

# URBAN HOUSE TRANSFORMATION (FROM TRADITIONAL TO CONTEMPORARY URBAN HOUSE)

part one:

Development of the Traditional Urban Family House\*

## A B S T R A C T

The principal aim of this research is maladjustment of the traditional family house space concept to the requirements of the contemporary city and to the needs of an urban emancipated citizen. New patterns of every-day life seek their sanctuary in new living models, striving to re-evaluate the current patterns and determine spatial and social frame for the development of the contemporary family house adjusted to the urbanity of the 21st century town.

The main aim is to define the elements and characteristics of contemporary urbane family house spatial structure by establishing mutual support between private and public domain of every-day life, throughout observation and analyses of spatial concept of the traditional urban family house, and also throughout the examination of its transformation during the first and second half of the 20th century, and by establishing the potential and final limits of its growth at the beginning of the 21st century. The first part of the analysis deals with transformation of the traditional house structure and determination of basic elements of the traditional urban house.

At the turn of the century, in the urban renewal and regeneration era, the economic and rational parameters were expanding over to the lifestyle and culture areas, significantly changing the relation of the conflicting sides, the global socio-economic demands and the local cultural and historical values of the place. The town centre has found itself undergoing a delicate phase of its development, keeping the balance between the strategies that have been stimulating the global, economic and political progress of the metropolis and those local initiatives stimulating the development of the identity aimed at satisfying the needs of its citizens.

The principal cause of the research is the maladjustment of the space concept of the traditional family house to the requirements of the modern town and to the needs of the urban emancipated citizen. The new patterns of everyday life seek their sanctuary in the new models of living, therefore there is a need to re-evaluate the current patterns and determine spatial and social framework for the development of the modern family house adjusted to the urbanity of the twenty-first century town.

The main aim is to define the elements and characteristics of the modern concept of the urban family house spatial structure by establishing the mutual support between the private and the public domains of everyday life, by means of perception and analyses of the spatial concept of the traditional urban family house, also by the study of its transformation during the first and the second half of the twentieth century, and by establishing the potential and final limits of its development at the beginning of the twenty-first century.

Given that the term of the urban family house incorporates a duality in its name, the relation between the town and the family (the collective and the individual, the private and the public) has determined its concept; the task of the research is to establish the nature of the transformation of the urban family house spatial concept due to the user-town relation. The transformation of the urban family house concept is studied in terms of the relation between the private and the public lifestyle domain i.e. through the opposition of the exogenous factors related to the urban environment and the endogenous factors related to the house user.

## INTRODUCTION

The town centre re-urbanisation (whether talking about the cultural and historical town core, residential area, multi-functional area or the area of morphologically distinguished nature) is aimed at satisfying the needs of the

most valuable human resource – the different layers of economically active and culturally diverse groups of people who find their alternative for the suburban lifestyle in the urban lifestyle. Those are the groups the lifestyle of which, on one part, assumes the life in a single-family house, and on the other part, it assumes a publicly hectic everyday routine.

Given that the family house is the manifestation of the residents' cultural patterns, and since the urban life style has been determined by the relation between the public aspect of the urban domain and the seclusion of the private domain, the key for upgrading the preservation of the town centre lies in revitalization of the urban family house. The promotion of the urban “hectic lifestyle” house enables the integration of the inherited ambience into modern life stream, and facilitates the compactness and high level of urbanity of the town centre through socio-economic prosperity and cultural identity.

If the statements that architecture is the materialised culture and the changes in the cultural sphere are reflected in the functional and physical sphere of its structure represent the starting point; then the family house is one of the most vital and most significant indicators where the intricacy and contradiction of the urban structure and the urban lifestyle transformation are extremely visible and studied with the greatest attention. The house, being the closest to the man is therefore the most sensitive to lifestyle changes.

The house depicts the human situation most profoundly and in the smallest detