolution of the residential units was the market colonization on the public open spaces. This process led to the formation of the pedestrian network connecting the core, attractive public service facilities, recreational, educational. Next was the change in the usage of the territory, then the expansion of the architectural typology of residential buildings. (Kukina, Pozdniakova 2011)

The morphogenesis of modern elementary residential planning units is a combinatory of their basic planning models. The analysis of the Russian microdistricts showed that they were mostly the combinations of discrete and perimeter forms. In the cities of Eastern Europe, the reconstruction of the communities was carried out under the motto "communities of communities" (Condon, 2009). The combinations of the micro district and neighborhood concepts in the one morphotype could be ascertained in China (Duanfang Lu, 2006). All of analyzed were considered as the comprehensive urban landscape units and could be defined as land-use units according to Conzenian terminology.

At the beginning of the XXI century the criterion of sustainable residential areas is understood as providing conditions for their flexible and adaptive redevelopment. To ensure urban planning and project integration, local documents for the development monitoring are used, while respecting the principles of participation of citizens and interested groups in the planning process.

The results of the morphological analysis of elementary residential planning units of the modern city can be used for the prediction of their future development.

### ***Keywords***

*Morphogenesis, elementary residential planning units, market colonization, adaptive redevelopment, micro district, neighborhood, community*

## **Streets without doors; a twentieth century phenomenon?**

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### ***Abstract***

Urban design practice over the last half-century has been dominated by the destruction of the street and the perimeter block followed by more recent efforts to resurrect them as the main elements of urban form. This process was clearly set out by Panerai et al in 1977 followed by its updated English translation of 2004 which documented the return to the street. Recent work on Nowa Huta has suggested that this was a simplification and that this New Town, where the first stage was built in the 1950s, represents an example of a type neglected in the literature. However it was pointed out that in this interpretation of the neighbourhood unit while there are streets, the apartments were all entered from inside the urban block – which raises the question as to whether they are really streets (in spite of the praise of New Urbanists) since there is no direct connection from the private realm of the dwelling to the city wide public realm of the street. Subsequent work noted similar forms in Austria, England and Italy. This paper discusses these experiences and the extent to which these designs relate to the social and political contexts that shaped them, contemporary gated communities in liberal market societies and historic forms such as monasteries and walled cities.

### ***Keywords***

*Urban block, street, neighbourhood unit, urban form in interwar and post war Austria, England, Italy, Poland, New Urbanism*

## **The post-Soviet stage of urban development of Zheleznogorsk: transformation from the ideal to the rational space**

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### ***Abstract***

Zheleznogorsk (former Krasnoyarsk-26 till 1993) is a unique phenomenon of Soviet urban planning – a closed city. During the USSR period, closed cities were under the special care of the state, being the basis of the country's defense. Significant amounts of funding for closed cities, as well as a special system of management of the military nuclear industry, in which customers, designers and developers acted within the same Ministry, have created favorable conditions for integrated design and full implementation of design solutions.

The design of closed cities took place in the framework of urban planning concepts in accordance with the general direction of the Soviet architecture of the second half of the XX century. Zheleznogorsk can be called an ideal Soviet city, because its formation and development fully reflected the principles of Soviet urban planning. The established at the Soviet stage planning structure of Zheleznogorsk includes three residential areas, each of which is an example of a certain approach to the formation of residential territories. The Northern residential area (1950-ies) is characterized by the creation of complete planning structures, the manifestation of the ensemble principles. The Eastern (1960 –1970-ies) and Southern (1980-ies – early 1990-ies) areas are an example of implementation of the principles of zoning and free planning.

The article deals with the post-Soviet stage of urban development of Zheleznogorsk, when social and economic changes in the country have led to the gradual abandonment of the Soviet urban model and transition to new mechanisms of urban areas.

The post-Soviet stage of development of the closed city can be divided into two periods of time. In the 1990-ies there was a gradual “curtailment” of the implementation of the last master plan, which led to the emergence of "unfilled " areas of the territory, which in subsequent years were formed on the principles of rational (commercial) use. It concerned, first of all, buildings of the 4-th residential district in the Southern residential area. Since the 2000s, remaining closed the cities have lost their "special" position. The mechanisms of the market economy, which are based on rational commercial relations, have influenced the entire territory of the city.

### ***Keywords***

*Krasnoyarsk-26, Zheleznogorsk, a closed city, post-Soviet urban planning, urban space*

## **Preservation, localization and use of historical industrial buildings in Krasnoyarsk**

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### ***Abstract***

Krasnoyarsk has been a major industrial center of Siberia from olden times. As a rule, industrial facilities were located on a frontier zone of a built-up area.

Growing fast, the city assimilated railway workshops dated the end of the XIX century just after construction of the Siberian Railway and Industrial Zones on the Left bank of the Yenisei River which were the legacy of the Great Patriotic War of 1941-1945.

The architectural appearance of the historical industrial facilities is diverse, space and layout design is often creatively different and have no analogues in the industrial architecture far beyond the city and the region: shallow solid-cast doubly bent shell roof of the former ORGTECHSTROY trust, north-light roof and folded arch covers of Silk Factory, steel cable roofs and a lot more.

Buildings and structures erected by standard design solutions are also of great interest.

Modern use of redesigned industrial facilities focuses often on public-inhabited function: shopping and entertainment centers on the territory of the TV Production Plant and the Gift Factory transformed into hotel and restaurant complex.

Utilitarian approach to these construction facilities does not always give a positive result both in terms of their longevity and in terms of refreshing the architectural look of the buildings themselves and their harmonization with the surrounding buildings. Many of them are lost or destroyed irrevocably due to their great disrepair or other reasons (the railway bridge across the Yenisei River and the Eiffel Tower are equals in age; workshops on the territory of the TV Production Plant dated middle of the 20th century).

The modern requirements to the design solutions from the comfort and environmental safety point of view make it particularly difficult. For instance, the requirements to surroundings vary dramatically: built-up density, amenities and landscaping, availability of parking space, accessibility for people with limited mobility, etc.

Reviewing of positive examples of fitting of historical industrial buildings resulting from the development of built-up area and taking into consideration the failure of design choices for reconstruction and refurbishment allows to form approaches and methods for completing design tasks.

### ***Keywords***

*Industrial buildings, friendly urban environment, reconstruction of industrial facilities*

## **Transformation of the city of Ufa planning structure**

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### ***Abstract***

In the development of any city there trace some longstanding time periods during which characteristic features of structural and functional system organization are generally preserved. Every period includes a series of fluctuating cycles, named «the growth –structural reorganization». The duration of each era and the nature of applicable structural and functional organization are determined by the space exploration opportunities conditioned by a corresponding level of social development. A new era starts when traditional spatial development reserves become a completely spent force. Such logical pattern is rather coherent with the available empirical data and theories of urban development.

Global development, as well as any other system, consists of cyclic processes. Technological paradigms, economic cycles, etc. may be related thereto.

In view of the foregoing, it is obvious that all cities are developing within the context of global civilization waves.

The analysis of territorial and special development dynamics of the city of Ufa has revealed that urban planning pattern development is congruent with certain cycles associated with structural transformation.

The task of the conducted research was to synchronize the city of Ufa development cycles with global and Russian-wide processes to understand the position of our city in a common trend and to specify possible ways of its development, to detect existing and possible functional and structural transformations and to determine the factors causing such changes.

The research has shown that the development of Ufa city is divided into several periods, each being induced by urban structure passing a certain threshold: functional, structural, physical, technological and transition to a new qualitative level of development. Thereat, the urban development has a cyclical nature covering the following phases: extensive development, equilibrium, intensive development. Urban development cycles formation is associated with global world and nation-wide factors.

### ***Keywords***

*City, structure, transformation, period, cycle*

**THE EVOLUTION OF URBAN FORM UNDER  
THE SOCIAL INFLUENCE**



## **Society, geopolitics, icono-cartography, historical atlases and urban forms. Thoughts from a case study**

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### ***Abstract***

The 2018 seminar is dedicated to «Urban form and social context», a theme that has always been present within ISUF - without a satisfactory processing so far. One must then wonder whether it is correct to pose the problem in this way, placing urban form on the one hand, and on the other society interpreted reductively as a «context».

In reality one should rather admit that the city is something complex, or better, an entity belonging to different areas or layers of being and of knowledge - a pluriepistemic entity. This simple philosophical remark is known at least since the 6th C. AD (Isidore of Seville), but does not seem to have entered the thought of the city's professionals, who prefer to consider urban form as something "in its own right" or apart, per se.

In this way the underlying problem is hidden, that of the ontology of the city, of which form is a component. The relationship of the latter to society is not a contextual but a dynamic one - in being and in time - and involves the question of spatiality.

However, I do not intend to explicitly address these issues in Krasnoyarsk's seminar, since to these problems I have dedicated other works and activities within ISUF and outside it (Gerosa 1993, 1998a, 1999a, 1999b, 2001b, 2008a, 2008b, 2010).

Instead, I would like to draw attention to an undervalued aspect of this problem.

The ontological dynamics that links society and geospatial form in fact raises the problem of geometric-figurative representation (especially the bi-dimensional one) of the urban form itself, and even before its perception and its survey.

Strangely enough, this aspect has hardly been dealt within ISUF. There are evidently some references. Very correctly, M.R.G. Conzen subtitled his Alnwick seminal book «town plan analysis», but later this clarity was lost. Even worse, it has been replaced by the confusion between three different urban «things»: form, morphology, and plan.

My presentation wants precisely to show a glimpse on the question of the iconographic and cartographic representation of the city as a particular case of the dynamics that links society and urban geospatial form. It will show how political, social and economic entities and events exert an influence on the city and its representation. In particular, the geopolitical aspects will be examined. It aims is to integrate, already within the society, the spatial side of the beings.

The presentation will have a non-general but a particular (or idiographic) character and will show, based on my previous research (Gerosa 1998b, 2001a, 2004, 2006, 2009, 2012) a case study: the evolution, from the 16th C. to the 19th, of the icono-cartographic representation of the cities of the current Canton and Republic of Ticino, as a territory oscillating between the State of Milan and the Swiss Confederation, and crossed by one of the major transit routes on the European continent. And this in the background of the invention and the circulation of geo-architectural forms and poetics and of the development of republican and democratic freedom.

### ***Keywords***

*Urban morphological theory; Urban landscape: history and socio-cultural transformations*

## **Urboecological zoning of the Krasnoyarsk city**

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### ***Abstract***

In the presented paper the main critical factors of development are allocated and measures for improvement of quality and comfort of the city environment on the basis of regression model on the panel data with the determined effects are offered. Being an urbanized territory, Krasnoyarsk is a multi-component system that has similar ecological, social, economic and architectural planning problems for most industrial cities. In accordance with the concept of sustainable development of urban areas urban development should be aimed at creating an optimal environment. The urban environment should not be contaminated. On the other hand, pollution is a direct consequence, an integral part of human activity and large cities pose a threat to the environment in terms of its environmental safety. It is crucial to take into account the problem of preserving landscapes, as well as the existing anthropogenic load on residential, recreational and industrial zones developing the city.

In order to assess the territory as a whole and construct a regression model of panel data with deterministic effects, the following social, economic, and environmental indicators were selected:

economic - the volume of industrial production; investments in fixed assets, fixed assets, business financial outcomes, personal incomes, transport and infrastructure development;

social - demographic and migration indicators, services and trade development level, quality of education, health indicators;

environmental performance – impacts to the environment: pollution of atmospheric air from stationary and mobile sources, intake and discharge of water, waste generation rate, recreational zones, disturbed landscapes.

“Statistics version 10” and “STATA” analysis packages were used to calculate the model, plot graphs, and charts for the research.

The rank of administrative urban areas showed uneven development, which must be taken into account for the modern architectural and planning activities aimed at the city development.

### ***Keywords***

*Urbanized area, zoning, regression model*

## **The Campus and the City: the role of piloti as social integrator at the Catholic University of Pernambuco, in Recife, Brazil**

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### ***Abstract***

This work aims to understand factors of space configuration that promote patterns of pedestrian movement and social interactions at the campus of the Catholic University of Pernambuco, located in Recife, at the State of Pernambuco, in Brazil. It is composed of four large urban blocks and a number of modern buildings with piloti, whose configuration facilitates not only pedestrian movements throughout the urban blocks, but also the establishment of different types of activities. The methodology is based on the Social Logic of Space Theory, better known as Space Syntax. The work is structured in three parts: (1) Urban campus, which presents an overview of the evolution of universities and relations between campus and cities; (2) Paths of an urban campus that presents spatial analysis in two scales (global and local scales); and (3) The piloti as social integrator, which presents discussions on socio-spatial role of piloti. Space Syntax techniques (axial maps of global and local integration) allowed to understand the nature of pedestrian movements and its social performance. It is verified that the piloti plays a fundamental role in integrating the city and the campus, responsible for attracting urban rather than educational activities.

### ***Keywords***

*Public space, urban campus, space syntax, urban morphology*

## **A REFUGEE PATTERN LANGUAGE – RPL**

### **Cluster 2: Leaving Place – Arrival Country**

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#### ***Abstract***

PUARL is developing A Pattern Language for Refugees in Europe and beyond as a framework for dealing with planning and designing for refugees. The pattern method combines social and spatial aspects in a unique way and is used by numerous social disciplines as well as environmental disciplines and architecture. Originally written by Alexander, Ishikawa, Silverstein, and others, the original book A Pattern Language comprises a collection of 253 patterns that range in scale and mode from large regions to cities and towns to construction details. In this book, the traditional use and idea of patterns has been transformed into a modern system that can be used by designers, planners and builders today.

The paper will share a draft pattern language for refugee life and integration (starting with the example of the refugee family) and will include the following domains and sub-domains with about 5-7 patterns each: 1. The Refugee Family (finished draft). 2. Welcome Country Arrival Place. 3. Arrival City – Urban Life and Infrastructure. 4. Housing, Living, and Live-Work; 5. Working and Socioeconomic Integration; 6. Learning; 7. Administrative Support; 8. Health; 9. Recreation and Clubs; 10. Culture and Religion; 11. Transportation and Communication. 12. Taking Care and Actual Personal Help.

Chapter or cluster two is dealing with the escape and often Odyssee of refugees from their home place in search of a new country, city and place to start a new life, thereby often affecting and modifying the urban and neighborhood structure of an arrival place and welcoming city in a new country.

#### ***Keywords***

*Refugees, Arrival City, Assimilation – Europe, Transformation, Urban Morphology, Building Projects*

## **Research on Transformation of City-Landscape Boundary Type and Adjacent Urban Fabric in Hubin Area of Hangzhou**

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### ***Abstract***

This paper studies the transformation of the boundary type and adjacent urban fabric in Hubin (lakeside) area of Hangzhou from 1912 to 2018. Since ancient times, Hubin area has connected Hangzhou ancient city with the world heritage site West Lake.

As a special boundary between nature and city since ancient times, Hubin area is also the most prosperous area in Hangzhou. After the Xinhai Revolution of 1911, the government of the Republic China tore down the lakeside city walls in 1912, making Hubin area seamlessly integrated with West Lake. Later on, the government of both the Republic China and People's Republic of China have reconstructed Hubin area for several times to meet the constantly changing needs of the time.

The reconstructions based on different needs of the time have influenced the changes of city-nature boundary. Through diachronic research, the paper divides the evolution of Hubin area in recent years as four major stages according to its dominant functions, including lane housing stage, new urban area stage, people's part stage and CRBD stage. Different dominant functions and relevant social factors have significantly influenced this boundary area in many respects including its openness, accessibility, density and enclosure degree of adjacent city and so on. As the bond of urban area and landscape, Hubin area also changes with the boundary and fabric, and shows unique advantages in urban expansions.

The research on the evolution of Hubin area has demonstrated the advantages and disadvantages in the evolution process of open and closed, public and private, large-scale and medium and small-scale buildings in city-landscape boundary and adjacent streets. It has provided basic guides for urban development in the future and also offered reference for the city-landscape boundary of other cities in China.

### ***Keywords***

*Transformation, city-landscape boundary, urban fabric, dominant function, social factors, openness, accessibility*

## **Study on urban morphological characteristics and evolution in Lhasa**

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### ***Abstract***

With the rapid development of urban modernization in Lhasa, urban morphology is facing unprecedented challenges, and there is a great contradiction between the protection of cityscape and the development of modernization. According to the individuation of Lhasa city and the special factors of Tibetan culture, this paper analyzes the collision between the urban traditional spatial form and modernized spatial form through the comparison between the spontaneous growth pattern and unitized layout pattern in Lhasa.

The spontaneous growth pattern is mainly represented by the areas formed by Tibetan Buddhism culture gravitation ,such as the Jokhang Temple Area and the Sera Monastery Area, and the communities formed by the citizens' independent construction ,such as the Gamalgongsan Community and Cusongtang Community), and the unitized layout pattern is the compulsory planning area mainly built by the government ,such as Chengguan Garden, Tibet Convention and Exhibition Center, Yu Tuo Road block. This paper analyzes and describes the urban texture, the street spatial features, the architectural prototypes, the environmental landscape elements, the architectural skin features and the living conditions of the citizens under the two models, and quantitatively compares the spatial morphology indexes ,such as building height, building density, floor area ratio, street aspect ratio, etc . This paper attempts to explore the development features and evolution patterns of the urban morphology in Lhasa so as to provide theoretical support and reference for the research of individualized and localized urban forms in Lhasa and other Tibet cities in the future.

### ***Keywords***

*Spontaneous growth pattern, unitized layout pattern, morphological types, Tibetan culture, Lhasa city*

## **The evolution of Chinese Work Unit System and its influence on plot development: the case in Nanjing**

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### ***Abstract***

Social and economic policy has a profound influence on urban form development, besides urban planning, urban coding and site indicate. With the different backgrounds of social and economic policies, the managements of urban development are discrepant, thus the outcomes of urban form are diverse. In New China after 1949, the state chose the Work Unit System as a social organization form, and at the same time, the Land Utilization Planning System was chosen as Land management policy. This made China's urban construction management and urban form development proceeded on a unique road: instead of plot development, danwei actually acted as the carrier of urban development. Taking Workers's Cultural Palace as a typical case, located in central district of Nanjing City, this paper illustrated its nine stages of plot development from 1946 till now. The detailed analysis revealed the intimacy between plot development and the relevant social managements in China, and interpreted the unique relationship between danwei development and national vision, urban development, land policy and urban planning. Through a profound and overall investigation, the specific way of social influence on plot development in Nanjing can be proved. At the same time, this paper presented the meaning and role transformation of plot in process of urban form configuration in China and eventually further deepened the understanding of present tangible form.

### ***Keywords***

*Plot development, social organization, Chinese Work Unit System, danwei, land policy, Nanjing*

## **Morphological analysis of settlements in the Arctic: a comparative analysis of four settlements with diverging ideologies on Svalbard**

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### ***Abstract***

The Norwegian archipelago of Svalbard contains the northernmost permanently inhabited settlements in the Arctic region. Two of these are Norwegian settlements: the ‘capitol’ Longyearbyen was founded as a coal-mining town. Ny-Ålesund is today an international research settlement. The other two, Pyramiden and Barentsburg, are Russian coal mining towns, constructed during the former Soviet Union. The four towns are separated from each other due to the extreme climate and landscape. Each town has its own local community with limited possibilities to interact with the other towns. Therefore, they represent unique cases for understanding the relationship between economic system, two diverging political ideologies and built form.

In this inquiry, comprehensive morphological analyses are made of the street network configuration, urban form and the functional distribution pattern to reveal the differences in settlement patterns. The tools used are those that constitute the three primary elements of the natural urban transformation process: Space Syntax (Hillier et al., 1993), Spacematrix (Berghauser Pont and Haupt, 2009; Rådberg, 1996) and the Mixed-Use Index (van den Hoek, 2009). The theory of the natural urban transformation process suggests that the spatial configuration of the street network guides urban developments (Ye and van Nes, 2014). Along well-integrated streets, the building density and the mix of public functions tends to be higher than along segregated streets, which tend to be more mono-functional.

The analysis reveals that political ideology influences the types and distribution pattern of public functions. In capitalistic/liberated economy types of settlements, public functions along well-integrated streets consist of commercial facilities such as shops, bars, restaurants, vinmonopolet (alcohol sales point), offices, educational, governmental and cultural institutions. Since commercial functions are lacking in (former) communistic/state controlled economy types of settlements, it is housing, cultural and social facilities and Lenin’s statue that are located along the most highly integrated streets.

### ***Keywords***

*Natural urban transformation, Space Syntax, Spacematrix, Mixed-Use Index, arctic settlements, political ideology*

## **Transformation of the Morphology of Sheesanhang Historical District in Guangzhou**

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### ***Abstract***

This paper studies the transformation of the morphology of Sheesanhang historical street block in Guangzhou from 1715 to 2018. The Sheesanhagn used to be the single port of Qing empire for hundred years, which is a symbolic and commemorative cultural landscape that records China's transformation from ancient society to modern society. Today, with a lot of master pieces, it has become a valuable historic area. The morphology of Sheesanhang went through a significant transformation process from suburb commercial port wharf into inner city commercial tourism district during different periods of time, through several destruction and rebuilding. Through a diachronic study, the morphology of Sheesanhang in different periods can be presented in several diagrams. Based on the comparison of the textures and the background events of different stages, the author tries to find the social, cultural and technological factors behind the morphological evolution. The four transformation periods are summarized as: commercial port wharf of national level, commercial port wharf stage of provincial and municipal level, commercial and residential mixed area, commercial and tourist district, wholesale market gathering area. The different characteristics of the urban form and the constituent elements in each period reflect the changes of transportation mode from water transportation to land transportation as well as the social condition from foreignization to localization and eventually to capitalization. The research of Sheesanhang presents the influence of social forces on morphology, which enlightens policy making for urban regeneration and heritage preservation in Guangzhou's historical districts.

### ***Keywords***

*Morphology, transformation, historical district, Sheesanhang, social force, transportation mode*

## **The development of sport facilities in Krasnoyarsk in connection with the 29th World Winter Universiade 2019**

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### ***Abstract***

Krasnoyarsk has always been a city of an active development of winter sports, a city where Spartakiads of Peoples of the USSR have been held. During the Soviet period, many facilities for cross-country skiing, downhill skiing and luge were built. In the 2000s, a ski resort Bobrov Log, a multifunctional facility Biathlon Academy and an ice stadium Arena Sever were built in Krasnoyarsk to comply with international standards. The implementation and successful operation of these facilities, an expanding engagement of local citizens in sports, especially of youth, the collaboration of the Siberian Federal University with the Russian Student Sports Union, the strengthening of the economic status of Krasnoyarsk and the ambitions of the government have become the basis for the city's application for hosting the XXIX World Winter Universiade.

The approval of Krasnoyarsk as the capital of the 2019 Winter Universiade by the FISU (International University Sports Federation) gave a start to transformations in the city, primarily to the construction of new sports facilities and improvement of existing ones.

This article discusses in detail nine major sports complexes which will host competitions in eight main and three additional sports. Five existing sports facilities are undergoing changes, they are being reconstructed to fulfill FISU requirements. Four sports complexes are being built anew on new sites or at the site of complete dismantling of old structures. Particular attention is brought to the architectural and spatial organization of a multifunctional complex consisting of several clusters, the Winter Sports Academy complex, focusing on both the project version and the version that is being implemented. The creation of this extensive sports complex for cross-country skiing, snowboarding, freestyle skiing and ski orienteering has caused significant changes in the landscape and habitual appearance of the Nikolayevskaya Sopka mountain.

A significant socio-economic effect is expected from the World Winter Universiade 2019. Krasnoyarsk will become a center of attention of the world sports community and tourism. Sports and infrastructure facilities will become the "legacy" of the Universiade and will serve the city, making the lives of citizens and city visitors more diverse, supportive and eventful.

### ***Keywords***

*Universiade, winter sports facilities, ice arena, cross-country ski and downhill ski resorts*

## **Space of Justice: Planning as a Tool for Providing Social Equity**

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### ***Abstract***

Social inequality is a stumbling block for sustainability of urban communities. Unaffordable housing, unfair distribution of public resources, inaccessible transportation and discrimination in access to policy-making are widespread causes of social tension, conflicts and riots. Many of these problems are the result of certain planning decisions.

Always being a part of urban policy, planning was often used as a tool for controlling and oppressing lower class and minorities whether openly or indirectly. However, since late 19th century, when most of the largest European cities faced a real threat of social collapse, planning concepts positioned as a remedy for broken social order started to appear. The idea of providing equal opportunities for realization of human needs went through most of planning models from first-half of 20th century, such as Howard's 'Garden City', Perry's 'Neighborhood Unit' or soviet 'Microdistrict'. At the same time, implementation of this idea differed significantly depends on the political and socioeconomic background. While soviet planning was focused on providing equal living condition 'top-down', including housing standards, infrastructures, social services and transportation, US and European tradition of equity planning developing since late 1960th was more concerned with a process, particularly with involvement of potentially discriminated social groups in decision-making. This difference in realization of the idea of social equity in planning in post socialist and capitalist cities is in the focus of this article.

The article also argues that social equity in planning can be measured by access to realization of human needs and desires, which could be presented hierarchically, similarly to Maslow's Hierarchy of Needs: from most basic, such as adequate housing or primary social services, to more complicated including decision-making power and cultural identification. The question is how can planning process and urban environment it shapes provide equal conditions and opportunities for every citizen. It is not only a matter of professional ethics, but also a key for safe and sustainable cities.

### ***Keywords***

*Social sustainability, equity planning, accessibility*

## **Evolution of the city borders of Saint-Petersburg – Leningrad (the end of the XIX –the end of the XX centuries): causes and results**

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### ***Abstract***

The city borders of Saint-Petersburg – Leningrad were changing in this period under the influence of the political, social, economic and ecological factors. Up to the end of the 1870-ies Saint-Petersburg was developing in the evolutionary way, without the definite regulations. In 1880 the elective city bodies – the City Duma and Uprava worked out the city “Plan of regulation of Saint-Petersburg”, which was confirmed by the Russian Emperor Alexander the II. According to this Plan, which had the status of the Russian Law, the city borders were defined by the administrative division of this city. According to this Plan, the capital of Russia developed up to 1917.

In spite of the heavy post-revolutional period of the 1918 – 1920, architectural activities survived in Petrograd and was connected with the names of well-known architects Ivan Fomine and Lev Iljine. In 1924 Petrograd was renamed into Leningrad. In the Plans of this city, worked out by these architects, the city borders were moved to the North. Here were the territories, favourable for the dwelling developments. But in the General Plan of Leningrad, confirmed in 1935, the orientation of the city development was changed under administrative orders. The city was planned to develop towards the South and South-West up to 1941. The city borders were also changed in these directions.

During the World War II, the southern periphery of Leningrad was heavily destroyed. As the result – the configuration of the city borders was changed in the new General Plan, confirmed in 1948. The city was planned to develop towards the North and North West, towards the Gulf of Finland. In the General Plan of 1966, this orientation of this development was preserved, but the city periphery and borders were enlarged also towards the South and South-West. This configuration of the city borders remained up-to day, in spite of the radical changes of 1991.

### ***Keywords***

*Saint - Petersburg, city borders*

## **From monocentrism to polycentrism of the Russian city**

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### ***Abstract***

The active processes of urban community development in the Russian city – the forms and patterns of consumption, the increasing mobility, the intensification of information and cultural exchanges, self-organization of residents and other phenomena – now determine the processes of its transformation. The unevenness and heterogeneity of the territorial development are intensified against this background, the urban fabric becomes more complicated, the needs of the population are changing, and the communication flows are transformed. In this situation traditional approaches to the study and formation of the urban environment can not cover the entire spectrum of the emerging issues. The emerging urban development processes are not described by the traditional parameters, it is necessary to consider other methodological principles.

The article concerns the results of studying Krasnoyarsk as a discrete entity. The urban territory is dismembered by large industrial zones, communal and warehouse territories, railway exclusion zones, and the complex terrain which caused its "patchwork" character. There appeared the problem of discrepancy between the monocentric idea of the general plan of the city development and the actual processes taking place in the city. The separate territories of the city became the object of the research. These urban territories due to their internal characteristics and easily detected boundaries are able to exist as self-sufficient urban units. Allocation of such units, their description, analysis and systematization made it possible to identify the basis for developing the necessary program for transforming each of these territories into a comfortable urban space. More than 15 urban units were identified and analyzed in accordance with a number of parameters: function, planning, architectural and organizational concepts, economics, social sphere and environment. It becomes possible to work out targeted scenarios for the development of each urban unit. The allocated urban units are considered as self-sufficient formations and specific architectural and urban development objects.

The generalization of the available materials allows concluding that the allocation of self-sufficient urban units and their flexible integration will make it possible to move from a monocentric to a polycentric model of a city structure.

### ***Keywords***

*Self-sufficient urban development unit, comfortable urban space, targeted development scenario, polycentric model*

## **Influence of Universiade to city life**

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### ***Abstract***

The cities can express themselves and get new stage of development thanks to mass media, cultural and sport events. Accessibility of information and developed logistics make it possible to host world significance events in different cities, countries and even continents. In this article we will discuss the Universiade as an event that has a significant impact on the city-development and emotional background of the city. World Student Games is a good chance for young sportsmans, it is new acquaintances and business relations for citizens. Such event requires thorough preparation and rich financial investments. On economic side, there is important question of the effectiveness of investment and payback. On the side of city develop rather important assess and understand the depth of influence and quality of the changes that the Universiade will bring.

For analytic work, we took such cities as Almaty and Kazan witch already held a Universiade. Now it is possible to assess the preparation, using and further development of the city environment after its completion. The third city is Krasnoyarsk. Preparations for Universiade-2019 are going todays and we can make assumptions about its impact on urban environment. Universiade affects almost all areas of citizens and city life.

Events of this magnitude can be divided into three stages:

- 1.Preparations: construction repair work, roadworks, inflow of investments, new workplaces, active volunteer training, possible discomfort of citizens.
2. Conducting: most intense time for city-organizer. Influx of guests and tourists, volunteerism and active interaction of citizens and guests, the service sector has a maximum activity, there is high spirits of citizens in this time.
3. Completion. The city remains alone with itself. If before that city worked for mega-event, now mega-event works for the city: new objects, infrastructure, volunteers, received new experience and knowledge, citizens, inspired by past events, all this develop the city in case of positive experience.

At each of these stages city gets a new experience, citizens feel the changes, but how effective will they be? The Universiade is a chance to develop the city not only from the point of view of new sports facilities, but also to review the entire infrastructure and work out gaps in the already existing environment.

### ***Keywords***

*Universiade, city life, adaptation of the urban environment, sport and city, community, city-development*

## **The Influence of Urban Life on the Urban Form of the Residential Units: An Interpretive Review**

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### ***Abstract***

At the beginning of the 21st century, physical degradation, social contradictions in society call for scientific criticism and provoking the search for solutions to the functional and planning adaptation of the residential environment to the modern dynamic processes of vital activities of the population.

Problems of social stratification, the development to the management system of housing and communal services, the integration of production activities in residential structures lead to new planning forms and the modification to the morphology of residential areas.

The newest types of planning structure of the residential environment different in content and structure penetrate into the world practice of architecture and town planning.

The paper is based on consideration of the peculiarities of socio-cultural practices on the relationship between the vital activities of the population and the planning forms of the residential environment.

### ***Keywords***

*Urban life, residential units, community, urban form*

## **Planning codes and the emergence of anti-urban form**

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### ***Abstract***

The result of recent urbanisation in Brazilian cities has been consistently described by the use of images such as ‘gated city’, ‘anti-urban typologies’, or ‘the city of walls’. (Caldeira, 1996a, 1996b, 2000; Figueiredo, 2012; Netto, 2017) Such images reflect a narrative of loss (Arefi, 1999) regarding the connection between places and people. They reflect a dominant pattern of segregation in cities, what is sometimes described as ‘anti-urban’. As cities continue to transform following this anti-urban model, the risks of exacerbating social and spatial divides increases and possible progressive responses are made very difficult. Segregation in this context follows a new logic, no longer a mere opposition centre-periphery but a hybrid and intertwined set of “...architectural typologies, spaces and transportation systems that favour a few ways of life over all others.”(Figueiredo, 2012, p. 1)

Some of the recent developments of this discussion about urban form and segregation have focused on the street interface. This interface is described as the place to negotiate the demands of both the private and public realm and to provide the means or affordances to sustain public life.

This paper investigates the connections between urban morphology and planning design codes and normative in a Brazilian city, Recife. It describes the associations of the street interface with planning. The initial phases of the research (Carvalho Filho & van Nes, 2017; Carvalho Filho, Van Nes, Filho, & Van Nes, 2017) revealed significant relations between the spatial parameters regulated on planning instruments and the emergence of several typologies of the street interface. One of these types, building with blind plinths, resonates characteristics of the anti-urban typology described in the literature (Caldeira, 1996b; Figueiredo, 2012). Correlating in time the changes in parameters present in the planning codes with the emergence and spread of this typology in Recife demonstrates that the methodological approach of the research can identify relations not so evident currently between planning and urban form and the possible implications for public life.

### ***Keywords***

*Segregation, planning codes, ant-urban form*

## **The Influence Mechanism between Land System Reform and the Transformation of Village Plan Taking villages on Hangjiahu Plain as an example**

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### ***Abstract***

Taking villages on Hangjiahu Plain as examples, this article explores the influence mechanism between the land system and the morphological evolution of villages from 1940s to 2010s. Land system imbedded in Chinese villages and towns comprises two dimensions: political and social, the interaction of which imposes a decisive impact on the village's planar morphology. In terms of political land systems, the research object witnessed five periods: Land Tenancy, Land Reform, People's Commune, Land-Contract Responsibility System, and New Rural Construction. Each period burned a legible mark on the village's spatial structure. In the other hand, pushed by densification of population, social land system specified by social relations is activated. It defines the specific boundary between different households and impacts tangible spatial feature of a village and the typo-morphology of rural houses.

This research reveals forces of those two dimensions on village plan, political and social. The crash of these two dimensions results in redundancy in land-use. Such redundancy can only be assimilated through intangible, implicit boundaries defined by social relations rather than explicit form-shaping policies.

### ***Keywords***

*Land system, village plan, social relations, land property, boundary*

## **Urban regeneration under the influence of society, culture and policy Comparison of Three Historical Streets (Areas) in the Former French Concession in Shanghai**

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### ***Abstract***

With the continuous development of the globalization and the urban regeneration in contemporary China, comprehensive improvement becomes a common phenomenon. It also has been widely noticed by the public, however, “large-scale demolition and reconstruction” methods have been highly criticized at the same time. The three historical streets (areas), Yongkang Road, Xintiandi Area and Tianzifang Area, in Shanghai's former French Concession, have witnessed varying degrees of micro-renovation and comprehensive improvement in the past 30 years and eventually show a completely different space status.

By analyzing and contrasting the diagrams between the histories of the three streets (areas), the change of trade form, the evolution of urban form, the regeneration of street space and the use of the crowd, it shows that the social, cultural and policy have a significant effect on Yongkang Road which is plebification, Xintiandi Area which is a classical gentrification area in Shanghai and Tianzifang Area which is gradually from plebification to gentrification as well as lead them into a different way. The author attempts to reveal the similarities and differences of socio-cultural forces behind each street (areas) in order to explore the different spatial consequences and impacts of various forces: features and advantages, challenges and difficulties. The study of three historical streets (areas) in the former French Concession showed the influence of social and cultural policy forces on the urban morphology in different areas and inspired the formulation and improvement of street policies in the urban renewal of Shanghai.

### ***Keywords***

*Comprehensive improvement, historical streets (areas), urban regeneration*

## **Critical junctures and urban form: the morphology evolution in Yuzhong district, Chongqing, China, 1949- 2010**

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### ***Abstract***

Southwest China's Chongqing is a city with unique development history which experienced critical junctures; this study carried research on how those critical junctures influence the city planning, especially concerning the urban form. First, it collected and organized political, economic and cultural events in Chongqing from 1949 to 2010, and then analysed how its city planning responded to them, focusing on the macro scale issues of system of cities. Then it studied the urban form evolution of Yuzhong district by tracing the change of land use and texture. Furthermore, it traced the evolution of motive forces in Chongqing. The analysis has led us to the conclusion that:

- 1) Critical junctures constitute a special kind of motive forces for urban form evolution in Chongqing. In Modern Chongqing's development, instead of economic and social accumulation, the major motive forces were political forces;
- 2) According to the special position and natural geography, Chongqing persisted in the principle to develop into a polycentric city which is different from many other Chinese cities and laid the foundation of sustainable development;
- 3) On the city scale, critical junctures constituted pivotal motive forces in Chongqing's urbanization, especially by giving the priority to natural geography and continually developing the polycentric structure. On the district scale, land uses became more diverse and mixed; also, the dense development of traffic system made the texture denser, while the natural geography was generally respected.

The result of this study shows that Chongqing has built a comprehensive development framework for settlement hierarchy structure, transportation, economy and ecology. For the future, it should pay more attention to improve its infrastructure, conserve its historic heritage, strengthen its identity as a city of mountain and river, and achieve greater livability and sustainability both ecologically and socially.

### ***Keywords***

*Urban form; mega-events; motive force; China.*

## **Transformation of the Typo-morphology of Columbia Circle in Shanghai Changning District**

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### ***Abstract***

This paper studies the transformation of the typo-morphology of Columbia Circle in Shanghai Changning District from 1931 to 2018. Columbia Circle was initiated as a real estate project and became a valuable historic area with master pieces. The typo-morphology of Columbia Circle went through a significant transformation process from suburb to inner city during different periods of time.

Through a diachronic study, the typo-morphology of Columbia Circle in different periods can be presented in several diagrams, which locate the specific variants of morphology in each period. Based on typological reading, the authors aim to explore the rules of transformation process which reveal the social and cultural forces behind it. Some questions are raised in this research. What is the typo-morphology transformation process of Columbia Circle? How to define the different periods of time according to the typo-morphological features? How is the current typo-morphology changing? How the physical transformation reflects on the changing of social conditions of Columbia Circle? After a preliminary study, The authors find that five transformation periods are concluded in main construction period, second phase construction, plan lot subdivision, property subdivision and property reunification. The specific characters of urban morphology and building types reflect the changing of social conditions in concession, from construction to localization and eventually to gentrification.

The research of Columbia Circle presents the influence of social forces on typo-morphology, which enlightens policy making for urban regeneration and heritage preservation in Shanghai's historical districts.

### ***Keywords***

*Typo-morphology, historic area, urban regeneration, social influence*

## **From formal to informal: resilient urban index for housing typologies in new urban communities: (6th of October city)**

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### ***Abstract***

The term "informal" in developing countries has witnessed continuous changes due to many influences factors as; the rapid urban growth of cities, problems in crisis management, the excluded Social practicing from the communities developing plans, and continuous attempts by communities to meet the ongoing urban challenges, those changes is a different facet of the informality traditional morphology that the governance policies and urban planners in Egypt lose the control with. Thus, the term "informality" is folding new characteristics and transformed urban forms. So, the replacement projects in Egypt can be considered as a living example of these new typologies of informality, and the un-coexistence between the displaced communities and the new urban environment is lacking the adaptation, and the public services provision.

The research is seeking to debate and question the informality of a new particular social housing typologies' Masakin Uthman' as a relocations plans of the governmental housing projects that emerged in 6th of October city in Egypt as an internal forced displacement of the low- income families that have natural crisis causes that hit their slums dwellers and are suffering from urban adaptation of a physical built environment that lack most of public economic and social services. The need for resilience response plan with immediate interventions is proposing in the research as it cuts across multiple lines and parties, reaching a conclusion of interactive plan with governance processes, sectors, and community participation that should be cooperated in such volatile community that has the right for adequate housing.

### ***Keywords***

*Resilience responsive plan, adaptation, informality, urban complex system, service provision*

## **The evolution of urban public space under the social influence: A case study of Savannah Historic Block**

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### ***Abstract***

This article discusses the evolution of urban form and public space influenced by the development of society based on the intensive research on the wards in Savannah Historic District.

Savannah Historic District consists of 22 wards, almost preserving the original urban planning of James Oglethorpe, the founder of Savannah city. In the process of urban development, new architectures and functions appeared, like the Jepson Center Arts Museum and some big parking buildings. The gradual changes of the surrounding buildings and constantly changing of people's demand influenced the street scale and public space.

Street is an important form of urban public space, whose scales and structure are closely linked with cars and pedestrian. In Savannah Historic District, each standard unit is approximately 205m\*205m, with a pocket square in the center. Each ward consists of four Tything Blocks and four Turst Lots. Eight street types and various public space forms are shown in and between these wards.

Through analyzing the changing texture of blocks and streets of this district, this article analyses the adaptability of the original planning layout. The results of the analysis can be used for the renewal and development of the public space system in other "small-unit" historical blocks.

### ***Keywords***

*Urban design, renewal, Savannah, ward, public space*

## **Social context as a catalyst for the evolution of the realized utopian model of urban morphostructure: the case of Togliatti, Russia**

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### ***Abstract***

The article is devoted to the study of the influence of the social context on the evolution of the morphological structure of the realized model of urban planning utopia. The phenomenon of Togliatti is the unique case for the analysis of the changes in its urban morphology - from the utopia of the industrial center with the features of the "Radiant City" Le Corbusier to the modern pluralistic, polyfunctional city.

Avtozavodsky district of the city of Togliatti is a large industrial center of the city, the structure of which embodied the flow-functional scheme of the "ideal socialist city" proposed by NA. Milutin in the 20-30s of the XX century. Under the leadership of VA Shkvarikov. and Rubanenko B.R. in 1967-1968 in a flat relief was laid a regular canvas, which functionally divided the structure into a recreation zone along the Volga, a residential development with a city center, a sanitary protection and industrial zone. Public buildings were conceived as separate objects, "floating" in the space of vast esplanades, framed by traffic routes. As a result, the master plan developed into a system fully in line with the Athens Charter and ideal views of the modernist city, but conflicted with the views of the city as a concentrated environment.

Today Togliatti is beginning to realize this problem. There is a change in the internal planning structure as a result of the restructuring of the tissue and changes in morphology - a closed microdistrict character is reborn into an open quarter. The auto giant is trying to solve the problem of the lack of unity of the city structure. If the original utopian model of the city had the features of modernism, today this avant-garde model begins to bear conservative features in accordance with the new model of ecological thinking.

### ***Keywords***

*Ideal city, modernity, realized utopia, urban morphology, Togliatti*

## **The city anomie**

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### ***Abstract***

The transition period is an objective state of modern society. It is presented in a number of sciences and concepts: the state of transition from an industrial society to a postindustrial one, from the analogue to the digital world, from one technological paradigm to another.

By analogy with many related sciences, the crisis period was called the anomie. In sociology the anomie is the absence of a clear system of social norms, the destruction of the cultural unity, so that people's life experience ceases to correspond to the ideal social norms. More generally, the anomie characterizes the state of crisis, chaos, disintegration and decay.

The transition from an industrial society to a postindustrial one is inevitably accompanied by a state of society anomic disintegration.

In order to understand the modern city state, it is necessary to consider the dynamics of its development, to diagnose the period of recession or recovery and to understand what the reason of it was.

The key point of this work was to trace the relationships between social and historical changes with the periods of cities development and stagnation.

As a basis, there was taken the theory of world cyclic development, which distinguishes three global waves of civilization in world development: the agrarian, the industrial and the informational. Each wave forms a civilization unique in its outlook and structure. It is extremely important that the values of the new wave are born not by an evolutionary, but by a revolutionary way, and, therefore, is provocative for the old way of life.

Russian scientist S. G. Kara-Murza notes the importance of the anomie of the society state: «the anomie is such a phenomenon that, looking through it, you can examine and understand almost all areas and sections of the present-day Russia. Today, any process or event in Russian society should be approached, armed with knowledge of the anomie, as a touchstone». In the process of the research, a number of crisis periods and the range of global problems characteristic of modern cities were also revealed in connection with the town-planning plane. Three main groups of manifestations of the city anomie were singled out: socio-cultural, economic-administrative and spatial. Accordingly, for each block of problems, a number of cases were selected and response methods were developed for their overcoming.

### ***Keywords***

*Cyclic global processes, stages of society development, civilizational waves, anomie, tendencies in city planning theory and practice*

**TOOLS OF ANALYSIS**



## **Assessing Street Spatial Character: Combining Fractal Analysis of Street Edges and Skyline**

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### ***Abstract***

The character of urban space is a hot research point in urban morphological studies. James J. Gibson's research proved that the physical morphology is better to be measured by the visibility of the geometry rather than the geometry itself (Batty 2001). There have been many approaches such as sky view factors (SVF), which developed a 3d viewsphere model to measure the spatial openness, and fractal analysis. The fractal analysis of street edges proposed by Jon Cooper is one of the most helpful index describing spatial character because it directly reflects the space shape cognized. However, the height of street wall (or edges), one of the most important dimension concerning the spaces, was not involved yet. Following Cooper's research, this paper tries to introduce the height of street wall into the fractal analysis of street edges.

Firstly, we chose several streets in center of Nanjing city with various widths and building heights along the street. Through setting viewpoints within the street, the geometric relations between all edges and points were built, so did the skyline. Furthermore, combining SVF techniques, we have developed the 3d viewsphere model as a tool to get continuous visual perception data of street and the heights of the street walls related. According to visibility theory, the street spatial character could be described and generated, vice versa.

Finally, this paper tried using the spatial configuration codes based on the fractal analysis and data-graph of perception to generate a new street with the similar spatial characteristic of street. It proves the value of the research as an operating tool of urban design.

### ***Keywords***

*Spatial typology, view sphere, data-graph, fractal analysis*

## **Tools of analysis in urban morphology**

### **Systemic decomposition as a method for the fabrics reading**

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#### ***Abstract***

The urban fabric interpretative reading requires the use of processes and tools that allow us to understand its formation. The use of these methods is particularly relevant in the case of urban fabrics with less recent or less erudite origins and which lack substantive documentary sources other than the object itself.

Resorting to the material collected and used in a research project on urban form in the specific cultural context of the Portuguese city, the systemic decomposition methodology was tested applied to different urban fabrics, from different homogeneous morphological regions, to organize them by categories and refer them to classes of urban models.

In this sense, the systemic decomposition of fabrics was stabilized in three different reading tools: 1 the urban layout; 2 the plot system; and 3 the theoretical grid. The decomposition is applied in a standardized way to all case studies in order to make them easily comparable and allowing the deduction of constancy laws.

The subsequent organization of the layouts and grids by categories of morphological affinities and consequently the fabrics organization (orthogonal grids, cruciform, mono axial, etc.) allows to fill the information gaps in the production and constitution process of fabrics, validating the undocumented cases from cases supported by abundant information.

The use of substantially different nature fabrics as examples, such as new towns, industrial fabrics or informal occupations in the comparative process, highlights and allows validating systemic decomposition as an auxiliary tool for the reading of urban fabrics.

#### ***Keywords***

*Urban Morphology; Portuguese City; systemic decomposition*

## **A Quantitative Approach Measuring Streetscape**

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### ***Abstract***

Since 1960s, Kevin Lynch had raised the importance of people's perception of urban space, as the part of it, the role of the street spaces became very important, so did the streetscape in the research and design aspects. Usually the photo pictures or street perspective drawings are used to indicate the streetscape for studying, which means that the three-dimensional street space has to turn as two-dimensional object. For this reason many researches tried to further study photo pictures or street perspective drawings for developing spatial measuring tool, our work belongs to this field. The previous study has shown the street widths and heights of side buildings could be evaluated based upon the streetscape image or perspective drawing, however, there are questions needed to answer. If street photo reflected streetscape of human's view experience, how the perspective drawings refer to the relevant street photo? What are the regularities between street width, building height, position and lines of drawing? And how to judge the height of an object in perspective refers to real height of the building in the city. All those questions are worthwhile to be studied for urban design.

This research tried to develop a method or tool for measuring urban street spaces based upon the street perspective drawings. The various street experimental digital models were built according to the urban regulations and 2D measurement scales were established simultaneously for measuring and statistical analysis. Through statistical analysis we have found the answer, and then measuring tool could be made. Finally we have validated the tool by testing real street view, the results will be discussed. This experiment successfully shows the possibility of street space measurement by using 2D perspective drawing, which is useful tool for architects and urban designers.

### ***Keywords***

*Streetscape, street space, quantitative approach, urban design*

## **Urban morphology and process typology: strengthening research and practice**

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### ***Abstract***

Despite the increasing interest in the exploration of the intellectual links between geographical urban morphology and architectural typology, the development of a more integrated framework for the purpose of planning and urban design is limited. Urban morphology is fundamentally concerned with the geographical explanation of the spatial structure of urban form; architectural typology is intrinsically inclined to develop a theory of architectural and urban design for the creation of new urban form. Stimulated by the growth of population and economic activities, Auckland is undergoing rapid transformation. By using the ideas of morphological units and typological processes in tandem, this paper illustrates the analytical techniques for a morphological investigation of the spatial structure of urban areas and the way in which morphological research can underpin typological planning for guiding future urban developments and other changes that are place-based and responsive to established community character.

### ***Keywords***

*Morphological units, typological processes, urban landscape character, development control, Auckland*

## **A parametric design framework for spatial structure of open space design in early design stages**

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### ***Abstract***

The notion of parametric urban design has become a phenomenon recently. Researchers have been searching for various parameters related to urban morphology. Tremendous efforts have also been put into investigating how parametric modelling could be adapted for designs in both large and small scale urban plans. In parallel, there has been increased concern on the issue of urban sustainability. Specifically, numerous studies attempted to deal with human comfort in urban spaces, which can be categorized under social sustainability. As performance evaluation should be an essential part of parametric modelling, it will be natural to ask how environmental performances, which directly affect human comfort, can be incorporated into parametric urban design process.

However, previous studies concerning parametric urban design and environmental performances in terms of human comfort mainly focused on searching for optimized designs. Even worse, most of these studies were primarily about the environmental performances of the final design solutions. Since human comfort should not be the only criterion in urban design, it is of importance to generate design options which can yield similar comfort levels for further design explorations. This is especially important in early sketch design stage since a lot of decisions in this stage will restrict the environmental performances of the final design solutions. However, designers usually do not consider this issue at the beginning of the design process as there is no proper tool to incorporate human comfort in early design stages. As a result, the primary objective of this study is to layout a parametric urban design framework which can generate design options with similar human comfort levels in sketch design stage. Green open spaces, which are considered basic elements of urban fabric, and thermal comfort constituted by trees in these spaces will be adapted to demonstrate how the design framework can guide the development of a parametric model for generating options. Models developed within this framework should help designers to optimize design solutions in terms of parameters such as urban geometry, open space size and proportions, as well as human comfort, when designing urban spaces.

### ***Keywords***

*Parametric design, green open space, thermal comfort, early design stage*

## **Influence of the electric transport system on the development of the morphology of the city of Krasnoyarsk. Analysis using open big data and GIS**

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### ***Abstract***

Public electric transport has a number of advantages in the environment of a modern city. It is environmentally friendly, safe and comfortable, has a high speed and can carry a large volume of passenger traffic. Unfortunately little attention is paid to it in modern Krasnoyarsk. One of the reasons is the fear that new transport systems could change urban morphology greatly and will need wide reconstruction.

Electric transport is the most rigid planning system. It is connected with electrical systems - wires and rails. The laying of electric transport lines requires a large number of allocated territories. Also, Electric transport crosses an automobile road network. And intersections of roads lead to the formation of multifunctional nodes. In these nodes, relationships arise between different morphological structures. Electric transport provokes the transport-oriented development of urban areas. In this regard, there are areas of transport-oriented development (TOD).

There are three types of public electric vehicle in Krasnoyarsk currently: an intra-urban railway transport, a tram and a trolleybus. Interact together is inefficient in the city's transport system. The study is devoted to the relationship between electric transport and the urban morphological system, as well as the impact on transport-oriented development in the city of Krasnoyarsk.

The development of the city's transport system will create increasing amounts of data continuously. Russia lags behind in the development of transport modeling to big data. Problems of transport planning, the analysis, control and also introduction and use of new types of electrical transport on the basis of open systems of big databases as the skeleton for the urban morphology are relevant today. Conducting studies on comparing the assessment of the functioning of electric transport, depending on the needs of the city's population, keeping traditional or enhancement of urban morphology if need in this regard becomes possible with the availability of an electronic transport model of the city.

### ***Keywords***

*Open big data, transport-oriented development, electric transport, transport model, transport planning*

## **Big data rating systems as an effective method of visualizing the quality of urban structural units**

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### ***Abstract***

Big data is the basis for new technological changes. Constantly growing volumes of arrays greatly complicate the processing and understanding of data. Big data analysis extracts knowledge and meaningful information from large and complex data sets. The extraction of information displays regularities hidden in the data.

Modern cities use the latest technologies to support sustainable development and a high standard of living. The indicator of a high standard of living of the urban population and, consequently, an indicator of a quality city is the quality of the urban environment.

To evaluate the structural units of a city, the most common method is rating. Rating systems based on big data are the most effective method of visualizing the quality of structural elements of a city. Innovative ways of collecting and analyzing data are gradually replacing obsolete mechanisms of city management. Unlike statistical data, which are out of date by the time of their analysis, big data can be processed in real time, which increases the quality and speed of decision making. The complexity of big data methods implementing in rating systems is caused by problems of staff shortages, technical equipment, legal rights, security problems and openness of data. Ranking quality systems of the urban environment can be used by the city administration, designers, civil communities to assess the current state and management of the urban environment.

The creation of such rating systems is the first step towards the formation of smart open data-driven cities. The introduction of big data into cities can be divided into three levels as the influence of data on urban governance increases: applied (open data city); semi-autonomous (data-driven city); autonomous (smart city).

### ***Keywords***

*Big data, cartography data, rating systems, urban environment quality*

## **Parametric modeling of urban development**

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### ***Abstract***

The article deals with parametric modeling, transforming the silhouette of the city. The examples of urban architectural dominants built in the last twenty years in different countries of the world are studied. The examples of parametric architecture that influenced the topological frame of cities are analyzed. The basic principles of parliamentarism and the phasing of increasing importance in urban development are revealed.

### ***Keywords***

*Computer programs, parametric architecture, modern technologies in design, three-dimensional graphics, urban morphology*

## **Efficient design of urban spaces based on quasi-energy hypothesis**

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### ***Abstract***

The directions of effective development of urban areas are defined as properties for reproduction and homeostasis of urban environment, and system engineering features of artificial social formations. Effective for this purpose will be the analysis of urban areas as the environment, have the potential for the emergence and stable maintenance of the process of evolutionary development (heterostasis). Identification of the current heterostasis potential, conditions of the expected heterostasis, resource-saving creation and further maintenance of such conditions, in many respects, will determine the success of the current investment programs for the development of urban areas and will allow using common mechanisms for assessing their future investment potential.

The paper proposes the methodological basis of the concept of quasi-energetism as a methodological basis for identifying and developing ways to create heterostasis conditions of urban environment, formulates the key terms and provisions of the concept, their content, basic hypotheses and prerequisites. On the basis of the offered concept it is offered to develop methodical approaches to information-technological modeling of objects of town-planning environment. The proposed General principles and tools of information technology modeling are the result of a necessary and sufficient set of parameters and indicators of the model, which allows to diagnose the current qualitative state and predict the potential heterostasis state of the assessed object. The proposed information and technological modeling is carried out on the example of urban environment of the campus of BSTU. VG Shukhov, on the basis of which the individual factors of the qualitative state of the environment, allowing to estimate the achievability of heterostasis in certain conditions of urban history and the environment of the object under study. This new indicator is proposed to be taken into account in the comprehensive assessment of the current and future quality of the campus of the University as an indicator of the effectiveness of the urban policy of its development.

The improved methodology can be the main qualitatively improved comparative evaluation of alternative urban policies of campus development of higher education institutions, and on its basis and arbitrary objects of urban environment. This assessment is most in line with most of the priorities for the qualitative development of the urban environment in the long term.

### ***Keywords***

*Homeostasis of urban environment, urban morphology*

**"Database of the architectural and historical context of cultural heritage sites" (Denkmalpflegerischer Erhebungsbogen), as an instrument of historical and architectural analysis in Germany**

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***Abstract***

Architectural monuments, which are thorn away from the historical and cultural context, largely lose their significance, while its semantic perception is distorted. To preserve the monument together with its urban environment are needed effective urban-planning tools, especially for historical and architectural analysis.

German historical and architectural analysis method provides precisely all needed information about elements of historical sites. It presents a particular attitude regarding open urban space, which, in fact, is considered as an independent protected object, part of the architectural historical and cultural heritage.

One of the most effective tools of historical and architectural analysis to investigate the historical urban context is the "Database on the architectural and historical context of cultural heritage sites" Denkmalpflegerischer Erhebungsbogen (DEB). The DEB evaluates the value for all elements consisting the architectural and historical environment. Are covered their integration into the landscape, the importance of historical streets, squares, green spaces, water surfaces, etc., all elements which form the structure of a particular site and express the specific features of the architectural appearance of the area. This tool is available for all involved parts of the society: the expert community (designers, representatives of monuments protection, administration, etc., everyone involved in the development of city-planning solutions), and for a wide range of citizens. This creates a solid basis for taking city-planning rational decisions based on consensus found in the exchange of opinions between dwellers and developers.

In this article, we will present a comparison between the practice of using the DEB in Germany and the Russian experience of historical and architectural analysis.

***Keywords***

*Methods of architectural and historical analyses, architectural and historical environment, "Database of the architectural and historical context of cultural heritage objects" (Denkmalpflegerischer Erhebungsbogen), preservation of heritage*

## **Geometrical structure of public spaces in virtual city models. Exploring urban morphology by hierarchy of public spaces**

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### ***Abstract***

Looking through the themes of the ISUF conferences themes seeking out the sense of the city (ISUF2016) or the shift from tradition to future perspectives (ISUF2018), all the urban phenomena refer to morphological development. What can be continuously observed is, that “cities and their complexes grow spatially, forming large areas and absorbing new territories.” [Kantarek, Franta, 2016]. Urban morphology consists of built-up tissue and voids in-between, so the urban development is directly related to the volume and geometrical structure of open areas and public spaces. If the public life occurs in the space in-between, exploring tools of advanced urban analyses focused on morphology of open spaces seems to be important and actual. Spatial disposition and relation between public spaces define unique features of towns and contribute to the general perception of the sense of cities.

However the problem is not as obvious as it may seem in practical terms. While the analysis of the built-up tissue of cities is relatively achievable, a measurable analysis of the space in-between is a considerable challenge due to the lack of defined geometry. This geometrical aspect of open spaces in cities is addressed in this article. The promising and powerful data environment enabling the development of such analytic tools are 3D virtual city models.

The already introduced by the author new analytic method called 3D-Negative (N3D) [Zwoliński, Rubinowicz, 2016] allows quantification and measurable analyses of the “invisible” geometry. The method is closely related to open-access GIS and cityGML data. The purpose of the article is to analyze regularities, spatial distribution and structure of public spaces in selected cities in area and linear means. The quantification will also develop information on relation between geometrical structure and functional layout of space between buildings.

### ***Keywords***

*3D-Negative (N3D), cityGML, GIS, public spaces, urban morphology, virtual city models*

## **On employing Delaunay triangulation in identifying city morphology patterns**

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### ***Abstract***

Numerous methods were developed for various kinds of urban analysis. Most of them can be automated, like terrain analysis, routing analysis, calculation of technical parameters (FAR, OSR, density, average height, etc.) as well as other indices describing qualities and quantities of urban structure to mention a few. Same time automated urban patterns recognition is still under development.

While human brain is a great tool to observe complex structures as a whole and notice patterns or imperfections, automating the process to get numbers, apply statistics analysis and visualize diagrams is not always obvious. Intention behind proposed paper is to bring and combine methods form other fields to aid in identifying city morphology patterns. The goal was set to develop a method or algorithm for numerical space classification, which would allow identification of specific types of spaces like streets and yards, and areas with specific combination of spaces typical to different historical periods, discover hidden structures and common layouts.

Introduced method consists of several stages: obtaining point sets, building Delaunay triangulation, defining characteristic values of triangles, collecting data, utilizing methods from statistic analysis to extract values common to different patterns. Paper describes approaches to mentioned stages and corresponding outcomes.

Side results can be also of an interest, e.g. thematic mapping of Delaunay triangulation of urban fabric according to defined characteristic values reveals fractal nature while observing city at various scales, making breaks and open spaces in urban fabric, private housing areas, streets and yards become identifiable.

Krasnoyarsk was taken as a case study. Parameters were defined and values were extracted to aid in automatic identification of different morphological patterns.

### ***Keywords***

*Urban morphology, Delaunay triangulation, GIS, statistics, pattern*

## **Peculiarities of spatial development of the region**

### **In conditions of town planning conflicts**

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#### ***Abstract***

The relevance of this study is due to the problem of spatial development of settlements in the context of new approaches to the organization of habitat and the introduction of innovative methods of economic development, which inevitably provoke the emergence of urban development conflicts. The transition from a functional model of urban development to conflictological is topical and requires a methodological description with a view to spatial interpretation of urban development conflicts. The purpose of this article is to identify the features and approaches of spatial planning in a number of countries and to determine the mechanism for resolving urban planning contradictions arising in the process of territorial development.

The leading approach to the study of the problem is a conflict approach with the use of methods for resolving urban planning conflicts, which are divided into blocks: ecological, spatial, social, economic. The research method assumes to consider the features of spatial planning through the prism of existing contradictions in the use of the territory - urban development conflicts that inevitably arise as a result of various motivations of participants in the urban development process. It is a tool for analysis and is designed to solve the problems of harmonizing the interaction of society, the urbanization of the territory and the environment.

It is revealed that at present there are no studies and design developments in the regional spatial planning, in which the basis for decision-making would be an analysis of the causes of the emergence of contradictions in the territory. According to the authors, harmonious balanced development is possible by identifying and resolving conflicts of motivations economic, historical, cultural, social and natural subsystems. The study suggests a methodology for resolving urban development conflicts as a mechanism for resolving urban development conflicts. The developed theoretical and methodological basis for territorial planning, based on the resolution of urban planning contradictions will allow: to ensure the rational use of natural resources and their reproduction; to regulate conflicts of types lands use and building among themselves and in relation to valuable landscapes; to regulate the conflicts of modern buildings and historical and cultural heritage.

#### ***Keywords***

*Spatial planning, regional settlement system, conflictological approach, territorial planning, urban development conflicts, land use*



## **URBAN FORM AND TECHNOLOGY**



## **Urban transformation in Seoul and Singapore: On the impact of digitalization and mobility strategies**

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### ***Abstract***

The dynamics and extent of urban transformation of Asian cities appear to be very distinct at the beginning of the 21st century. Asian urban development plans and visions seem to look a long way to the future, and are also orientated towards the implementation of information and communication technologies.

Asian urban digitalization strategies are hardly slowed of resistance that exist in the European context, for example in form of data protection concerns. In Seoul and Singapore, the potential effects of digitalization are therefore much faster and more concrete than would be expected in Europe. What are the consequences if traffic infrastructure, public space and people increasingly become technologically recorded, connected and part of a huge data pool? Are there limits to the digitalized economization of urban space - and are these already becoming visible in Asia?

Digitalization seeks to provide answers to the diverse, globalized challenges of the future design of urban mobility. Some Asian cities pursue ambitious, sometimes even contradictory strategies in mobility strategies at the same time and test new approaches according to an urban laboratory approach. On the one hand, highly technology-based traffic management approaches are used, on the other hand, however, approaches are also being tried which rely on a fundamental reduction in selected modes of transport. What are the first results of these different approaches? What criteria are defined to represent the success or failure of mobility strategies?

For the purposes of this presentation, the Asian cities of Seoul and Singapore will be used as examples to show the aspects and processes that are regarded in Asia as key factors in urban transformation. Which Asian trends appear to be transferable and could be beneficial to German cities? Which seem to be more inhibitive going forward?

### ***Keywords***

*Urban Transformation, Urban development, Urban Big Data, Mobility Strategy, Seoul, Singapore*

## **An approach to describe the spatial configuration based upon the block**

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### ***Abstract***

Urban morphology consists of street/block, plot and building. In other words, entire form of a city could also be divided into two parts: the street pattern and the block layout, both are the objects of urban planning and design. As a network form, the character of the street pattern can be defined by grid pattern, density, connectivity, integration and depth distance, while the form of the block layout is usually very difficult to be described clearly. In morphologic studies the block layout could be seen as two patterns: the plot pattern and the building pattern, the former is described by numbers, sizes and various shapes and the latter depends on the building types and their arrangements. However, these descriptions present the way of composition rather than the form characteristics of the block layout. Since Roger Trancik put forward “figure-ground theory” for urban analysis and design, at this point, urban space was formally introduced as a “Form” which was concerned as an important “Place” in urban design purposes. Therefore, this paper tries to combine both urban morphologic theories and urban design theories to search the proper way of the description and definition of urban spatial characteristics.

Following Kropf’s aspects of plot’s connotation: a composition of buildings and external areas, we could find that the most space for the public was composed of the external areas. Choosing the urban blocks set in Nanjing commercial centre area with 53 plots, instead of focusing on buildings our research focuses on the external areas to analyse the characteristics of the spatial form. The spatial visibility, geometric property, sight distance, boundary continuity and sky view factor are used to define the spatial characteristics of the urban place combining each plot. Finally, this paper tries to develop a tool to categorize the areas of spaces, so that the characteristics of the block layout could be understood through those types and their compositions.

### ***Keywords***

*Urban Space, Spatial Analysis, Visibility Statistics*

## **The role of the public transport system configuration in the compact urban form of the socialist city in the 1960s**

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### ***Abstract***

In the 1960s the scientific progress in traffic engineering and transport development brought about new possibilities, methods and demands for changes in the urban form and structure. A socialist city was oriented towards the implementation of a double objective: a city for both automobile use and for public transport. The urban structure was planned to provide the conditions for car use, while the unlimited growth of this reticular structure was expected to be controlled or ordered by the closed configurations of the public transport network. These ideas were similar in Eastern Europe, the USSR, and Great Britain. The objective of the article then is to understand the causes of the application of the different configurations of public transport networks and, the effects they had on the urban form. This will be approached with an analysis of urban planning methods and public transport in the cities of the Eastern Bloc. Compact urban form was strongly related to the coherence of the city structure and its flexibility for possible future development. The basic criteria for planning were the equal distribution of passenger flows, continuity of the trip and frequency of transport which changed their spatial interpretations during the period.

### ***Keywords***

*Public transport, urban form, socialist city, USSR, Eastern Europe*

## **A study on design of relationship between topographic strategy and space of congregate housing in sloping fields**

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### ***Abstract***

The article studies the relationship between topographic strategy and space design of congregate housing in sloping fields based on analysis of original site and the residential space. Sloping field are gradually being explored with the trend of urban expansion, Topography is one of the most decisive factor, which contributes significantly to organization of a cluster of houses.

Through a diachronic study, the topographic strategy of congregate housing in sloping fields can be classified as several types, and those classification can be proved by a plenty of cases, while the aim of author is to explore the relationship between tactic of site and organization of space which reveal the topographic and social forces behind it, rather than researching on one-way object.

After digital analysis of a plenty of typical cases around the world, author have concluded three key factors of sloping site which have great influence of congregate housing organization and how it can be utilized in urban planning. The objectivity factors are slope, shape and orientation, which have decisive impact on space organization and structure of congregate housing in city. This paper would reveal the typological relationship between them.

By founding the data of their original topography and making 3D model, it would like to reveal their strategies towards the raw site. Then, analyzing the relationship between the strategies with the organization of space in those cases would be the most important part of the study. This thesis is intended to inspire future architectural practice in sloping fields, and it is also a supplement to the current study of urban residential area planning.

### ***Keywords***

*Topography strategy, Congregated housing, sloping fields, Residential area planning, Urban landscape*

## **Understanding the effect of global and local landmarks through the use of mobile technology/a mobile-based game**

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### ***Abstract***

Landmarks are vital elements as they contribute to our understanding of cities. As mentioned by Lynch (1960), they are one of the five elements of cities, which he argues, form them. Although their significance on the image of cities has been shown by studies (Appleyard, 1969; Dalton and Bafna, 2003; Lynch, 1960), there is an uncertainty about the effect of location of landmarks on spatial navigation.

In this study, we aim to understand the effect of landmarks on human behavior, namely wayfinding. We used a mobile-based virtual game for smart phones and tablets produced by Glitchers Ltd., which was played more than 2.5 million people. Within certain levels of this game, participants were first asked to look at maps that indicate the specific location of players and checkpoints. The map was then removed and participants were asked to navigate a boat and find the checkpoints.

We propose to better understand an important component of cities, namely landmarks, by analyzing the results of participants. Performance (time and distance) in relation to the structure of levels of the game and location of landmarks were analyzed. Additionally, axial based integration and choice as well as visibility (visual integration) values of levels were calculated to make comparisons across levels of similar configurations. For this study, we focused on levels which include both local -visible from a small distance (Steck and Mallot, 2000) - and global - visible from a large area (Steck and Mallot, 2000) - landmarks and only local landmarks.

The contribution of this study to urban design and planning fields is that it provides mounting evidence about the role of landmarks in spatial navigation.

### ***Keywords***

*Landmark, virtual environments, mobile-based virtual game*

## **The Economy Interpretations of Morphological Transformation of Work-unit Neighborhood in China: A Case Study of Kunming (1960-2010)**

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### ***Abstract***

The work-unit residence is a residential mode formed under the special Chinese "work-unit system" during the period of the planned economy. Since the 1960s, a large number of residential areas have been built to solve the problem of accommodation. Selecting Kunming iron and steel plant in the six time nodes of 1960, 1970, 1980, 1990, 2000, 2010 and the six neighborhoods as the research sample, the author adopts qualitative and quantitative methods to have a comparative study of the six neighborhoods in terms of residential morphology like the plots and street system, block plan, building density, plot ratio, building scale during the six time nodes. The following conclusions can be drawn: the residential morphology only enjoyed minor changes in the first four time nodes, while that has changed greatly ever since the 2000. According to the concept of morphological period from the Conzen School, the changes of physical space are closely related to politics, economy and culture. Therefore, the economy should play an important role in the transformation of the work-unit residential neighborhood. Based on the changes of work-unit residential neighborhood in the past 50 years, this paper analyzes the connection between the changes of the neighborhood form and the economy from the following two perspectives: the economic system which transforms from the planned economy to the market economy, and the structural transformation of the economy from the supply side to the demand side.

### ***Keywords***

*Work-unit, Neighborhood morphology, Economic system, the structural transformation, Kunming Iron and Steel Plant*

## **Principles and methods of landscape and urbanization reconstruction of the spatial planning structure of destructive cities in the context of sustainable development (On the example of Baghdad and Mosul)**

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### ***Abstract***

The problem of restoring the spatial planning structure of the major cities of Iraq - Baghdad and Mosul, destroyed during the war of 2003-2017 is currently relevant for ensuring their sustainable development and the formation of a comfortable, safe and environmentally-oriented urban environment.

The study of the dynamics of the transformation of urban fabric of Baghdad and Mosul has a number of historical and methodological features related to specific socio-economic, cultural, historical and landscape-urban conditions that ensure their sustainable development in the future.

An analysis of the dynamics of changes in the urban fabric of Baghdad and Mosul, which occurred as a result of military operations in these cities, made it possible to determine the priority areas of urban development, which in the future will ensure the formation of sustainable spatial planning structures of these cities. Proceeding from landscape, ecological and historical-architectural and urban development features of the cities of Baghdad and Mosul, the priority direction is landscape-urban reconstruction, based on the principles of landscape urbanism, which will restore and make accessible to residents and visitors of the city the lost historical and architectural objects, preserve identity historical and cultural environment through integration with the transport and green framework, linking the functional and planning zones of the city in a single " infrastructure. " At present, such a strategy of urban transformation is used in the restoration of the historical district of Baghdad Al-Adamia.

The project is focused on the development of the embankment area of the district, its connection with Al-Khadimiyya and the city center; paid special attention to the development of public spaces and architecture around key locations, especially around the famous mosque of Abu Hanifah.

Principles and methods of landscape-urban reconstruction provide an opportunity to form a stable urban fabric that will be environmentally stable, comfortable and safe for residents.

### ***Keywords***

*Landscape-town-planning reconstruction, transformation of urban fabric, sustainable development, landscape urbanism*

## **Free-form shell structures as art objects in the urban environment**

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### ***Abstract***

City environment is a complicated system, where individual buildings interact with streets, squares, public spaces. The comfort of the urban environment and the quality of life are determined not only by the absence of dirt and dust, noise and unpleasant odors, the presence of lawns, trees, rest areas with convenient equipment, information organization, etc., but also the unity of the visual appearance of all components of this environment: design and landscape, their harmony with the nature of man. The most striking component of visual perception, close to a person, are elements of art and art objects. The present article analyses how can shell structures influence the organization of successful public spaces as art objects.

Shell structures play a special, singular role for architects and engineers in the urban environment. Their shape directly derives from their flow of forces, and defines their load-bearing behavior and lightness, saving material by creating local employment, their social aspect. This is especially true for thin concrete shells with different types of curvatures, such as single curvature, synclastic (domelike), anticlastic (saddle-like) or even free (experimental). There are a lot of methods and approaches to create a shell structure, from physical hanging modeling to complicated analysis using modern software. One of them is the Force Density Method, which was introduced by Linkwitz and Schek during their work with Frei Otto on the cable net structures of the Olympic stadium in Munich. A number of shell structures with different esthetic and structural characteristics were created using this method. These shells are created on a human scale, organizing urban spaces. A successful place has to combine such attributes as physical space, the sensory experience, and activity. The created objects are environment dominants, which fill the space with a semantic content in social, psychological and cultural dimensions.

### ***Keywords***

*Shell structures, art objects, urban environment, form finding, force density method*

## **The urban in animation: images of social space present and future**

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### ***Abstract***

Animation as a phenomenon of mass culture is increasingly becoming an object of research interest, as it provides ample opportunities for the representation of values, characters, plots and images. In the research of A.M. Gracheva, M.A. Eletskaia, K.N. Kaznacheeva, N.G. Krivulya animated films are considered as a way of transmitting cultural values, experience and world view.

Animated scenes unfold in a specific social space, which can be defined as urban or non-urban, and the visual text of the animated film can be used to review the dynamics of the assessment of the urban environment as a cultural landscape and trends in the development of the city.

The urban landscape and its representation allow to reveal the city estimates as a type of culture. Consideration of urban space in the animation is based on the idea of the city as a social space, which was formulated by P. Sorokin and developed in the works of P. Bourdieu, A. Lefevre, A.F Filippov. Modeling of social space in art and the possibility of considering a work of art for the reconstruction of perception and experience of social space are presented in the studies of Y.M. Lotman. To describe the phenomenon of urban space, the authors rely on the work of G. Zimmel, R. Park.

Based on the analysis of the visual series of animated films, an attempt is made to characterize the dynamics of the images of the city and the urban environment and the trends in the relationship to urban space. The ideas of P. Shtompka, A.

Usmanova and others are of interest in the definition of the method of studying the animated film as a visual document, which reflects stable cultural patterns and social relations.

### ***Keywords***

*Urban morphological research, urban landscape, animation, representation of urban landscape*

## **Smart Geometry creates smog free city**

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### ***Abstract***

The smog is one of the main problems of urbanism. Smart Geometry is a very powerful tool for Urban planners and Architects to control air related problems. Following the laws of aerodynamics the smart geometry can scatter or focus the wind at a point to generate usable energy, increase or decrease the speed of wind as desired, or even change the direction of wind to create favorable built environment. Ancient planners and architects has used the principles of aerodynamics and smart geometry for the transformation of negative environmental factors into desirable. Studying the ancient folk architecture and combining it with modern technology, we have developed various projects for improving modern urban air environment.

The most difficult problem while dealing air quality improvement is the inversion layer formed between the smog and the upper light air. This inversion layer not only prevents contaminations dissipate but also reflects them back as a screen to ground, constantly increasing its harmful effects on the environment and the people’s lives. This inversion layer latterly creates a situation of a people living in huge closed “container” with deathly chemicals. The simplest solution would be to punch a hole in the lid of container and flush out smog and let in the fresh air, based on same solution we have developed several models, from stationary in the mountains to models flying over the city at the inversion layer. These models penetrate the inversion layer and remove the smog of urban space. The smart geometry of conical shape creates vertical thrust in accordance with Bernoulli’s Law Smart Geometry is able to solve several tasks in parallel. In our case - it is the special conical shape with a certain curvature allowing absorbing the polluted air can serve also as power plant. The Smart Geometry has allowed us to develop parabolic forms of not crossed residential areas with the transport highway. Thus, we achieve a clean and safe environment simultaneously.

### ***Keywords***

*Urban problems, ecology, architectural forms, smart geometry, inversion layer, smog, environmental factors, models*

## **A statistical research on the typical patterns of modern housing fabrics, case study of Nanjing, China**

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### ***Abstract***

After nearly 20 years massive social housing construction and another 20 years bloom of housing real estate development, Chinese cities basically solved the citizen's housing problem in the second decade of 21st century. As a consequence, the major physical component of contemporary cities is modern housing fabrics, which cover more than 30% urban land. It is generally believed this magnitude housing development is dominated by modernism residential building with a standard image of slab apartment. However, as revealed in this research, the real situation are far more diversified and complicated, with various building types, like villa, slab, tower, and different spatial arrangements, like parallel, zigzag, enclosure. How to classify this diversified realities, and what are the typical patterns of different housing fabrics?

To answer these questions, this research collected more than 200 housing fabric samples across the city of Nanjing. The latter is the Capital of Jiangsu Province, and a typical modern mega-city in Yangzi River Delta area. To get the reasonable categories of fabric types, a comprehensive classification system is applied. Different from the too simplified classification based on single parameter, building height, adopted in national housing standard, this classification system is based on the matrix of various parameters, including building height, arrangement, and building type. The various parameters and their intricate combinations guarantee the classification are capable to seize and distinguish the formal features of different fabrics. Spacemate, a charting tool developed by B.M.Pont and et al. in TU Delft, is used to testify the classification. After classification, the samples are divided into 21 categories. For each category, samples data, like spacing, dimension of building footprint, height, density, land coverage, and et al. are collected and a statistical analysis are conducted. Based on this qualitative sample studies, the typical patterns and their statistical models are built up.

In the application part, a bioclimatic performance study of these typical patterns is presented. Due to the typicality and statistical precision, the complicated co-relation between urban fabric and bioclimatic performance could be discovered, efficiently and convincingly.

### ***Keywords***

*Urban fabrics, modern housing type, statistical analysis*

**Investigation of the spatial density of public and business objects in the largest city with the help of geoinformation technologies**

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***Abstract***

The article deals with the study of spatial distribution of density of public-business objects with the help of geoinformation technologies. The source of the data was data from the open geoinformation project OpenStreetMap. It is shown that the law of exponential decay (Clarke's law) is fulfilled for the radial component of the density of public-business objects. It is shown that for different types of public-business objects, the numerical characteristics of the law of decrease may be different. In addition to the radial density distribution, the azimuthal distribution of the density of public-business objects is studied. It is shown that it is essentially asymmetric. The obtained results are interpreted within the framework of the "frame-frame" model.

***Keywords***

*The largest city, geoinformation technologies*

## **The impact of construction industry on the content of heavy metals in the air environment of Krasnoyarsk**

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### ***Abstract***

The construction industry has a significant role in the environmental situation of the city of Krasnoyarsk providing the population with objects of residential, industrial and road construction.

A necessary component of construction activity is the enterprises for the production of building materials using a wide range of chemical compounds that annually enter the atmosphere, water bodies, groundwater, soil in the form of industrial emissions, affecting the environmental situation.

The construction industry is also impossible to imagine without the use of vehicles, the operation of which is impossible without fuel, which absorbs oxygen and emit exhaust gases containing heavy metals in their composition.

From the environment through the skin, inhaled air, food dangerous substances enter the human body and eventually cause its functional changes.

Exceeding the maximum permissible concentrations of a number of heavy metals can have a toxic effect on the human body, so it is necessary to regularly measure their concentration in the air of Krasnoyarsk.

The most common heavy metals entering the atmosphere as a result of industrial emissions include lead, mercury, cadmium, zinc.

Lead has a toxic effect, accumulates in the kidneys, liver and other vital organs, gradually leading to disruption of the functioning of the entire body.

Mercury has a toxic effect on the human body, animals and natural components; it is widely used in various industries and a part of a number of pesticides.

Cadmium is a chemical element with toxic properties exceeding lead. It easily passes from soil to plants.

Zinc is widely used in the production of paint products, medicine, printing. In case of excessive intake of the body it has a carcinogenic effect.

Within the framework of the current legislation, the enterprises of the construction industry should not exceed the permissible values of emissions into the environment during the production processes and take measures for regulation. Particular attention should be paid, among other things, to the utilization of construction waste. The results of the study have confirmed that the emissions associated with the construction industry of the city of Krasnoyarsk do not exceed the permissible values.

### ***Keywords***

*Construction industry, heavy metals, urban environment, construction waste*



**URBAN IDENTITY**



## **Territory Lines and Urban Identity: between city-layout and physical context**

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### ***Abstract***

This communication focuses on the morphological interpretation of the city-form, and addresses the classification of urban phenomena according to the modeling effect of territory lines, highlighted by the ridges, the valley-bottoms and the seashore, and its role in place identity.

Ridges-lines and watercourses are geographical configurations which tend to be reflected in the structure of urban organisms, particularly where the topographic accidents expressively characterize the land surface such as in Portugal. This reciprocity between the urban-form and the form of the territory is recognized in Portuguese built city by the geometric redundancy between the street-layout and the physical support, traducing itself recurrently in structural linear systems of public spaces that overlap the leading paths through the hills or the thalwegs, and tendentiously produce urban fabrics which sediment the configuration of the natural itineraries. In each one of these specific topographic contexts it is possible to verify multiple variations of the same urban-layout production principle and simultaneously an analogous permanence of the lines that define the site geography. From a representative set of the Portuguese urban-layouts we attempt to demonstrate in a comparative reading that the non regular city shape is clearly marked by the lines of the land surface. These lines define the form of the territory and tend to transform themselves into the structural matrix of the urban-layout, the urban generator axis or even a “generatrix” for the city production.

The different topographic contexts, the valley-bottom where the water flows or in the dominant ridges, produce urban-layouts which are structurally similar, but formally different. With this reading we explore the hypothesis that the identity of the layouts is associated to the integration of geographic characteristics in the domain of the urban composition, understanding the territory physical context as one of the most significant genetic causes on the urban-shape, that perpetuate the permanence and the memory of the places.

### ***Keywords***

*Urban Morphology; Urban-Layout; Identity; Territory; Portuguese City*

## **Responsibility of The Union of Architects for sustaining the local visual and cultural Identity of Krasnoyarsk as a prospective cultural capital of the Eastern Siberia**

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### ***Abstract***

Krasnoyarsk has a rich and significant cultural and architectural history (since 1628), embodied in its architectural monuments and urban environment. After the crash of the Soviet Union with its well-defined visual and mental ideology (J. Charley), Krasnoyarsk city, like many Russian cities, seems to have developed erratically. Additionally, the link between society and the built environment has been lost. However, the preservation of cultural layers is of importance (C. Abel; P.Emmons) and one of the key elements needed for national consciousness and a sense of national belonging (V.Putin, decree of 2009).

The Krasnoyarsk office of The All-Russian Union of Architects had the rights and responsibility for the formation of a comfortable and relevant architectural environment and interactions between the environment and society during the Soviet Union period; however, currently, it has, in fact, fragmented and lost its rights. Moreover, this Union is gradually dying as an institution and should be reinvented, according to current needs of society (New Institutionalism, Meyer, Rowan).

Thus, the main question of the article is: how could the Union of Architects return the prerogative for identification and sustaining of the local visual and cultural identity of Krasnoyarsk, acting as a connector of the society and the built environment?

Using elements of historical-correlation research (L.Groat, D. Wang), relying on case studies of existing approaches around the Western World and the existing theories of urban power distribution (Domhoff, Mossberger, Stoker, etc) along with instruments of participation (Hofmann, Lee, etc.), the initial work called Agency of Identity (D. Belova, MA thesis, Sheffield, UK, 2017) aimed to develop the scenario of programme implementation for the Union of Architects as an Agency of Identity ('mapping controversies', Yaneva).

Finally the preliminary strategy was developed to provide the Union with the scenario of empowerment. This could become a social experiment, potentially used for future research.

### ***Keywords***

*Cultural identity, the role of architect, community, new institutionalism, power distribution, mapping controversies*

## **Socio-anthropological model of modern urban environment: a human in the city, a city in the human**

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### ***Abstract***

The city, its structure and identity, can be represented as a theoretic model. There are «key» models of modern cities: servicing, comfortable, compact, «green», learning, creative, «smart», social; more individual variants include creative, cultural, sport, healthy, adaptive cities, cities of opportunities, sustainable development, and others. The city, functioning in line with any of these models, is inseparable from its social culture: historical heritage, traditions, and values.

The sociocultural model incorporates the description of real landscape, cultural space, and residents' mentality. Sociocultural models are developed and implemented, for example, for Moscow and St. Petersburg, therefore, these significant Russian cities attract financial flows due to their formed identity. Ivanovo, Tambov, Sochi, Kislovodsk, Nizhniy Novgorod, Ekaterinburg, Kazan, Ukhta, Tymen, Novosibirsk, Omsk, Barnaul, Anadyr, Nadym, Noyabrsk and other cities, the models of which can be found in various studies, are grouped in terms of either resources which need to be managed or depressive economy which needs a means of rescue. In both cases the sociocultural model establishment is seen not only as a way to “understand”, but as a way to “do”. The human being creates some space; the city, in its turn, becomes for humans both an opportunity and restriction.

Cities like people may be familiar, favourite, native, strange, tiresome, diverse, businesslike, monotonous, boring, untended. One can become “keen on” a city like a person, a city can become «someone's fate». According to the average citizen's perception, each city has a face, character, heart, spirit, belly, profession, friends and enemies, its past, present and future, the fact of being born, the recognition triumph, the dying process, fate, mission, potential. The majority of people in the world already live in cities, and in each human being “his or her city” lives. These intangible elements comprise the subjective cultural space of images, meanings, values of particular people, living in objective social and geographical circumstances, i.e., the social anthropological model of a modern city.

### ***Keywords***

*Social anthropology, a city, urban environment, model of town*

## **City image during international events**

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### ***Abstract***

This article explores the visual information part of the urban environment that can be identified by visual observation and contains the entire information layer of this environment. In fact, visual information field of the city is the language that city speaks to the person.

For stable development of cities in the conditions of an unstable economic situation and crises, we have to look for such options to make the urban environment better, which could have the most positive impact on the city's image with minimal costs. Such a solution can be the transformation of the visual information field of the city as the most dynamic element of the urban environment, which most easily adapts to any economic, political, eventual and other changes, affecting the appearance of the city as a whole.

In Russian cities, proof of this is the rapid change of cities in the post-Soviet period - for 25 years of uncontrolled by municipal structures, our cities have become chaos of advertising signs, information, and cutting clips, where architecture plays a secondary role. Accordingly, reverse changes can and should occur in even shorter terms. Important direction of the policy of the authorities and the emergence of regulatory documents governing this area of urban life. To event-based image-making capable of globally influencing the image of the city and stimulating the authorities to quickly and effectively improve the urban environment, making a qualitative leap towards the formation of a new urban identity, include international events of the highest level of significance that are virtually unchanged in the history of one city.

These are the Olympics, football championships, Universiade, Spartakiad, etc. The city of Krasnoyarsk, which is preparing to host the XXIX Winter Universiade in 2019, is currently facing the challenges of transforming its urban environment.

Answers to questions - how to make the city more harmonious, friendly, convenient for residents and tourists, as soon as possible with minimal expenses, just now, when there is still a whole year to implement changes in the urban environment, and as a result, to form a unique city of Krasnoyarsk.

### ***Keywords***

*Identification, visual information field of the city, city look, city image, city environment, wayfinding system, advertisement, orientation*

## **The Study of Urban Identity of the Siberian Federal University Students**

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### ***Abstract***

In a modern society, characterized by mobility and urbanization, there is a permanent transformation of the urban socio-cultural space. Urban identity is the result of the person's identification with the urban community, the architectural structure of the city and the lifestyle of its inhabitants.

The article presents a theoretical analysis of the phenomenon of identity in the context of psychological and pedagogical understanding the importance of building and development of urban identity as a component of the Krasnoyarsk social environment. The degree of urban identity of the Siberian Federal University students was investigated and compared with other types of social identity and its impact on social attitudes and the basic values in the urban environment. The study involved Bachelor's and Master's students (19-45 years old). As a markers of identity popular cultural, natural, regional and economic symbols of urban stereotypes were used as well as mental and psychological peculiarities beyond ethnic features of inhabitants of Krasnoyarsk (Siberian character: hospitality, pride, strength).

Regardless of the urban identity degree, respondents of different age and gender groups assess positively the possibilities of professional self-realization in the city of Krasnoyarsk and highlight such terminal values as: "to love and to be loved", "to feel safe", "to get a good job", "to be financially independent". At the same time, young people believe that "to become known and famous", "to have power", "to be healthy" - these are the values which are less likely to be realized in the city.

The survey revealed that only 30% of SibFU student's regional identity (Krasnoyarsk citizen, Siberian) prevails over personal and social identity (Woman, Daughter,... - 50%). 20% of the respondents put civil identity (Russian citizen) in the first place in the hierarchy.

It can be summarized that while building regional identity it is necessary to rely on the socially significant city symbols.

### ***Keywords***

*Urban Identity, Krasnoyarsk Territory, Siberian, Social Identity, Civil Identity*

## **Ethnic peculiarities of culture as a tool for building urban identity**

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### ***Abstract***

The preservation of the ethno-cultural peculiarities of indigenous peoples is of particular importance in the self-identification of the individual. A high level of urban identity formation can be achieved by creating environmental conditions that take into account national characteristics.

D.M. Semenova (2015) in her study notes that the formation of identity in small cities of Russia at present can be divided conditionally into two directions: cities "with history" and "without history" - new cities created on the basis of an industrial enterprise. However, both directions do not fully take into account the national specifics.

The introduction of ethnic specifics and interpretations on the themes of national art in the visual environment of the city is necessary. Expressed in the image of the city, the meanings, ideas, values, can influence the behavior of people, form an attitude towards the city and motivation for their own identification and the appearance of a sense of belonging to their people. Therefore, it is necessary to pay close attention to the decent development of the city's visual and communication image, taking into account ethnic features.

The alignment policy of the times of the Soviet Union led the indigenous peoples of Russia to an identity crisis that affected the architecture of cities. The capital of Khakassia - Abakan - is now a city with a universal Soviet heritage. Ethnic groups are deprived of places of "presentation" of their culture in the urban environment. The loss of identity does not promote tolerant interethnic relations in the city.

Modern representation of the human environment requires the design of the architectural environment of the city, taking into account ethnic visual features.

### ***Keywords***

*Urban identity, ethnic identity, identity crisis, ethnicity*

## **Small Historical Towns of Russia. Preserving Individuality and Identity**

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### ***Abstract***

Today the problems of individuality and identity are quite important for a large number of historical towns. The specific aspect of this problem with regard to small Russian towns is that they have a predominant number of old buildings, often these are wooden constructions, which rapidly disappear due to their dilapidated state. But historical areas still remain to be the core of the urban fabric of these cities. It determines the integrity of many historically formed features of a town, which are dear to its inhabitants, and which still charm the visitors coming to these places. Apart from the general appearance of these small Russian towns, many traditions of everyday life are still present and existing in a complicated relationship with the changing social and cultural environment. The system of cultural preferences of the local residents is quite stable: citizens admire their hometown, they are proud of its history, its architectural heritage and appreciate features of its landscape. One may say that this combination of factors constitutes the basis of the identity of small towns.

These cultural and social values, noted by anthropologists, should be protected. It is important to preserve pictorial symbolic structure of a town, as well as its traditions connected with everyday life. If the latter are typical for the population as a whole entity, its key cityscape characteristics, constituting “the memory of a place”, do not form a single unity, concentrated in the center or in some other nucleus, and thus forming complicated compositions. The social and cultural influence of the areas, where identity features “crystallize”, spread far beyond their own borders. All the townsmen feel some connection with it, and, we may well suppose, this is the case with those who live in the near suburbs, linked with the town in terms of its lifestyle.

The important issue is not only to preserve the architectural heritage, but also to “compensate” those structures that disappeared and to repair the damages that the important buildings in the center of a town have suffered from. Another object is to include new constructions and elements, needed for the well-being of a town, in forms that would fit into the plan regarding the protection of the “genius loci”. Then there is the question of development and adjustment of the functional organization of a town with the appearance of necessary objects of social infrastructure. This should be accompanied by preserving and improving the characteristic typology of the urban environment and its functional structure, which the inhabitants perceive as something that they can relate to.

If we look at the methods of solving these problems, we may come to a conclusion that modern requirements for the small historical towns should be leading us not “away from traditions”, but the towards them.

### ***Keywords***

*Russian small town, urban construction, individuality, identity, character of a place [genius loci], structure, preservation, development*



**URBAN LANDSCAPE HISTORY AND  
SOCIO-CULTURAL TRANSFORMATIONS**



## **Forms of settlement in north-eastern Poland and their morphological changes after World War II**

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### ***Abstract***

The main purpose of this study is to present typology of settlement forms and analyzing of the process of the spatial transformations of selected examples. The study encompassed the identification of conditions that resulted in transformations in the physiognomy and layout of towns and rural settlements. It takes into account the legal and administrative decisions, the changing communication systems, as well as functional changes, including disagrarisation, the development of tourism and revitalisation. The examined region covers the north – eastern area of Poland joined to its territory after WW II. The starting point of analysis is an attempt to describe the typology of urban and rural settlements in the area, with their maintained medieval morphological root. However the main attention is directed to spatial transformations in the post war period. The war brought huge material damages, in some cases reaching up to 90% of historical buildings. Thus emerged the necessity to put in the action the new replacements and rebuilding on unprecedented scale. Rebuildings in urban areas were very often led with disregard for a historical tissue of architecture and original layout (modernistic block housing in historical centres of towns). Villages, on the other hand underwent a process of collectivisation resulting in forming new functional – spatial centres.

A new stage in the history of towns and villages in the region initiated an economical and political transformation, which resulted in spatial development of towns, bringing functional and social changes. These processes became more intense when Poland joined the EU structures and the effect of this is the process of restoration of historical buildings and spatial systems, referring to historical forms of settlements. Consequently elements of the settlement network in the examined area present heterogenous morphologic conglomeration, rarely found in other parts of Europe.

A comparative analysis of the degree of transformation of spatial systems in chosen examples allowed to draw a typology of the degree of preservation of historic urban and rural layouts. One can distinguish almost completely preserved forms with minimal modifications in layout; partially preserved layouts with considerable spatial reorganization and totally transformed forms of settlement.

### ***Keywords***

*Poland, settlement transformation, urban-rural morphology, WW II*

## **Flat City versus Volumetric City, Re-application of the Layered Movement Network Approach**

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### ***Abstract***

In cities of low or medium density it is possible to conduct a configurative analysis using mobility networks as main structural elements for the landscape (Bruyns, 2011, Read & Bruyns 2007). Expressed as a ‘movement-function’ indicator in three distinct scales, the overall results diverge from conventional typological driven analysis placing emphasis on movement patterns and how commercial functions cluster to each network.

Not as a consequence of form but seen as an element that lends structure to the city, the ‘Flat City’ approach (Read, 2005) views mobility networks themselves as key structural indicator that highlight the social use of space, public as well as private.

In contrast, high density cities, or aptly named ‘Volumetric Cities’ (Shelton, et. al., 2010), are challenged by spatial compression that establish other dependencies on mobility networks. Apart from the conventional use of movement networks, ‘Volumetric Cities’ place additional emphasis on pedestrian networks, interwoven with both the ‘in’ and ‘exterior’ conditions of the city. In this light, the question and applicability of the Flat City model remains questionable and as yet untested.

This paper questions the applicability of the network driven model and its dependencies on movement networks in the context of the high-density landscapes. The paper will outline the basic premise of previous empirical work, before highlighting the challenges in the reapplication of this approach in the urban context of Hong Kong. As part of its aims, the discussion wishes to illustrate empirical work whilst possibly concluding on the adjustments deemed necessary for the re-application of this method in high-density urban landscapes in order to understand the formal expression of these cities.

### ***Keywords***

*Mobility, layered, volumetric, urban morphology, network*

## **Polder settlements in specific spatial pattern of polder landscape around Shijiu-Gucheng Lake**

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### ***Abstract***

Polder landscape is a typical type of human inhabitation environment in the middle and lower reaches of Yangtze river. A polder landscape is overlapped by four systems: water system, land division, road network and human settlements. Water system defines the basic background structure of polder landscape. In the polder landscape around Shijiu-Gucheng lake between Jiangsu and Anhui Province of China, four prototypes of water system pattern can be recognized: feather pattern, grid pattern, cobweb pattern and mosaic pattern.

According to different water pattern, there are three basic morphological prototypes of polder settlements: linear type, island type and fragment type. Linear settlements mainly develop along the main stems of river in the water system of feather pattern and cobweb pattern. Island settlements mainly develop on the place with high altitude inside the water system of mosaic pattern. Fragment settlements develop mainly inside the water system of grid pattern or mosaic pattern.

A typical polder settlement is composed by ‘human-related’ system and ‘water-related’ system. The ‘human-related’ system is composed by artificial buildings and constructions serving people’s lives, including houses, earth temples and ancestral temples. The ‘water-related’ system is composed by artificial infrastructures controlling hydrology environments, including ditches, ponds, dykes, dams and sluice gates.

Form of each polder settlement generated and developed gradually in the history of conflict, struggle and coadaptation between inhabitants and water. It was not static but responding and regulating after each flood disaster in history. Vestiges and still can be recognized in the morphology of some polder settlements. On the other hand, conflicts inside inhabitants caused by water is another important driving power of the form of polder settlement. It was redistribution of land and water resource which defined territories of most polder settlements.

As a result, morphologies of polder settlements around Shijiu-Gucheng lake are generated by complex natural-social mixed process in a specific landscape as background structure. Renovation strategies of this area should be prudently studied.

### ***Keywords***

*Spatial pattern, polder landscape, polder settlement, morphology*

## **Urban ruins and vacant lands in contemporary cities: origins, existence, and (re)use**

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### ***Abstract***

Ruins and vacant lands constitute integral part of contemporary cities irrespective of various morphogenesis and paths of urban development. Thus, they are common elements of spatio-functional structure of cities all over the World. The origins of ruins and vacant lands are various. Basically, they can be distinguished as a result of natural disasters, of human intentional and unintentional action or of mixed, natural and human origins. As a part of cityscape ruins and vacant lands can be divided into historic and modern ones. Their existence in urban space is conditioned by many factors and they can be maintained due to economic, social, cultural as well as political or ideological reasons. Despite the fact that the presence of abandonment, ruination and emptiness in contemporary cities is ubiquitous, there is not enough research focused on this issue. These morphological elements may be considered in the context of numerous concepts of current urban space transitions, as shrinking and perforated cities, for instance. The other research issue is their susceptibility for the reuse, for instance as a result of urban regeneration programs implementation. The aim of this paper is to classify urban ruins and vacant lands according to their origins, existence (present use) and potential reuse. The presented classification is illustrated with selected examples from contemporary cities.

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### ***Keywords***

*Ruins, vacant lands, concepts of urban development, classification*

## **Locating Food and Urban Agriculture within the Study of Urban Form**

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### ***Abstract***

This presentation focus on the contributions of an ongoing research Project under the title 'SPLACH – Spatial Planning for Change', financed by Portugal 2020 Program, which aims to identify how to promote a desirable shift of existing urban planning policies, in order to promote a low carbon and social inclusive urban system, in which the food system emerges as a central issue.

This presentation focus on the work that is being conducted by the author of this paper at ISCTE-IUL and that focus on the articulation between food, urban agriculture and urban form.

This research is built over a theoretical framework to which the concept of socio-technical system is central. Sociotechnical systems are large systems which perform major social functions, such as the provision of housing, energy, transportation and also nutrition, among others. The Food sociotechnical system is a vastly territorialized one. In order to become environmentally friendly, it needs to be understood at all its scales of resolution.

The integration of food within urban design and planning is becoming very popular, although it is possible to identify within urban planning history a number of examples which resemble many aspects off common concern. The current resurgence of urban agriculture, local production and short circuits are claimed as ecological solutions for the achievement of sustainable urban environment. Although these situations have been particular notorious after the financial crisis of 2008, it appears that this type of production and supply appears to persist within Portuguese Metropolitan Areas. Thus, affecting the territorial and functional organization of metropolitan areas, where most of Portuguese citizens live and work. Thus, what are the real implications of these recent experiences in the contemporarian urban space? What new urban forms are emerging?

Responding to this challenge, a first pilot case was applied in Lisbon Metropolitan Area (LMA) to analyse: i) the evolution of food and urban agriculture integration within specific municipal planning policies (PDM); and ii) identify local urban agriculture initiatives within such municipalities, in terms of strategic programme, design solutions and social impact. This presentation will discuss some of the preliminary results of this investigation, while focusing on the identified urban forms which are deemed to be better inform future policies to planning practice.

### ***Keywords***

*Urban agriculture, food, food system, urban sustainability, urban form*

## **The Route as an Attractor of Urban Form**

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### ***Abstract***

Important routes in a city or town are generated by the activity of strong desire lines. The frontage to such activity attracts land uses seeking prime commercial exposure. These compete with each other in the presentation of smart urban form, the profile of which attracts further activity of importance to the route, subsequently attracting further commercial profile.

A cycle of attraction is thus set in motion which reproduces an expanding quality of built form.

This paper considers evidence of the cycle, through the results of two recent research studies in Ireland. The first, of historical scrutiny, examines the history of two radial routes leading south-eastwards from the centre of Dublin. Both routes competed for importance over a long period before one finally dominated. The research examines, from historical evidence, how the cycle of attraction developed.

In the context of this evidence the second research study examines smaller towns to see if particular routes of importance show a tendency to attract clusters of higher-value land use and if this is readable in quality of architecture. Findings suggest that among mid-twentieth century radial routes out of small towns, selective routes do show evidence of investment in conspicuously prominent architecture, due to the importance of their exposure.

The paper brings these two programmes of research together, suggesting a number of conclusions from their combined findings.

In more recent fringe development there is evidence that by-passes, which skirt the edge of towns and cities, also attract profile at a larger scale for similar reasons.

Harnessing the view from the route with strong large-scale presentation becomes particularly important for the commercial retailer, in an era where contact may be instigated on-line, triggered by an observation from the motorway.

### ***Keywords***

*Street, corridor management, retail interface, urban history*

## **Land Reclamation and Creation of New Villages**

### **A case study of Sha Tian town on the Pearl River estuary**

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#### ***Abstract***

Since the 15th century, the shifting geographic pattern of the Pearl River Delta and extensive land reclamation activities prompted the generation of vast coastal areas. The villages created on the newly reclaimed land played an important role in the region's local and international economic activity and became part of the Great Bay Area in recent years. By using villages in Sha Tian town (沙田镇) as a case study, this paper shows that the mechanism of land reclamation influenced the formation of settlements, during the process whereby the shoal of the coastline became small fishing villages at the fringe of the cities which were eventually absorbed into the urban space.

Using both field research and a literature review, this paper discusses three specific time periods. In the mid-Qing dynasty, policy changes and the natural conditions drove the boat people who assembled on the sea to reclaim land in the Sha Tian area. During the second period, these boat people moved to the newly reclaimed land and erected different types of buildings to support their changing way of life, establishing linear villages along the waterway and dike. Finally, with the urbanisation of the past two decades, the form of these villages became transformed in different ways according to the location and the relationship with the urban area.

This paper situates this case study within the discourse of urban regeneration while linking it to the sustainability of urban villages. In this way, the paper provides a critical evaluation of how reclamation activities produced new patterns of landscape, the changing concepts of villagers towards nature and the river system, and the contradiction between the demands of modern life and the traditional village underlying the ongoing transformation.

#### ***Keywords***

*Pearl River Delta, land reclamation, settlement formation*

## **Riverside Transformation as Urban Landscape Case study on the Huangpu Riverside Reconstruction in Shanghai, China**

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### ***Abstract***

River as the natural element witness the origin of the city, promote the development of the city and affect the form of the city. However, with the rapid development of the city, the industrial replacement and the stagnant areas have formed the blank of future development, which makes the rivers construct a new space-type remodeling urban form in a kind of urban landscape. Based on the case study of Huangpu Riverside Reconstruction in Shanghai, this paper analyzes the spatial elements, types and plasticity of the industrial heritage along the Binjiang River. During the urban development, the adaptation of the industrial heritage in the waterfront section is discussed. The Huangpu River turns from life to production to life again and serve as a supporting resource to build new urban forms and lifestyles. In the conclusion part, the paper will compare the landscape type cases and try to illustrate the sustainable influence of the historical and cultural heritage rebuilding of the urban landscape on the type of space and the shaping of urban morphology.

This paper is subsidized by NSFC project which is named as <Research on Technical System of “Downtown Factory” Community-oriented Regeneration in Yangtze River Delta Region>(Grant No.51678412).

### ***Keywords***

*Riverside, historical & cultural, urban landscape, transformation*

## **Private and public space of a Russian provincial town in the late 19th and early 20th centuries**

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### ***Abstract***

This study is aimed at finding new forms of dealing with relationship values and urban space (K. Lynch). Otto Schlüter spoke of the cultural landscape, he was drafted in an integrated approach to the consideration of the urban space. Morphogenetic analysis should be complemented by concrete historical research. Jeremy Whitehand rightly notes that numerous statements about interdisciplinarity may not always lead to them and many of them remain isolated, and they are revealed not all aspects of urban morphology. So, over the past 20 years in the "Urban Morphology" was published just 10 studies in historical disciplines (Whitehand, 2018).

Researchers involved in the mental maps of the city, make conclusions that urban landscapes are created by combining material forms and the subjective human experience. "Drawing on the concept of atmosphere, we argue that human experience of urban spaces drives alterations to the built environment. The atmosphere is created through the combination of human activity, individual emotional responses and subjective perceptions of built-in forms "(Jones, 2017).

Social city design in the era of modernization is connected with the expansion of its public space. Private area is superseded by the new practices and patterns of social interaction. This process in the provincial town was linked to the activities of non-governmental organizations and local authorities. "Private man" caught in this public discourse, received new skills of socio-cultural activities, has been involved in the events that took place in the city, aware of its role in changing his appearance.

Through the fate of many provincial activists infected social activity can be traced back to the mechanism of "invasion" of the individual in urban social process. We distinguish these forms of public activity of siberians as literary and artistic salons, publicist and his literary activities, improving education, nonconformism (friendship with political exiles), creating and participating in amateur organizations and bodies of local self-government.

### ***Keywords***

*Socio-cultural transformations, modernization, history, Siberia, town, private, public, values, mental map*

## **Small architectural forms in the organization of the urban environment**

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### ***Abstract***

The article presents the results of exploration of the influence of small architectural forms on the organization of public spaces in Krasnoyarsk - square, street territory. The process of improvement of the modern city includes a competent structural organization of the landscape and recreational areas. According to the laws of urban development, this factor stimulates the social activity. Within the framework of the research of socio-cultural transformations forming place in the town-planning context, authors researched ways of organizing recreational areas, the design specifics of open urban spaces. Small architectural forms are one of the main elements of landscape forming. Their self-sufficiency and relevance is confirmed by the presence of the territory of realization, application in the process of society's life. They are used in the creation of chamber spaces for playground. By the results of the transformation of functions and forms of public spaces, you can judge about the change in the socio-cultural aspect of the architectural environment. It is expressed in the scale, artistic design of small architectural forms, seasonal game spaces. Morphological properties of public areas, organized with the participation of small architectural forms become an active form-building element of area. Thanks to small architectural forms public spaces become welcome for citizens. Small architectural forms actively participate in the transformation of significant areas of the city and show the socio-cultural trends of society. This can be expressed in an interactive, socially directed aspect of the formation of urban space. The revealed features of planning units can be used in the design of new landscaped areas.

### ***Keywords***

*Territory for leisure, transformation of public spaces, landscape improvement, spatial and spatial compositions*

## **Transformation of green spaces in the Krasnoyarsk city**

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### ***Abstract***

The present paper describes the investigation results of the processes of transformation of green spaces in the city of Krasnoyarsk from the moment of their creation till nowadays. During the investigation the earliest greening objects appearing in Krasnoyarsk were analyzed: public gardens, V.M. Krutovsky garden, Yudin garden, streets of the historical center of Krasnoyarsk.

The urgency of the research subject is due to the absence of a complex historical analysis of the green spaces of Krasnoyarsk.

The retrospective analysis of transformation of the green spaces in Krasnoyarsk shows that during their existence in the changing urban environment the green spaces undergo considerable changes, being removed and reconstructed again. The investigation revealed the main historical stages of the changes in the compositional structure and functionality of green spaces in Krasnoyarsk.

The present study can be the starting point for further study of the complex approach to solving problems concerning the system of urban greening in the city of Krasnoyarsk.

### ***Keywords***

*Green spaces, transformation, urban environment, public gardens*

## **Public parks in the North: Designed to liberate or discipline our bodies?**

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### ***Abstract***

While access to the urban environment depends on practical needs and economic power, public parks appear to provide access to all. Replacing practical and economic interests by playgrounds, sport facilities, and fresh greenery, public parks promote not only public health but also social integration. Yet public parks are not neutral; they shape our bodily action and interaction. This shaping may be called social choreographies, and social choreographies are strongly ideological. Thus, recent park designs of the Nordic countries are liberal and inclusive in accord with the Social Democratic and liberal tradition of these countries. Still one may ask whether such liberal inclusiveness is not a political tool to better control the moving body? When skateboarders and parkourists are encouraged to use large-scale facilities constructed in the peripheries of public parks, can this be a way for the authorities to confine highly mobile and anarchic elements to special designated areas?

### ***Keywords***

*Public parks, moving bodies, social choreography, social interaction, social control*

## **Public space in historical settlement-case studies in Southwest China**

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### ***Abstract***

This research investigates four piecemeal developed rural settlements of ethnic minorities in Southwest China from an integrated morphological and socio-cultural perspective. It aims to study the socio-cultural production of public spaces and their transformation in those settlements. Morphological analysis, field observation and onsite interviews are used to explore how public spaces were shaped and transformed, and how social power structure influenced public space in such a context. It intends to deepen understanding of publicness of public space in primitively urbanised settlements and the social changes in China.

This research is based on theoretical discussion of publicness in Chinese rural society, and a new definition and a typology of public spaces accordingly. The new definition not only considers public space by physical features but also its role in local public life. It examines the linkage between social power structure and physical transformation of public space over time. Four periods are studied: imperial times (221BC-1901), Late Qing and ROC (Republic of China) (1901-1949), socialist reform period (1949-1978) and market reform period (1978-present). The proposed social power structure has three layers featuring the state, local elites and religious leaders etc, as well as the collective, of which their powers shift in these periods.

The four cases which are home to the mix of three ethnic groups (Han, Qiang and Tibetan) are located along an ancient cultural and trade route. These settlements now face increasing challenges from urbanisation, loss of cultural identity, rural to urban migration and local tourist policies that over-exploit rich cultural resources. Public spaces of the cases are categorised by degrees of publicness with regard to the social power structure. The transformation of these spaces is then interpreted according to the shift of power structure over time. The paper argues that public space is a relative concept and always produced by the social relations of a particular society and culture.

### ***Keywords***

*Publicness, public space, Chinese rural settlements, social power structure*

## **An investigation on influence of river on morphological aspects of a historical city**

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### ***Abstract***

Nature has a profound impact on urban form of historical cities. This study investigates the influence of river running through the historical part of Rasht city in Iran. As the main objective, we attempt to find the relationships between the morphological parameters of the fabric next by the river. Integrated with a quantified statistic, a sampling approach for both sides of the river is carried out. The results show that certain attributes rule the morphological aspects of sampled blocks where paths are ruling wizards between them. Orienting North-South paths, blocks are linear with small size grain. In East-West orientation, one can find a homogenous distribution of urban grain in blocks. In addition, it is revealed that geometry of parcels correlates with urban blocks and nearby path.

### ***Keywords***

*Urban morphology, river, block, path*

**URBAN MORPHOLOGICAL METHODS  
AND TECHNIQUES**



## **A New Comparative Analysis of Local Urban Morphology Based on Local Climate Zones : A Study Using Mobile surveys in Chengdu Testbed**

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### ***Abstract***

The local climate zones(LCZ) classification was introduced by Stewart and Oke (2012) to standardize climatic observations and aim at link different land cover types to corresponding thermal properties directly from the perspective of urban geography. Yet the classification needs further development when it is applied into local studies especially to analysis the urban morphology. The World Urban Database and Access Portal Tools (WUDAPT) aims to produce a global shared database capturing information on urban form and function for climate applications. Chengdu was chosen as a testbed for WUDAPT level 1 and level 2 development. During the rapid urbanization of the past, new open built-up regions with high-rise and high-intensity have been formed on the periphery of the traditional compact city center with multi-storeies and medium- high density in Chengdu. This study aims to improve the local development and validate the applicability of the LCZ classification in Chengdu in hot-summer and cold-winter area in China based on the urban morphological methods in Architecture and urban design. The traditional central urban area and the southern new urban area were selected to map the local climate zones (Level 0). A number of typical urban blocks of 6 LCZ types were chosen to make the observation route. A local urban morphological analysis template was developed, including morphotype, block layout, morphological indicators etc. Meanwhile, the mobile measurement is an amicable and potential method to research the thermal difference of diverse urban forms. Field investigation on urban morphology and mobile surveys on air temperature have been launched since the summer of 2017 to gather the air temperature by vehicle and walk. The result was in general accord with the LCZ theory. Moreover, it presented some interesting differences under the impact of local urban morphology. The template of local morphological analysis based on the meteorological metadata development showed important value to make more effective analysis.

Acknowledgement: the study is supported by Nature Science Foundation of China (51508496)

### ***Keywords***

*Local urban morphological analysis template, local climate zones (LCZ), World Urban Database and Access Portal Tools (WUDAPT), mobile surveys*

## **Measuring the link between morphology and accessibility in two peripheral neighborhoods**

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### ***Abstract***

Research on urban form and pedestrian accessibility suggests that on average smaller urban blocks (Jacobs, 1961; Dill, 2003) with more grid-like subdivisions (Greenwald and Boarnet, 2001; Boarnet and Crane, 2001) are better for pedestrians. However, the empirical evidence so far has been generally limited to the western context and to neighbourhoods within city centres (Siksna 1997; Sevtsuk et al., 2016). There is limited research that tests applied methodologies in cities of the developing world (Bayat, 2010) as well as in peripheral districts (Southworth and Owens 1993). As such, two neighborhoods in the periphery of Istanbul metropolitan city were considered as a critical case in the context of developing countries due to the challenges of rapid urban growth, struggle for transit-oriented development, and socio-economical transformations.

The purpose of the study is to analyse the effect of different urban morphologies within 400-meter buffers of an urban square located in these neighbourhoods –dominated by organic vs. grid-like street patterns and varied vs. uniform block sizes– on pedestrian accessibility. The study first highlights the physical evolution of these neighbourhoods by examining the changes that have occurred in block forms, street layout patterns, and land parcelling. Then it explores how urban morphology affects pedestrian accessibility within these areas. Urban morphology is measured by 10 key indices: intersection and block density, spatial integration of street network configuration, level of land-use mix, permeability as defined by Marshall (2005), buildings heights and footprints, grain size as measured by Peimani (2016), ground space index and open space ratio as explained by Berghauser Pont and Haupt (2005). Pedestrian accessibility is measured by the distribution of flows (as measured by pedestrian counts) around the squares and the patterns of route choices of users to reach the squares (as defined by questionnaires) within these areas.

Findings of this study can contribute significantly to the design and planning of public open spaces located at the periphery specifically in rapidly growing metropolitan areas.

### ***Keywords***

*Urban morphology, pedestrian accessibility, periphery, Istanbul, historical evolution*

## **Urban morphological regions: development of an idea**

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### ***Abstract***

The questions of how to articulate and represent the structure of the urban landscape have long been central to geographical urban morphology. Between the late 1950s and the late 1980s, MRG Cozen made a major contribution to the development of morphological regionalisation - the process of identifying and mapping urban landscape units or morphological regions that are fundamental to the understanding of the structure and growth of British towns and cities. In the past 2 to 3 decades, the scope of research on morphological regionalisation has widened both geographically, to include studies from diverse cultural regions, including the Far East, and professionally, to demonstrate its significance for planning and urban design. After a review of the origins and development of morphological regionalisation, this Chapter focuses on the research contributions by JWR Whitehand and his associates to the recent advancement of this morphological idea. They include its new utilization in a number of variants, its application and adaptation in different types of urban areas and different parts of the world, and its potential and issues in the use in conservation planning. The new exploration of morphological regionalisation is expected to contribute to the development of a body of integrated and accessible knowledge of urban morphology across cultures and disciplines.

### ***Keywords***

*Urban landscapes, urban morphology, urban morphological regions, urban landscape management*

## **Slope, Layers, and Walkability: Estimating the Link Between Pedestrian Accessibility and Land Values in the Morphology of High Density Cities**

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### ***Abstract***

Traditional urban economic models of the city postulate that the price and development intensity of land is a function of its accessibility (Alonso, 1964; Mills, 1972; Muth, 1969). In the field of economic and transportation geography, the concept of accessibility can be defined as the ease with which one can travel between origins and destinations of value (Páez, Scott, & Morency, 2012). With finite amounts of land, transportation infrastructure, and opportunities for interaction within a city, locations that are more accessible should command higher economic rent and greater development densities, all else being equal. More often than not, such research has found a positive association between accessibility and land prices, for example around rapid transit stations (Higgins & Kanaroglou, 2016). However, in practice, this concept of accessibility and its link to urban form outcomes is often operationalized in two dimensions, with existing approaches derived from, and most suitable for analyzing low- to medium-density cities.

In contrast, higher-density “volumetric” cities require new methods and techniques for estimating accessibility and its link to urban form. Per Shelton et al. (2011), volumetric cities feature multiple modes of movement and stacked layers of activities above and below ground with particular emphasis on pedestrian networks. Moreover, topographical variation in these layers of activities and their relationship with the ground presents additional complexity when considering pedestrian connectivity and the ease of movement. Quite simply, existing approaches to measuring access are not appropriate for capturing the dynamics of high-density, volumetric, and topographically-varied cities. In response, using a case study of Hong Kong Island, the present paper proposes a new approach to measuring pedestrian accessibility in volumetric cities, and estimates its link to land prices. Preliminary results suggest that topography and layered connections have a significant impact on walkability and access. Furthermore, econometric models suggest a link between connectivity and willingness to pay among households.

### ***Keywords***

*Accessibility, walkability, land value, volumetric*

## **Morphological techniques for assessing urban form of Istanbul's Historical Peninsula**

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### ***Abstract***

In this paper, the study of morphological transformation of historical peninsula in Istanbul is investigated. Urban form of historical peninsula evolved under predominant influence of religion and culture; besides it bears this symbolic imprint in its urban form. For this study, particular relevance is given to Islamic social complexes and its surrounding settlements. These areas have ground and underground remains from different time periods; Roman, Byzantine, Ottoman and Republican as well as important role in dominating silhouette. To the best of authors' knowledge, it is the first attempt to analyze those case study areas in terms of examining urban morphology in more detailed.

Urban morphology is an approach to analyze physical form of the cities, which are always transformed and developed by inhabitants. Morphological change of region is related with social and economic context, which have direct impact on town plan and building fabric. This paper aims to contribute understanding street pattern development, plot pattern change and replacement process of building pattern in urban morphology by adapting town plan analysis and syntactic measures.

The selected areas, are analyzed by adapting different methods of urban morphology; Conzenian school of thought field surveys and large-scale plans, an approach on block size and form proposed by Moudon subject to typology of house forms and lots and space syntax theory based on natural roads, axial lines and angular segment analyses recently introduced by space syntax community to interpret changes, differences and similarities on urban form. Furthermore, historical GIS is utilized as a tool in order to create a database. The aim of the study is to investigate reflection of different civilizations on urban form and reveal the interactions of spaces on morphological structure for dealing with change.

As a result, identification of unique characteristics of urban form, building pattern and transformation of town-plan is evaluated with combination of the different methods of Urban Morphology.

### ***Keywords***

*Urban morphology, town-plan, building pattern, Istanbul, Space Syntax, Conzenian Approach*

## **A typo-morphology reading and re-interpreting on the historic walled center of Xi'an, China**

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### ***Abstract***

This paper presents a typological and morphological study through identifying the different urban fabric spheres within the historic walled center of Xi'an. As a famous walled city with thousands years of history and a large amount of monumental relics, the historic urban fabric has been largely damaged due to large-scale reconstruction inside the Walled City since the 1990s. Plus, the conventional conservation plans since this century are either superficial on the appearance of buildings or only focus on isolated monuments regardless of the historic urban context. Worse still, the existed conventional conservation plans and strategies have created some obstacles on urban development for meeting contemporary living needs. Rather than improving the real local livability, projects are aiming at pursuing touristic economy, which drives considerable local inhabitants out of the walled city. Thus, the last decades have witnessed the Walled City has been deteriorating into touristic 'thematic park', leading decrease of its original inhabitants and habitability conditions. Inspired by experienced Italian typo-morphological approaches, this paper not only indicates the typo-morphological evolution process with physical urban fabric of Xi'an Walled City, but also discusses the various social context resulted in the urban transformations in certain typical periods. Through the typo-morphology reading, particularly regarding the social-culture context both from the historic and contemporary layers, Xi'an Walled City is classified into seven featured categories of urban fabrics with proposed corresponding rehabilitation strategies and treatments. Through this way, the paper aims at setting a methodological framework for the future rehabilitation process of the walled city of Xi'an and providing technical supports on guiding various urban forms to be well integrated into the contemporary city and to play a salient role for improving urban livability. The study is expected to serve as a representative example to inspire following rehabilitation research of historic centers in China.

### ***Keywords***

*Walled city, historic center, typo-morphology, social-culture context, Xi'an, China*

## **Mapping the Relationship between Site Coding and Street Spatial Configuration: Case Study in Nanjing, China**

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### ***Abstract***

Street spatial configuration regarded often as the urban design object is one of the characteristics of urban form, which is shaped by the buildings along the street. As is known to all, the positions of buildings are limited to its plot with site coding, building type and security rules, so that it is important to know the correlation between street spatial configuration and those urban regularities for urban designer. Based upon numerous urban rules referring to the street, our research has tried to study the relationship between site coding, building type, various city rules through the years and street spatial configuration, while mapping all kinds of rules becomes necessary process and method.

In order to do so, our research has built a 3D model for mapping consisting of all species and all the positions of plots and reflecting all the impacts of urban spatial regulations on plots and their buildings. Three groups of information are mapped on model: (1) urban planning indicates including land use and traffic network; (2) the plot size, shape, position and building types; (3) urban environment healthy and security rules. According to the mapping results, we tried to generate street spatial configuration model. The research shows clearly the importance of the urban regulations to the street spatial configuration and the problems of those rules to build urban form. Through statistical analysis, not only our study shows the limitation of street design but also the potential of the urban design and urban codes. Finally this paper makes a focus on discussing how the urban coding acts in morphologic process, especially in spatial configuration.

### ***Keywords***

*Street spatial configuration, urban regularity, site coding, building layout*

## **Microclimatic performance of urban form: an analytic method in energy-sensitive urban design**

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### ***Abstract***

Urbanised areas will remain the dominant consumers of energy in the coming decades. During the course of transformation of these areas – urban extensions, densification and requalification of existing urban areas - multiple opportunities emerge to integrate new and innovative design measures that create synergies between available energy resources, infrastructures and the spatial characteristics of the urban environment, with the purpose of reducing the energy demand.

In this so-called Energy Sensitive Urban Design approach, urban form characteristics can play an important role in the improvement of the energy performance. According to some studies, the relationship between urban form and building energy consumption accounts for one third of the total energy use. However, these studies largely neglect the microclimatic effects that the composition and configuration of the urban fabric creates, such as shading, alterations in wind patterns, elevated air temperatures, etc.

Therefore, a method has been developed that aims to analyse the impact of surrounding urban form on building microclimatic environment. It allows to examine, within complex spatial contexts, the environmental performance of morphological typologies based on quantitative variables.

In a first step, a set of morphological parameters describing openness to the sky, built density and roughness, are identified and related to microclimatic factors that affect energy use for heating and cooling at the building level. Secondly, the selected morphological parameters are used to analyse a district development masterplan in Zürich, Switzerland.

Thirdly, the case study area is modelled and simulated by using ENVI-met in order to predict the outdoor microclimatic performance in the specific climatic context. Lastly, the morphological parameters analysed in the first steps are correlated with the simulated microclimate data and, through comparison, conclusions are drawn regarding energy-sensitive urban form in the selected case study.

### ***Keywords***

*Energy-sensitive urban design, urban microclimate, morphological parameters*

## **Urban Morphology of the proximity parks system in Valencia. A typomorphological classification applicated to Camins al Grau quarter**

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### ***Abstract***

At present, main processes of urban growth in European cities have abandoned the extensive occupation of the territory that was years ago and have turned into the requalification and regeneration of their inner zones, seeking opportunities in obsolescent, underequipped and low urban quality areas. Public free space is the element of the urban system that gives structure to these areas of opportunity. However, the study of the urban form and the historical processes that have generated it by urban morphologists has traditionally been developed in a richer definition of the architectural form than the spatial. It is necessary, therefore, to expand the knowledge of urban morphology by extending it to public space and its typomorphological reading, determining a set of components that, once stated, compared and weighted, allow different ways to intervent in urban regeneration areas. In this context, neighborhood parks, traditionally underrated in the whole public space system of the city, acquire a special relevance in terms of aggregate surface, immediacy to housing and green-isolation potential; so they concentrate a large part of the neighborhood socialization. Its study has a tridisciplinary basis: morphological, social and environmental, so its recognition, characterization and typification are very necessary to define urban regeneration strategies to improve the quality of citizens' daily life. So this paper develops the morphological approach and aims to publicize a classification system of these parks that is based on their conditions of urban insertion, morphology, surface, volumetric enclosure, limits configuration and composition plan, which explain the urban form and have an impact on on psychological and environmental aspects of their users, conditioning their comfort status and their acceptance degree of the urban space they are using. For this, is proposed a methodology that translates these parameters to comparable variables that can be weighted in order to improve the design of efficient urban regeneration strategies. It is selected a case study for its application, focused at the scale of the district size and tested in Camins al Grau quarter, located between the historic center and the sea front and developed in the second half of the 20th century, with a sufficiently heterogeneous urban morphology that, once demonstrated the method's validity, it could be extrapolated to the whole city as urban morphology knowledge of the public space system.

### ***Keywords***

*Public space network, neighbourhood parks, typomorfological classification*

## **The Integration of Archetype into the development of World Urban Database and Access Portal Tool (WUDAPT) level 1 & 2 Method in Chengdu Testbed**

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### ***Abstract***

Based on the landscape classification from the view of climatology, the Local Climate Zone (LCZ) scheme developed by Stewart and Oke has provided the worldwide researchers a standard description on urban heat island at local climate scale with the friendly morpho-climatic language. World Urban Database and Access Portal Tool(WUDAPT) is designed to collect and manage urban data on urban form, material content and function for climate study issues and modeling applications for major cities throughout the world. WUDAPT consists of a portal system and a database, and the database structure is a hierarchy of different levels of urban data.

In WUDAPT level 0 method, urban areas are classified preliminarily based on available free online resources (Landsat imageries) and the expertise by local urban experts, and the LCZs classification maps can be generated at regional and city scale. However, the development of WUDAPT level 1&2 method is facing more challenge, it focuses on capturing high spatial precision data of urban blocks and building typologies worldwide. The methodology is based on a pragmatic approach related to the investigation and diagnosis of urban form characteristics, functions and buildings in a series of testbeds around the world, such as Chengdu. Therefore, the classic Archetype method in urban form study has been introduced and integrated into the WUDAPT level 1&2 development, from the view of local climate scale and the environmental thermal performance studies. With the innovative protocol supporting by crowdsourcing approaches, the representative urban blocks of each built-up types have been selected in Chengdu testbed. Moreover, the local morphological analysis template has been developed in form of the descriptors such as urban layout, morphological indicators and building typology etc. With the insitu morphological investigation and post-process, it sets up diverse but unique Urban Canopy Parameters (UCPs) to each urban block case study. The numerical simulation based on (Digital Surface Mode) DSM data with Urban Multi-scale Environmental Predictor (UMEP) has been applied based on a set of critical UCPs for each urban block. The environmental thermal performance of the representative case studies are characterized and compared under the refinement of LCZ scheme.

### ***Keywords***

*Local Climate Zone (LCZ) scheme, Archetype, World Urban Database and Access Portal Tool (WUDAPT), Urban Canopy Parameters (UCPs), testbed*

## **A comparative study on thermal environmental performance of the urban form prototypes based on local climate zone (LCZ) Scheme**

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### ***Abstract***

The local climate zone (LCZ) classification was introduced by Stewart and Oke (2012) to standardize climatic observations. It aims at link different land cover types to corresponding thermal properties directly from the perspective of urban geography. Yet the classification needs further development when it is applied into local urban morphology studies. The World Urban Database and Access Portal Tools (WUDAPT) aims to produce a global shared database capturing information on urban form and function for climate applications. Chengdu has been chosen as a testbed for WUDAPT level 1 and level 2 development.

The local climate zones (LCZ) classification standard universe is composed of two major subset “built types”1-10 and “land cover types” A-G. The standard set contains 10 sensitive thermal environment indicators, which represent the characteristics of urban morphology, surface coverage, building materials and human activities.

This paper tries to integrate “local climate zones (LCZ)”landscape classification system and “architectural typology” of Italian school. It analyzes the urban morphology in detail from the perspective of three-dimensional at district scale, which develops the analysis methods and templates of urban morphology.

As a methodology of categories, typology can classify the forms with similar structural characteristics. In architectural typology, the architectural mass (or interface) and its open space are two basic elements of urban texture.

This paper takes Chengdu as an experimental field in hot-summer and cold-winter area. Firstly, based on the survey of the actual urban morphology, this paper extracts and purifies the theoretical prototype of LCZ1 ~ 6.

Secondly, from the perspective of architectural typology, this paper transforms and combines various forms under the control of deep structure to explore different combinations types of architectural mass (or interface) and its open space. According to the architectural plane layout, underlying surface property and greening morphotypes, the theoretical prototype of LCZ1 ~ 6 would be further subdivided to construct analysis frameworks and templates of morphological theory cases and local morphology.

Moreover, this paper compares the morphological characteristics of these cases. Depending on the urban local climate numerical model “ENVI-met”, comparative studies on the outdoor thermal performance and the applicability validation of “local climate zones (LCZ)” are conducted on the different LCZ theoretical Prototypes or the different subdivision Prototypes under the summer and winter climate conditions.

Finally, this paper puts forward the guidance strategies of urban morphology control for the mitigation of heat island effect.

### ***Keywords***

*World Urban Database and Access Portal Tools (WUDAPT), local climate zones (LCZ), Architectural Typology, theoretical prototype, simulation and validation*

## **Connecting Morpho to urban vitality: the case of Moscow**

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### ***Abstract***

This article aims to contribute to the recent efforts of ISUF to bring closer and ultimately integrate the academic research on urban morphology and urban planning practice.

Methodological differences between schools of urban morphology are a barrier to integration between research and practice. Qualitative schools focus on the historico-geographical approach of MRG Conzen and the process typological approach based on the work of Muratori (Oliveira, 2016)). Quantitative schools include Space Syntax (Hillier, 1996) and various spatial analysis methods primarily popularised by Michael Batty (2013). Each school brings its value to the urban morphology research, but even the academics may not always be able to appropriately select the methods according to particular problems they are trying to address (Oliveira and Medeiros, 2016).

There is a need for a unified approach to the study of urban morphology. Oliveira (2013) proposed such an approach (Morpho) on a street scale, later Oliveira and Medeiros (2016) demonstrated its application at the city scale.

Building upon the Morpho methodology this paper assesses the urban form in Moscow using seven morphological measures. It then explores the effects of physical urban form in Moscow on urban vitality (where “vitality is what distinguishes successful urban areas from the others” (Montgomery, 1998)) characterised by (a) intensity of use of urban space (through analysis of mobile phone data and locations of businesses) and (b) land value (through residential rental rates – Xiao (2017) explored links between housing market and urban morphology extensively, but only in relation to a set of Space Syntax measures).

### ***Keywords***

*Urban morphology, physical urban form, Morpho, planning practice, assessment methodology, Moscow, intensity of use of urban space, land value*

## **Connectivity and accessibility as the key factors of the macro-space**

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### ***Abstract***

People recognize the territory according to their "mental map" [8]. The mental maps are individual, but the general and rational ideas about the urban environment are universal and depend mostly on education and experience. The big cities tend to grow according to the international cultural patterns and norms of Environmental Behavior. Environmental Behavior is reflecting the physical abilities of man. We suggest that the spatial structure of Macro-space can be analyzed through the two key factors: the accessibility and connectivity of place. Accessibility can be measured by the time one needs to reach the Macro-space and the Connectivity - by the number of people that could be part of social life in the core area. . Thus, Accessibility is an indicator of linear dimensions, physical boundaries and direction of links, and Connectivity is a derivative of the number of people, the density and the layout of settlement.

The Macro-space as a structural element of the urban. Macro space – is the common name for a number of topological models of Built Environment. Three basic types of Macro-space are: - "Enclave", -"Region", and "District" were first formulated in the book Urban Blocks (1987) and since that time the concept had come through several evaluations. The combination of basic models explains the social functions and spatial parameters of such patterns as an Urban block, Micro-region, Transit Oriented Development (TOD), Walkable city, Centric, Liner, Network structures of the urbanized areas and even the agglomerations. The presentation shows the effect of ACCESSIBILITY AND CONNECTIVITY for the development of public spaces of the town.

### ***Keywords***

*Cognitive urbanism, built environment, morphogenesis, macro-space, accessibility and connectivity*

## **The implosive approach and urban environment design**

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### ***Abstract***

The article considers the implosive approach features in research of urban territories and the application of the implosive techniques to the traditional urban design algorithm, by means of which, it can be widened by additional project steps, that supply adaptability of taken project decisions.

The implosion phenomenon in general academic submission is formulated as an «explosion, directed inside». The suggested approach develops an architectural version of this phenomenon as a model of external and internal project contexts interaction. The model displaces usual borders of the pre-project analysis stage of the design process and directly brings in its elements into the stage of project developing.

During the pre-project analysis stage in external project context the initial situation is synthesized as a «virtual simulacrum» of contextual links with environment, that are conditionally built in horizontal and vertical planes. The vertical plane is linked with history, genius loci and vernaculars, while the horizontal plane reflects actual urban processes of local and global levels. The inner project context is defined by the work of an architect's individual creative laboratory, forming a new type of territory emotional experience and the advantage of its resource potential, formalizing through the prism of personal appropriation (Rasuleva, 2016). In the implosive approach the result of external and internal contexts interaction becomes the creation of the initial situation model as a scenography of processes, actives and potentials of the examined territory (Rasuleva, 2016). The model forms the urban strategy in accordance with the target specification and creates the presuppositions of final forming adaptability to its changes of conditions from all interested participants.

During the project developing stage the created model adaptability to real life is technologically piloted in three basic regime-stages – «historical», «infrastructural» and «anthropogenic». The «historical» regime of adaptation is concentrated on providing the communication of the project with the historical and cultural potential of the territory (Rasuleva, Mukhamadullina, 2015). The «infrastructural» regime of adaptation supposes the examination of the initial territory in terms of stability and instability of its livelihood (Rasuleva, Volchik, 2015), (Sitar, 2017). The «anthropogenic» regime forms the access to the communication with the «users» of the territory, investors and the city administration (Sanoff, 2000). The feature of suggested mechanism of adaptation is the advantage of fixing every regime by the architectural form.

### ***Keywords***

*The implosive design method, research of urban territories, the contextual design*

## **The urban typology matrix (1867-1918)**

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### ***Abstract***

The study is going to describe those new methods in the field of urban morphology, which define the urban types in historic Hungary (1867-1918) via categorization of their diverse urban tissues and basic urban types. The method has been developed by the author because there were no suitable methods for the morphological research of the towns in the former Austria-Hungary (1867-1918). The first part of the study presents the limitations and opportunities that legitimize the need to develop the method. The urban types can be determined by the urban morphology matrix and it defines a higher degree of typology, the urban typology. 70 towns were studied and 16 basic urban types and 9 final urban types were distinguished in the territory of historic Hungary.

### ***Keywords***

*Urban typology, methodology, urban matrix*



# **URBAN MORPHOLOGICAL THEORY**



## **Taking a long view: two centuries of urban morphology**

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### **Abstract**

Research in urban morphology over the past two centuries, especially since the First World War and more particularly in recent decades, is reviewed. Attention is given to the development of different approaches and schools of thought, and the benefits for future research and practice to be derived from appreciating these. The example of research on the fringe-belt concept and the valuable links to be made with other disciplines and other aspects of urban form are discussed.

### ***Keywords***

*Urban morphology*

## **Urban Morphology's New Territories**

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### ***Abstract***

The tradition of UM studies is mainly based on the reading of historical fabrics from which general methods have been derived (Conzen from Alnwick, Muratori from Venice and Rome, Caniggia from Como).

The methods derived, particularly in the Italian school, have implicitly had the goal of ensuring continuity in the transformation processes of buildings and fabrics through the study of the formative laws and the phases of updating and changing. The problem of how economic structures act on the form of the city has only indirectly been taken into consideration, through the study of the specialization of building structures and their relations with the fabric. Today, however, these structures operate through global networks and the transformations underway derive from logics largely distant from the city's own forming processes.

It is therefore necessary to read with new tools fabrics that have lost their congruence with the traditional processes, originated by complex procedures that take place at the edge of the city as result of economic operations on a planetary scale. These great, anonymous metropolitan ganglia are, in fact, the profound expression and the problematic center of the current city. Their polar function, even if evident, has little to do with the poles of the consolidated fabrics collecting territorial routes and linking them to the life of the cities. The form of huge large-scale retail structures born between the city and the countryside, are perhaps the most immediate and readable representation of this phenomenon (Strappa, 2018).

Large retail spaces form the terminal pole in which a multitude of productive chains intersect, belonging more to worldwide systems than to the city.

And because of its character of architecture devoid of conscious aesthetic synthesis, (Chung, 2001) the contemporary retail space ends up producing typical "spontaneous" serial forms where the notion of aggregation seems replaced by the one, opposite and complementary, of subdivision (Longstreth, 2000).

The morphological-processual reading could, in these areas of study, demonstrate its critical character prefiguring a future in which polarizations generated by delocalized operations will reconstruct new connections with base building, according to new processes of restructuring, transformation, knotting.

### ***Keywords***

*City Transformation, Processual Reading, Contemporary Urban Design*

## **Morphology of the post-carbon city it the understanding of urban theory**

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### ***Abstract***

In the theory of urban planning there are several established concepts of the modern city. “Post-carbon” city for sample is the common definition describing wide list of the newest attitudes to urban design in general. The most important understanding is the idea about last technological revolution which should radically changes the form of the modern cities. It indicates a new era of understanding the morphology of the city due to the appearance of a series of the new interpretations of the zones and parts of the city as well as processes driving those changes. Attitude towards high quality of urban life is associated with understanding of dynamic synergetic uncontrolled urban processes and growing interest in the ways in which cities are changing their structures in this regard. At the turn of the 20th and 21st centuries, in the process of overcoming the problems of the industrial city, an active brainstorm took place in professional circles in search of a logical and comfortable structure of the modern city. In the twentieth century, first in the theory, then in the practice of urban development, new morphological units which were characteristic to the urban modernity, essentially changed the structure of cities. The “Modern city” of the twentieth century has accumulated morphological changes that are subject to study. Moreover, classical urban morphological concepts such as “market concretion”, “landscape units”, “fringe belts”, other confirm the general laws of the development of the city. Their action is manifested in the structure of a modern city.

### ***Keywords***

*City morphology, urban theory, applied morphological concepts*

## **Including Christopher Alexander's pattern languages and centers in the theoretical formulations of Urban Morphology**

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### ***Abstract***

Several formulations, including Conzenian ideas, the typo-morphology of the "Italian school," and space syntax, together provide a robust understanding of urban morphology. This paper will explore the relevance of Christopher Alexander's work to this discourse, connecting it to these existing formulations.

The paper will use three seminal works of Alexander. "A city is not a tree" was a critique of modernist planning based on an understanding of the functional complexity of cities, arguing that the traditional city is a networked system with multiple connections and choices. A Pattern Language put forward the idea of a linked series of relationships in the urban environment, each of which represents a spatial resolution to a possible functional conflict. And the formulation of centers at different scales, described in *The Nature of Order* and implemented in the simulation described in *A New Theory of Urban Design*, is an evolution of the pattern language idea, putting emphasis on the perceivable entity ("center") in its relationship to others.

These works are examined in the context of principal ideas of the well-known formulations of urban morphology. For example, the integration cores at different radii in space syntax will be described in relation to Alexander's centers. The plan areas of Conzenian analysis will be compared to the neighbourhoods and subcultures of Alexander's town-form patterns. The typological evolution described by the "Italian school" will be examined in light of the piecemeal growth advocated by Alexander.

In recent years writings in Urban Morphology have hypothesized the possibility of a unified view of urban morphology, synthesizing its different schools of thought. By analyzing several urban case studies, the paper will contribute to the discourse by bringing Alexander into the picture, which will hopefully provide one additional step toward such a unified theory.

### ***Keywords***

*City morphology, urban theory*

## **Irkutsk downtown street network and quarters morphology: the reconstruction strategy**

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### ***Abstract***

A method for analyzing the morphogenesis of a street network has been developed, which makes it possible to identify such properties of the network as connectivity, adaptation to an external bounding contour, stability and variability. Intersections with their configuration serve as "genes". The street network is assembled from intersections - nodes. As a whole, the network design will be derived from the type of nodes and from their share in the total number of nodes and types. Long arterial streets divide the territory into districts; short - the internal private space. The proportion of node types is changing and, accordingly, the architectural and planning structure of the city is changing. The centuries-old evolution of Irkutsk shows the dynamics of changes in the street network.

The streets serve as the axes of the frameworks of the territory. The coastal - the axes of the landscape-recreational framework. Arterial streets collect around themselves objects attracted by commercial interest consequently functional-morphological framework was formed. The historical heritage preservation depends upon both the attractiveness of the streets for significant objects placing and the factors of natural disasters or political cataclysms that lead the heritage destruction.

This concept was confirmed by the morphogenesis of quarters analysis. The key characteristic of the quarters for us is their mass-empty space scheme. It reflects the share of development and the share of open space, the connectivity of open spaces among themselves, the closeness of the building perimeter, the height and the density of buildings. By the middle of the 19th century the increase of open spaces share, their orthogonal ordering and increase in the convexity index gradient was directed from the historical core through the settlement to the foothill periphery, i.e. linearly. After the fire of 1879 the gradient changed. The center of gravity was pulled to the place of the central market.

The landscape-recreational framework of the historical center receives the form of a ring. The reason is that the downtown is surrounded by valuable natural landscapes. The density building gradient increases radially to the central market. The main crossroads - the district of the central market, is in the center of the ring.

The sanitation or the missing elements completion for the quarters patterns are proposed. The revealed regularities of the morphotypes belonging to the areas of urban frameworks indicate the manifestation of urban motivations in the evolution of the territory: different kinds of preservation; maintaining density and traffic, functional and commercial framework; and preservation and exposure of the architectural monuments in the historical and cultural zone. In general, this constitutes the scientific basis for the strategy of reconstruction of the historical Irkutsk downtown in the aspects of the sustainable development.

### ***Keywords***

*The territory frameworks, street network, morphology, quarters patterns, layout structure development, reconstruction strategy*

## **Urban Planning Traditions and Today's Demands**

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### ***Abstract***

This paper discusses the historical and theoretical outlined in the second part of the conference title: "from traditions to today's demands". Both concepts, presented in opposition to each other, need to be clarified. Urban planning traditions have been diverse. Today's demands also cannot be defined in a univocal way. Our aim is to identify the most valuable traditions that are worthy enough to be preserved and cultivated in future. We have to admit that in contemporary urban planning, there are traditions that contradict earlier customs and rules that at a certain point in history were recognized as outdated. They have to be revised. We should leave behind the tradition to oppose set off city and village against each other, as well as the Soviet ambition erase differences between them and to eliminate unpromising villages.

The growth of urban district territories, which are now identified with cities themselves, caused by the recent reform of local governance in Russia, as well as active processes of agglomeration require fundamentally new concepts of structure and character of the contemporary city incorporating the diverse architectural and natural living environment. The task is to minimize the conflicts between incompatible types of planning and development and to guarantee that they will not appear in the future. The paper formulates the author's ideas on the actualization of some ancient communal and corresponding urban-planning traditions and creation of friendly relations between difference loci of residential territories that definitely should have certain autonomy, and thus have wide enough spatial breaches, and by no means they should become monolithic residential areas. The democratic social organization requires the formation of an adequate morphology of contemporary settlements.

There is a defective tradition to unify residential development on the pretext that the democratic formation supposedly demands it. In truth, it is a manifestation characteristic of totalitarian regimes that force the right way to happiness upon their subjects. True democracy is inseparable from the interests and abilities of individuals, naturally very different and ever changing. This brings forth the necessity to individualize architectural decisions as well. Human beings can adapt to any environment, however, it does not mean that they should always be satisfied by the poor produce of today's construction industry. And even in the assortment of architectural supply becomes richer, it will not lead to the real success. Architecture on sale is not that same thing as architecture on demand, for yourself, for your family, for your successors. Here we make the conclusion that the mission of social and cultural development is to revive on a new level the traditions of private, mostly one-family estates disregarding their status. It is clear that "garden cities" of rural type are more preferable than today's "concrete jungles" that will gradually fade away as undermining human dignity heritage of the industrial era with its failed revolutionary utopian social experiments.

### ***Keywords***

*Architecture, art, urban planning, culture, environment, traditions and modernity, the fate of the village, individualization, democracy*

## **Lhasa Urban Morphology Evolution and Construction Patterns Analysis**

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### ***Abstract***

With the rapid development of urban modernization in Lhasa, urban morphology is facing unprecedented challenges, and there is a great contradiction between the protection of cityscape and the development of modernization. According to the individuation of Lhasa city and the special factors of Tibetan culture, this paper analyzes the collision between the urban traditional spatial form and modernized spatial form through the comparison between the spontaneous growth pattern and unitized layout pattern in Lhasa.

The spontaneous growth pattern is mainly represented by the areas formed by Tibetan Buddhism culture gravitation ,such as the Jokhang Temple Area and the Sera Monastery Area, and the communities formed by the citizens' independent construction ,such as the Gamalgongsan Community and Cusongtang Community), and the unitized layout pattern is the compulsory planning area mainly built by the government ,such as Chengguan Garden, Tibet Convention and Exhibition Center, Yu Tuo Road block. This paper analyzes and describes the urban texture, the street spatial features, the architectural prototypes, the environmental landscape elements, the architectural skin features and the living conditions of the citizens under the two models, and quantitatively compares the spatial morphology indexes ,such as building height, building density, floor area ratio, street aspect ratio, etc . This paper attempts to explore the development features and evolution patterns of the urban morphology in Lhasa so as to provide theoretical support and reference for the research of individualized and localized urban forms in Lhasa and other Tibet cities in the future.

Acknowledgement: the study is supported by Nature Science Foundation of China (51508496)

### ***Keywords***

*Spontaneous growth pattern, unitized layout, morphological types, Tibetan culture, Lhasa city*

## **Teaching different approaches in urban morphology**

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### ***Abstract***

Why, what and how to teach urban morphology? How to make an effective use of the different morphological approaches? These are two major questions of the debate in urban morphology studies. The ‘Emerging Perspectives on Urban Morphology’ / EPUM research project addresses these fundamental issues. Funded by the Erasmus + programme, the project brings together five partners from different countries in South and Central Europe that have been promoting different morphological approaches, from the historico-geographical approach to the process-typological approach and to space syntax. Through a continuous learning process of meetings, teaching activities and workshops, that gathers a diverse set of teachers and learners, EPUM will: i) compare and improve the ways in which urban form and the agents and processes that are responsible for its transformation over time, are taught; ii) compare the theoretical, conceptual and methodological basis of the different approaches, identifying their main strengths and weaknesses, and exploring the possibilities to combine some of these different ways of describing, explaining and prescribing the physical form of cities. This paper, in particular, will discuss the theoretical framework, the process/methodology and the intended results of the project.

### ***Keywords***

*Teaching urban morphology, different approaches, historico-geographical approach, process-typological approach, space syntax*

## **Typo-morphology and environmental perception of urban space**

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### ***Abstract***

Urban design can be understood as an art to arrange design elements such as streets, lots, buildings, land uses, sidewalks, building façades, urban furniture, landscaping, etc. in urban space. These design elements can derive from morphological research. Typo-morphology is a branch of urban morphology that works with urban elements or/and patterns. Urban morphologists intuitively understand and abstract structural elements of cities. They organize them in a morphological structure and create typologies of urban elements and patterns.

Understanding morphological structure in a context of perception and cognition of urban space can be important for urban designers and morphologically informed urban design. This paper discusses how morphological structure and its design elements affects different perceptual modalities. Vision is the dominant sense in humans, and the predominant focus in architecture and urban design. Visual perception is enhanced when supported by related auditory cues and vice versa. Sounds provide an important link to reality, are enriching and protective. We pay more attention to sources we can hear but not see, for example a car approaching from behind. Without sound, visual perception is less contrastful and less informative.

### ***Keywords***

Typo-morphology, morphological structure, visual perception, auditory perception

## **A Review of The Relationship between Urban greening morphology and urban climate**

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### ***Abstract***

Green space in built environment has the regulation on climate which contains reducing solar access, cooling, humidification , producing breeze in local area. Therefore, it has a great improvement effect on urban local climate. The investigation discovered that existing study on the relationship between morphology and climate are mainly based on hard elements as buildings, pavements and so on but few based on soft elements as green space or so.

This paper tries to bring together the former studies on the relationship between green space and local climate by typology methods. First, focus on individual green Space, dividing existing research according to their research scale. Analyzing how the spatial characteristics of green space effect local climate based on these studies and how to measure and describe the spatial characteristics of green space through landscape language. Then, extending research to green spaces in built environment on block scale, summarize the classification of green spaces and how they impact local climate from former research.

Finally, summarizing the relationship between urban greening morphology and urban climate.

### ***Keywords***

*Urban greening morphology, Spatial characteristics, Local Climate, typology, Landscape pattern*

## **The explanatory power of Space Syntax and Urban Morphology**

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### ***Abstract***

Space Syntax, developed by Hillier and his colleagues, and Urban Morphology, developed by Muratori, Whitehand, Conzen and the School of Versailles are significant contributions for generating general understandings or theory building on built environments. In this contribution Roy Bhaskar's critical realistic model of science and Georg Henrik von Wright's account of explanation and understanding are used to assess the explanatory power of Space Syntax and Urban Morphology research.

In essence subsequent considerations will distinguish between a theory able to offer an explanation of phenomena and a theory proposing an understanding thereof. As concluded, Space Syntax can offer an explanation of changes in a built environment in terms of cause and effect, while Urban Morphology aims at an understanding of the meaning associated with the causes at issue. The first perspective concerns built form and function, while the latter one concerns built form and meaning. Examples from cases where both research methods are applied will be used and discussed throughout the paper.

### ***Keywords***

*Theory building, Space Syntax, urban morphology, modal logics, explanatory power, urbanism*

## **Multi-layer analysis of morphology of the city of Krasnoyarsk based on concept urban landscape units**

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### ***Abstract***

The Conzenian concept of the urban landscape unit is one of the most diverse approaches to the study of urban morphology: (Hiroyuki Yoshida 2004, Manabu Omae 2004, Kai Gu 2013, J.R. Shi 2015, other).

Large cities around the world are growing that is why diversity of the urban landscape units is forming within the city's boundaries. That entails an inevitable change of the urban form and the complication of the city morphology. In fast-growing and changing world, the analysis of urban morphology is relevant. Morphology of each city could be understood as the dynamic system of the interlinked urban landscape units

This research introduced the study of urban morphology based on the concept of an urban landscape unit, relying on the methods of big data. Understanding of the city as the combination of the different in the "context" urban landscape units is important for the strategic planning of the further development historically justified morphological structure.

The uniqueness of the urban morphological structure is forming under the pressure of the anthropogenic and natural factors in accordance with historical sequence.

The main purpose of the paper is to study the interrelation of the urban landscape units forming and the morphological structure of the city of Krasnoyarsk. The study identified the main morphotypes of city of Krasnoyarsk: historical block of the urban core, microdistricts of the different periods of construction (1950-60, 1970-80), various forms of individual housing construction, modern block. The result of the study is a multi-layer information model based on open data and geographic information systems. The understanding of the morphological structure of the city of Krasnoyarsk through the morphologic electronic model will help urban designer to evaluate qualities of the future development.

### ***Keywords***

*Urban morphology, landscape units, Krasnoyarsk, micro district, big data, urban landscape*

## **Urban blocks and Architectural Typology in the Milanese context**

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### ***Abstract***

The paper concerns the analysis of a large number of urban blocks in the central area of Milan and in particular those situated on the north-east axis (corso Venezia, corso Buenos Aires, via Padova). It is about an analysis, which has been developed during the last semester (course of: Elements of Architectural typology, prof. Michele Caja, coll: Carlo Biraghi and Sotirios Zaroulas). It started with the redrawing of the lots, which form each block, and then proceeded to the typological and graphical classification of the single houses.

The classification that Aldo Rossi reports in his book *The architecture of the city* constitutes the basic reference to this analysis. Moreover, some recent experiences are also considered, such as that one carried out by Steven Holl and published in the Pamphlet Architecture 5 series, with the title *The alphabetical city*. So, in addition to the four types of urban houses that Aldo Rossi suggests – a block of houses surrounded by open space, a block of houses connected to each other and facing the street, a deep block of houses, and the houses with closed courts – it is suggested here some sub-categories of houses, such as the "L", the "H" house, the "T" house, or the "open court" house, etc.

In addition to a greater knowledge of the city of Milan and its building types, this operation has been able to contribute significantly to the construction of the architectural design. In fact, the analysis offers the occasion for a greater familiarity with the terms of typological-morphological analysis and with the concept of block, which constitutes the minimum urban portion, and for this reason the basis for a study on the relationship between the city and its architecture, between the shape of the city and the building type. Moreover, through the analysis is made use of the fundamental theoretical notions for an urban analytical study, such as the relationship between the lot and the built-up area or between the irregular lot and the building type.

### ***Keywords***

*City of Milan, urban block, urban house, building classification*

## **Teaching urban morphology**

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### ***Abstract***

This presentation is based on the book ‘Teaching urban morphology’ recently published by Springer. The book brings together contributions from some of the foremost international experts in the field of urban morphology (with a sound diversity in terms of morphological approach, geographical provenance, disciplinary background and age / generation) and addresses major questions such as: What exactly is urban morphology? Why teach it? What contents should be taught in an urban morphology course? And how can it be taught most effectively? Over the past few decades there has been a growing awareness of the importance of urban form in connection with the many dimensions – social, economic, and environmental – of our lives in cities. As a result, urban morphology – the science of urban form, and now over a century old – has taken on a key role in the debate on the past, present and future of cities. And yet it remains unclear how urban morphologists should convey the main morphological theories, concepts and techniques to our students – the potential researchers of, and practitioners in, the urban landscapes of tomorrow. This presentation, as the book ‘Teaching urban morphology’, addresses that gap, debating how to teach urban morphology.

### ***Keywords***

*Teaching urban morphology, urban morphology, urban form, different approaches*

**URBAN MORPHOLOGY,  
REGENERATION AND NEWEST URBAN DESIGN**



**Expressionist urban renewal interventions:  
Avenida del Oeste in Valencia among other valuable cases**

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***Abstract***

The last, great urban renewal interventions in a Haussmannian way were developed along the 20th century deeply related to modern avant-gardes' architecture. The success of those urban interventions is largely due to the construction of modern, iconic buildings recognisable by the public in large. Rationalist expressionist buildings became the optimal picture of modernity in cities refurbishment. Such architecture is closely linked to the geometry of the lots generated by the urban new lines opened on former urban patterns, where most of the parcels cover round corners as can be found in a series of case studies. In addition, some cases show a sort of gate to modernity by the construction of twin, modern buildings at both sides of a new urban street, drawing on round expressionist architecture. That is the case of Avenida del Oeste in Valencia -old town Westside avenue- from the 1930s, where a pair of interesting mid-century skyscrapers open the southern end of the avenue to the city; Similar interventions had been appeared in Spain, such as Gran Vía in Madrid or Via Laietana in Barcelona. In all the cases, urban transformations generated perfect corner parcels for expressionist architecture following the models by Mendelsohn in Berlin (1925), Wroclaw and Stuttgart (1928), or Chemnitz (1930). Urban renewal and expressionist architecture connections can be found all over Europe, such as in Skippergata extension in Oslo, Boulevard Pasteur in Tangier, Bulevardul Magheru in Bucharest or –in a smaller scale- Asbóth utca street in Budapest, among many others. The point is that Modernity architecture reached town planning lines establishing a complete theoretical corpus in the history of urban disciplines. Furthermore, as Avenida del Oeste was one of the latest examples to be implemented, it is also one of the best examples on the matter.

***Keywords***

*Urban morphology, urban renewal, historical center, urban pattern, regeneration, comparative analysis, expressionist rationalist architecture.*

## **A smart city – “The triad of development agents”**

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### ***Abstract***

The largest urban agglomerations of the country are entering a period of active structural and spatial transformations. Samara region is included as a pilot site in the Federal program called “The Smart city. A successful region” and is actively preparing proposals for the project financing factory.

The currently formed both theoretical and realizable models of " smart " cities, integrating the directions of modern urbanization – Informatization, democratization, clustering, gentrification, digitalization, etc., put forward several fundamental models of urbanization in the XXI century. One of these models called "The Triad of Development Agents” is currently being developed in the scientific community of the Samara region.

The socio-spatial activity basis of the model is a smart university, smart park-plant and a smart city. The territorial and spatial basis of urban development is CHPZ – the central historical planning zone of the city of Samara.

Samara State Technical University, its scientific and design potential are looked at as a " smart” University. The "Smart Park-Plant" is an industrial park of the University and its partners in the territory of the former plant of valves. The "Smart city" is administrative and public organizations of urban development, activists of urban movements.

The structural elements of the three pilot projects in the CHPZ are a smart quarter, smart street and a smart square, in the urban environment of which about 30 innovative urban "green" technologies are gradually introduced – from the spheres of public utilities, resource saving, heritage restoration, media technologies, transport and pedestrian infrastructure and fiscal system of taxation. The choice of “smart” technologies is ultimately focused on the digital economy of the spheres of activity in the territory.

The expected result of the pilot projects is a sustainable urban environment focused on the digital economy, implementation experience with the potential to spread to urban and regional areas and settlements in the Samara region and the Russian Federation as a whole.

### ***Keywords***

*The smart city, urban morphology*

## **The Nikolaevskaya Sloboda – the future city-garden in Krasnoyarsk** Tsarev Vladimir I.

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### ***Abstract***

In the early XX century the search for new approaches to urban transformation has led to a proliferation in Russia the idea of «city-garden» of the British futurologist E. Howard. In 1910-1920 years of the projects of city-gardens were developed for the practical development of the Siberian cities: Kuznetsk, Barnaul, Omsk, Tomsk, Shcheglov (Kemerovo), Novo-Nikolaevsk (Novosibirsk). In the XX century and in the beginning of this century the idea of cities-gardens proved acceptable for many countries, the authorities which took the new movement in urban planning to alleviate social contradictions, instilling in form of improvement of populated areas to the masses of citizens.

In modern urban practice of Krasnoyarsk is a crucial time in the transformation of the historically established environment, which requires you to pay close attention to the idea of forming cities-gardens, which arose a hundred years ago. In a residential area with the historical name Nikolaevskaya Sloboda in the near future there will be a wide thoroughfare that would, as the experience of the formation areas of the last decade, the desire of investors for placement in such areas high density development high-rise buildings.

It is the idea of the city-garden propose to present the Nikolaevskaya Sloboda as a territory, harmoniously combining modern and historic buildings, the use of which allows to satisfy the cultural needs of the population of the city and to honor the traditions of the past centuries, to preserve objects of historical and architectural heritage. As a result teachers and students of the Department of «urban planning» IAiD SFU field surveys, analysis of archival documents and relevant project materials at this site, and study global theoretical and practical experience with a unique farmstead buildings in the urban environment tasks were identified renovation and found «adaptive» ways of their solution aimed at the development of historical and cultural potential of the Nikolaevskaya Sloboda. The interaction of the principles of the city-garden and the proposed approaches allows to achieve a significant architectural diversity, maintain important for the history of Krasnoyarsk cultural landscape, to a more high quality environment in general.

### ***Keywords***

*City-garden, renovation areas, the historic city, the preservation of the cultural heritage, the Siberian cities, Krasnoyarsk*

## **Complexity and contradiction of open space by planned unit development in Taiwan**

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### ***Abstract***

Since the 1960s, planned unit development (PUD) has been strategic to improve the zoning system with more flexibility and compatibility. Until the 1990s, PUD even had widely applied in the cities in Taiwan to encourage the overall planning for the privately owned public space (POPS) by giving the bulk reward, especially in large building sites. However, the POPS plans are hence only to become the “formula” with quantitative indicators of the open space in the complex consideration of matching the reward criteria and pursuing the maximum profitability. Shapes, directions or the so-called sense of surrounding and directionality are ignored in such of cases. This phenomenon is analysed in this study by observing the layout plan of each building site in Kaohsiung, the second largest city in Taiwan. By mapping of open spaces in the building sites in the past two years, the forms of open spaces are mostly correlated with the conditions of building sites, more precisely the adjacent roads, and there are three types of arrangements. Firstly, trail-type open space, buildings and free spaces in private or community territory are arranged from the edge to centre on the single-adjacent-road sites. Secondly, on the bilateral-adjacent-road sites, there is usually only trail-type open space on both sides of site edge. Lastly, on the “peninsula-form” site, there are few square-type or free spaces in private or community territory, and trail-type open spaces surround the buildings. Moreover, after this formation process, trail-type open spaces are usually planned in an overlarge size and configuring numerous plants to grab more bonus bulk, making the spaces discontinuous and negative. The positive spaces, however, are usually provided as owned territory, leading the result of POPS in contradiction to its original purpose.

### ***Keywords***

*Large building site, planned unit development, open space, complexities and contradictions, urban design*

## **The pocket parks morphology. Case study in the consolidated periphery of Valencia. (Spain)**

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### ***Abstract***

Due to its shape (Philippe Panerai) and its use (Jane Jacobs, Jan Gehl), urban pocket parks are essential for the proper balance of the city. It is necessary to take them into account in the process of integral urban regeneration. Their spatial and material quality, the internal efficiency and comfortability are relevant as well as the relationship with the rest of the components of the urban structure.

The morpho-typological analysis (Giancarlo Cataldi) allows us to know about the public spaces historical conformation, the plot system changes and the construction character of private soil.

Some operational systems, such as the "patterns of language" (Christopher Alexander) and other perceptuals (Kevin Lynch) allow us to establish a link between the morpho-typological analysis and the urban project.

On the basis of these principles and their possible operational tools, we present a methodology of analysis and its application to a sector of the city of Valencia and to some of the pocket parks existing on it. As a matter of tools we have used the current cadastral map, which we have superimposed the photogrammetric flights of 2008, 1992, 1973, 1950 and the topographic map of 1929-1944, since the mentioned sector belongs to the Valencia's urban expansion of the 20th century second half.

### ***Keywords***

*Urban pocket parks, integral urban regeneration, morpho-typological analysis, urban project, methodology of analysis and application*

## **Research on landscape-oriented urban design: Take QIXIAN new industry district design in Fengxian, Shanghai as example**

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### ***Abstract***

In recent years, low carbon and ecology have gradually become one of the most important topics in the field of architecture and urban design. Under the background of new urbanization in China, the status of eco-city theory and landscape design practice are gradually increasing in urban design. Therefore, as a new type of urban design, the landscape-oriented urban design has a strong practical significance. This method requires landscape going first in urban design and the layout of the buildings around the landscape design comes afterward.

Fengxian District, part of Shanghai, is located in the southeast of the Yangtze River Delta. Since 1980s, the industry in Fengxian District has been developing rapidly with the main industry types of food, cardboard boxes, candy, printing, beauty and so on. This article takes the urban design of QiXian industrial zone as an example, introducing the application of landscape-oriented urban design method. In this project, the venue is about 1.2 km long from east to west and 350 m wide from north to south. The original land function is for industrial usage and it is to be transformed into a new industrial park where leading health and beauty as the leading industry.

The design concept revolves around the "U-shaped" landscape corridors and creates a continuous corridor suitable for walking. A multi-story layout of "architecture-landscape-architecture" is adopted to construct the layout of the buildings around the landscape design and adopts the form of courtyard.

The paper explores landscape-oriented urban morphology design and provides new possibilities for landscape eco-city design. This paper is subsidized by NSFC project which is named as <Research on Technical System of "Downtown Factory" Community-oriented Regeneration in Yangtze River Delta Region>, NO.51678412.

### ***Keywords***

*Urban design, landscape-oriented, Fengxian, industry district, Shanghai*

## **Redevelopment of the historically valuable territories of the Krasnoyarsk City**

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### ***Abstract***

The report contains the results of the research of "adaptive" and "conflict-free" redevelopment methods for the unique single family housing areas, based on a differentiated assessment of the territory in order to identify potential reserves for gradual functional transformation in accordance with the changed needs of society, taking into account the urban morphology and preserving the individuality of the artistic appearance of the cultural and historical environment.

In the General plan of Krasnoyarsk-2033 the unique single family housing areas - Nikolaevskaya Sloboda and Pokrovskaya Sloboda (19-20 centuries) were identified for the area of multi-storey high-density residential development. The mass demolition of houses having cultural, historical and architectural value has begun. Krasnoyarsk has lost not only a small-scale settings that emphasized and did not violate the unique natural landscapes of Afontovo Mountain and Karaulnaya Mountain, but also a unique historical and cultural environment, the spirit of that places.

In addition, these territories are valuable city-forming objects of a certain period of Krasnoyarsk City development, so space planning and composition, scale of development, relationship between different urban spaces (free, built-up, landscaped), and relationship between the natural and man-made environment, - all of them represent a special value.

Of course, traditionally, the development of the surrounding area over time requires a functional, landscape, social adaptation of historical objects to the new conditions of their functioning: whether it is with regard to residential development or public open spaces. Any settlement with the history of development faces these problems. And the international experience in the historical territories reconstruction has accumulated many examples of the "adaptive" and "conflict-free" redevelopment method for the unique single family housing areas, based on the preservation of valuable historical buildings, preservation of urban morphology and land use structure. It allows achieving considerable architectural diversity, to maintain the important cultural landscape for the city history, to get a higher environmental quality in general.

### ***Keywords***

*"Adaptive" and "conflict-free" redevelopment, historically valuable territories, single family housing areas*

## **Urban morphology and spatial optimization strategy of industrial small town in China under “new urbanization movement” – A case study of Tangzha**

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### ***Abstract***

China has experienced the largest and most rapid urbanization process for the past 20 years due to the large amount of rural population and booming economy. Overcrowd mega-cities, polluted environment and "hollowed" villages are the consequences. The Chinese government introduced a movement called “new urbanization” to promote green, efficient and people-oriented urbanization strategy. Small town plays an important role in urbanization as the lubricant and linkage between cities and villages. Industrial small town is one of the key elements in the city system. However, many Chinese industrial small towns lack of professional planning to respond to the industrial and social restructuring. Characteristics in urban form is the core value of industrial small towns but some of them lost their characteristics by simply copying big cities. This article used scientific methods like space syntax, GIS and regression model to analyze the spatial structure and urban form of the first modern industrial small town in China-Tangzha, find the law of its spatial development and its connection with other social factors including household income, government policies and public service . Try to provide optimization strategies to guide the development of industrial small town under “new urbanization”.

### ***Keywords***

*Industrial small town; space syntax; new urbanization; urban morphology*

## **Urban Design, Connectivity and its Role in Building Spatial Resilience**

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### ***Abstract***

Cities are increasingly being regarded as complex dynamic systems, coupled with the growing uncertainties for urban areas brought about by factors like global climate change, sociopolitical instability and limited resources. The necessity for cities to be adaptive and responsive to these concerns, while chasing the goals of sustainability has left many urban practitioners in a difficult position. Where they do not have the tools or conceptual frameworks available which place the factors of change and time as the central themes in how they plan cities. In response to this, resilience is becoming a prevailing framework, as the notion of adaptive change across spatial scales is a core characteristic of resilient urban systems. This has led many cities to pursue the development of resilient city strategies. Yet, many of these strategies often disregard the role that urban design plays in building resilience.

To compound matters, resilience is an emergent property of a system. As such, it cannot be measured directly, it can only be indirectly inferred through a series of proxies. Connectivity is one of the few proxies related to resilience that is also commonly associated with urban design and urban regeneration.

As part of a larger study, this paper takes an initial look at connectivity – more specifically street patterns - as one of the prerequisites for urban resilience. The role of connectivity in building spatial resilience will be investigated. Additionally, some of the existing measures of connectivity and how they can be used to gain insights into the resilience of the urban environment will also be touched upon.

It is hoped that through this discussion that further steps towards linking resilience with urban form is made, while identifying the specific aspects for improved reintegration and overall spatial resilience.

### ***Keywords***

*Urban resilience, proxies, connectivity, urban morphology, urban design*

## **Exploring Self-Generated Block Consolidation to Accommodate Amenity-Based Functional Interventions**

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### ***Abstract***

Self-generated informal settlements are the product of incremental, individual decisions to build upon land which leads to a gradual aggregation of buildings that form urban blocks (Sioufi, 1981). The resulting block shapes and sizes may be suitable for meeting an individual's needs for housing, but may not meet the community's needs for amenities that have a larger footprint or required area.

Based on measures tested and developed in the work of Colaninno et al in Barcelona (Colaninno et al., 2011) and Song and Knaap in Portland (Song and Knaap, 2007); this study firstly analyses self-generated urban blocks in terms of their shape and size, and then explores how self-generated blocks can be further consolidated to improve their resilience and allow for a wider range of community amenities such as schools, hospitals, etc. This type of informed intervention will improve community living standards and allow the settlement to develop into a holistic functional neighbourhood that can easily be incorporated into the wider urban fabric. The methodology of this study uses two urban morphology measures; square compactness (Maceachren, 1985; Steadman et al., 2000), which measures the block's deviation from a square, and elongation (Angel et al., 2010; Schumm, 1956), which uses the longest axis of the shape to measure its deviation from a circle. The area and perimeter of the block will also be considered according to the proposed intervention. The case studies selected are settlements that are self-generated, rather than appropriated settlements or settlements that were originally formal.

It is expected that blocks can be consolidated to accept functions which require a large area, but since the existing blocks often contain housing, a holistic intervention plan (Levy, 1999) will be presented that consolidates blocks, proposes new functions, moves housing to a suitable nearby area and reroutes streets to allow access without disrupting existing functions.

### ***Keywords***

*Urban morphology, block measures, elongation, square compactness, informal settlements, Cairo, Egypt, amenities, interventions*

## **Villages renaissance through old church buildings**

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### ***Abstract***

World spread globalization is a continuously process which necessitate growing of big cities with prospering metropolises and the process of emptiness small cities and rural settlements. The problem of the extinction of the Russian countryside is one of the acute social and economic problems of modern Russia. What is more, according to The World Bank's data, the tendency of the decrease in the share of the rural population is also relevant for countries of Europe and the USA. Nowadays, Large-scale project “Comprehensive revival, reconstruction of small and medium-sized historical cities” is drafting by the Ministry of Culture of Russia. For 8 years from 2002 to 2010 the number of abandoned villages rocketed from 13 to 19,5 thousand. Hence, amount of abandoned rural churches also is increasing, currently there are about 7900 in Russia. The church has always been the spiritual center of the settlement, without it the traditional life cannot be preserved or revived. The proposal anticipates that sustainability means modernized vernacular solutions which corresponds with the need of modern society. Development is by all means qualitative transformation: displacement obsolete with something else, more complex, which incorporates all the successful from the former before as said Glazychev, Russian scholar. Firstly, analyzing worldwide experience of churches and villages revival, and in particular research from Lund University about rural-urban interdependencies, the proposal studies traditional life and urban structure of a village when a church was a focal point of a settlement. Secondly, the paper answers on the questions: “Could orthodox church be a starting point of the process of rural and small-cities revival? Which features of vernacular rural structure should be preserved to provide its prosperity and sustainability?”. Moreover, discusses the recommendations on a business-oriented approach in re-use of the rural sacred heritage instead of obsolete budget oriented.

### ***Keywords***

*Sacred architecture, focal points, villages' revival, abandoned orthodox churches, business-oriented approach*

## **Transformation of public spaces influenced by private, public and government interests**

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### ***Abstract***

Public spaces are formed depending on the formation of the processes of social life. Today, public places of large cities are a special object of renovation, as that is where private, public and government interests are confronted. The study the method for interaction of these interests and its influence on the transformation processes of the morphology of public spaces are of great importance. Comparative analysis the historiography of the formation of main plaza in the case the Square Revolucia in Krasnoyarsk (Russia) and Augustusplatz in Leipzig (Germany) shows that there is a relationship between the morphology of public space and the method for interaction of private, public and government interests to them. Private-partner and government relations in the main plaza form the specific public space model. The dominant government interest minimizes public space in terms of the potential for social initiative and peoples' participation, resulting in loss of plaza as public space and its substitution by a square. Private-partnership relations, on the other hand, form the contemporary models of a universal public space and transform its physical parameters. Identified types of these relationships can be used in the reconstruction of public space with the aim of preventing them as important open public spaces of the modern city.

### ***Keywords***

*Open public spaces, transformation of public space, private-partnership relations on public space, morphology of public space*

## **Transition to project financing in housing construction as a new vector of urban development**

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### ***Abstract***

Currently, most of the urban housing construction is financed by equity holders through the conclusion of equity participation agreements. This scheme of construction's organization does not allow solving such important issues as market transparency, home buyers risks reduction, and most importantly the quality of development. Today, a new generation of housing consumers forms the demand for housing individualization, environmental friendliness, ergonomics and comfort. A new generation, the so-called Y generation, prefers a reliable "smart space" which can be not large but isolated. The intersection of these two requests forms the demand for integrated energy efficiency of modern urban housing. That is a challenge to the existing system of housing construction and the construction industry as a whole.

In this context, the organization of urban housing construction in form of project financing will create proper conditions for the introduction of energy-efficient living space.

The request for the green certification is now significant and tends to grow. Also, projects on the housing and communal services digitalization and housing security systems have been already being implemented. Intelligent housing management is becoming an integral part of residential complexes.

However, for a large-scale smart systems introduction, for the formation of an integrated energy-efficient approach in housing construction, a full-fledged implementation mechanism is needed.

As a result of the study, the strengths and weaknesses of the project financing mechanism's implementation in the city housing construction will be revealed, the potential risks for the project participants will be evaluated, and the quantitative and qualitative changes in urban housing construction as a result of the transition from equity participation agreements to project financing will be assessed.

### ***Keywords***

*Development of urban areas, housing construction, energy efficiency, project financing*

## **The influence of urban mobility on morphology of residential areas**

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### ***Abstract***

Cities have historically been organized around their streets. Communication has always been being the base of the city's body. The dynamics development of technical, social, economic and political spheres led to warp of functional links on urban territories. These processes are formed urban mobility has been becoming the most important factor of cities functional. For this reason urban fabric of nowadays consist of many gaps are destroying the human scale and links of environment. Residential areas are being under a lot of pressure of urban mobility too.

Significant role in urban mobility have played automobilization of the population. When the speed of movement in a city has increased living space expanded. Pressure of communication promote to sprawl holistic of residential territory. For example, the internal pedestrian organization of the Soviet microdistrict destroyed. Spatial model of the microdistrict transformed into enlarged block with decreasing in area for 75 percent. In addition, localization of districts broke down the social ties of the residents. On the other hand, we can observe another side of urban mobility means revival various forms of mass transit. The solution provides for ranking of transport and pedestrian areas, as well as the consolidation of private and public property zones. The direction is comfortable and livable city.

The article is devoted to analyze of residential areas for changes. Main target of this scientific research based on comparison of European and Russian examples of microdistricts to formulate future concept of the livable city. Transformations and renovation principles are illustrated on living space of Krasnoyarsk.

### ***Keywords***

*Urban mobility, residential areas, living space, livable city, microdistrict, urban transformations*

## **The role of eco-city theory and historic fabric on shaped urban spaces in Iran with emphasis on climatic features**

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### ***Abstract***

Most of the world's population now lives in cities. So, eco-city is about re-building cities based on ecological principles for the long term sustainability, cultural vitality. It is a human settlement that enables its residents to live a good quality of life in urban spaces while using minimal natural resources (Register,2006) and weds the theory and practice of urban design, as a means of adaptation, with the insights of ecology –the study of the relationships between living organisms and their environment and the processes that shape both– and other environmental disciplines, such as climatology, history, art and etc(Spirn,2012). it adds a new dimension to the understanding and application of the concept of urban spaces design, based on hypotheses about feedback between culture and climatic processes that has the greatest impact on the nature of cities and city life because urban design is the art of relating structures to one another and to their natural setting to serve contemporary living(Lang,2005).The challenge is to encourage local urban design within a context of sustainability. It has been widely discussed as to whether or how they have helped transitioning of cities into more sustainable organisms in the urban historical fabric through design processes. This paper initially focuses on the evolution of the concept of the eco-city, and shows how it can be linked to issues ranging from historic fabric and contemporary design. Therefore, it prepares to summarize and systematize the insights that have been obtained from 'eco-city' based urban design implemented and revealed gaps in eco-city knowledge, especially in Iran with particular emphasis given Niasar. Then, regarding to the historic aspect is the most tangible aspect to review other dimensions such as physical, cultural, functional gathered data through using observations. The findings suggested that water and vegetation-the most important concepts in culture of Iranian urban design - are city aspects that impact the specific urban spaces with especially attention to eco-city and historic fabric theory through the creation of dynamic organism in Niasar. While integreting both of them is complex in many ways, but can and should be influenced or guided in more desirable directions through design activities. Thus, recognizing and extracting the unique features of the city setting and applying knowledge of urban design, it will be presented some guidelines to improve the urban spaces and create better place.

### ***Keywords***

*Eco-city, historic fabric, urban organism, urban design, urban space*

## **Reflexion of the past in the modern development: a Usolye case-study**

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### ***Abstract***

The article tells about the study of a historic area of the town Usolye, its transformations and development from the main salt production center in Urals in the XVIII-XIX centuries to the decayed historic architectural complex at present. The objectives of the research were to understand the transformations of the area: factors influencing the development of the locality, the transition from past to present, the elaboration of identify and classify methods for the architectural complex.

Multiscale study of Usolye using census instrument adopted the following methods: general territory study; census database creation; synthesis of the data in a form of thematic maps; study of the certain layers: ruins study and buildings detailed study. The methods are based by Guidance on Inventory and Documentation of the Cultural Heritage and Guidance on Cultural Heritage, Technical Tools for Heritage Conservation and Management. The obtained results include the census database of 71 buildings and structures, a remote sensing historic analysis map, a study of ruins, several detailed studies of typologies and thematic maps of Usolye. The integrated methodology of research, precise digital measurements and perceptive investigation were used to access the state of the complex nowadays. Gained data is a base for the further conceptions of the development and preservation of the historic sites of Usolye and Upper Kama Region.

Census digital database defines the landscaping and environmental aspects, as well as the diagnostic picture of each element within existing context and on the basis of its intrinsic characteristics, discovers possible untraditional elements, and as a result, finds the way to reestablish the correct structure of the place and to define the conditions for management and future development of the locality. The documentation and investigation of Usolye using various methods in the framework of census research activity will help to create a cultural path that tries to reconnect information from different references and data acquisition methods to rebuild the image of Prikamye architecture and define the vision for Usolye.

The authors used the architectural methodology according to M. Bini, S. Bertocci and R. Letellier as the guidelines for the study of Historic Architectural Complex in Usolye. In addition to archival and cartographic documents, the study uses the work of Vladimir Kostochkin.

### ***Keywords***

*Usolye historic architectural complex, census, documentation, remote sensing analysis, thematic maps, database*

## **The Relationships Between Urban Morphology and Accessibility to Waterfront Area: Case study of Ningbo three-river junction area**

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### ***Abstract***

As the birthplace of Hemudu culture, Ningbo was first built at the intersection of Yong river, Yuyao river and Fenghua river in 821. The three rivers were mostly used as moat and navigation. After 2000s, with rapidly transforming of transportation mode and demanding of urban expansion, the defensive function disappeared, the shipping function gradually weakened and transformed to urban public leisure space. However, in this process, the waterfront has been lacking of vitality. The weak connections between the two sides of the rivers have also led to huge vitality differences.

In order to explain what methods and how they were used in response to the transformation, questions below should be asked: In the historical process of functional transformation, has urban form of three-river junction area changed? What has changed? Does the original space organization law play a role? And finally, How the urban form affects the accessibility of waterfront area?

The purpose of the study is to shed light on the dynamics of the link between urban morphology and accessibility through a detailed documentation and analysis of its spatial manifestations reflected in the waterfront land-cover changes over a 30-year period. This paper focuses on three inter-related areas to answer above questions:

Temporal-spatial evolution: This paper explores how factors such as river structure, street structure, land use and property, block shape were changing in Ningbo three-river junction area.

Syntactic analysis of the street network: Through the structural modeling of the street network, the integration degree, selection degree and connection degree are calculated, and the accessibility diagram of its obtained at each stage.

Activity data: 55 observation points of waterfront area were randomly selected. Pedestrians were observed in these areas at six different times on 2 weekdays and Sunday, along with land use. And an activity map was used to mark the activities in spatial distribution.

Variations in the accessibility of waterfront area exist not only between the different land use categories but within the particular land uses themselves. Analysis of accessibility in the context of the research has revealed that the impact of proximity to the commercial land use on the distribution of walking activities is continuously weakening, while the integration of streets is becoming more and more important. The results of the morphological analysis of temporal-spatial evolution can be used for the prediction of their future development.

### **Keywords:**

*Urban morphology, land use, accessibility, waterfront area, space syntax*

## **Ecological corridors morphology inside the urban structure in forming of city environmental framework**

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### ***Abstract***

Ecological corridors are one of important parts of city's ecological framework. Usually, ecological corridor is the valley of small river or ravine that cross the city and occupy substantial areas. Small rivers and ravines are inappropriate territories for development; consequently growing city ignores these territories. As a result ecological corridors became neglected and abandoned.

Historical analysis of city's plans of Perm discovered that the interaction of the valleys of small rivers with the surrounding urban areas has historically changed. There are several periods of these changing: from the city on both banks of small river, extensive use for gardening, degradation. The urban status of small river's valleys also is changing. For the beginning it was the territory on the city's periphery (1797), for the nowadays it is the ecological resources inside the city with the preserved ecosystem which is exposed to strong anthropogenic impact (2017).

The understanding of identity and diversity of the territories adjoined to these ecological corridors and different options for use could be the possibility for transformation and changing the situation. In this paper the typology of the territories forming the ecological corridors, typology of the surrounding and adjacent buildings, and types of their interaction, are described. All of these are defined through the natural survey and the urban codes and plans analysis. The recommendations for each of morphotypes of river valley and ravines which are located in different options in the urban structure are depending on the different scales of design, urban situation, and greenery area typology.

The results of the morphological analysis of elementary residential planning units of the modern city can be used for the prediction of their future development.

**Keywords:** ecological corridor, landscape morphotype, river valley, ecological framework, areas interaction, urban structure.

### **Keywords:**

*Ecological corridor, landscape morphotype, river valley, ecological framework, areas interaction, urban structure*

## **Study on the Urban Morphology of the "10 de Agosto" Avenue Corridor in Quito City – Ecuador**

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### ***Abstract***

Since the 70s, the city of Quito has experienced a vertiginous growth of its urban area. Currently, its urban area is around 43,000 hectares, five (5) times its size registered for 1980 (7,800has.). This dizzying urban expansion has resulted in a diffuse city. Its expansion and dispersion towards the peripheral valleys has left in the city urban pieces with dominant activities, centralities and micro-centralities, almost mono-functional spaces for commercial use and office uses that have considerably diminished the vitality of the city and that resulted in urban fragmentation as well as economic, social and cultural spatial segregation. This is a generalized trend in the contemporary Latin American city.

In this context, the neighborhoods located to the east and west of the "10 de Agosto" avenue -which were the result of the first expansion of Quito (1930-1980)- have been experiencing an intense process of urban deterioration. It is estimated, as a result of the construction of the Trolleybus system (1996) and the peripheral bypass roads to the east and west of the city, that the urban functions of the avenue became unclear.

The Architecture and Design Faculty of the University of the Americas-Quito, has developed a recent research -with prospective and prescriptive purposes- that has allowed to identify the morphological changes experienced in this corridor from its origin to the present, based on the analysis of the historical information, land use and buildings using GIS data and their comparison with current urban planning instruments, such as ordinances and current urban plans.

### ***Keywords***

*Urban morphology, avenue corridor, 10 de Agosto, morphological changes, historical neighborhoods, urban sprawl, urban design, urban development, Quito city*

## **Edifice of architectural space developing in extreme conditions of Mars**

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### ***Abstract***

The essay dwells upon the basic principles of the architectural space developing in the stress conditions of the Mars. The architectural environment has always played a significant role in social advancement.

Nowadays the research study of the environment space forming factors and principles should be corresponded with the needs of a modern man and public at large. In the meantime, the development of science and technology provides the feasibility of the architectural environment reorganization in light of the necessary requirement to human life and activities.

In the making architectural space, it is necessary to take into account the reasons determined the natural circumstances. Based on these facts, let's take a closer look at the architectural environment in the extreme habitat conditions. The worst conditions for human life and activities of the Mars ecosystem have been chosen for clarity. The architectural space constitution in extreme conditions will allow us to synthesize and analyze information of the morphology, development and function of artificial habitat. The classification model based on typological and hierarchical methods is used.

The general principles are presented in the typological method such as: core principle and all-pervading principles.

In the article discusses that the core principle is the constant improvement of the architectural space in the extreme habitat conditions. The all-pervading principles include: 1) the principle of consumer orientation; 2) the principle of making fair decisions based on reliable facts; 3) the principle of finalization and monitoring results. Hierarchical way is divided into external and internal factors. Under external factors in the edifice creation are thought of as the influence of following aspects ecology, economics and technology. Internal factors rely on the interaction of the architectural space with a man and society at large.

The study of the edifice placemaking in the Mars extreme habitat conditions is based on the strategy of improving architectural spaces not only outside the Earth, but also on its surface. The authors are convinced that such a grotesque example allows to study and develop the topic of extreme conditions and present the best results in the follow-up research.

### ***Keywords***

Architectural environment, society, system, space, planet, Mars, principles, extreme conditions



# BOOK OF ABSTRACTS

## **25th ISUF International Conference**

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### **Urban Form and Social Context: from traditions to newest demands**

Scientific Editors:

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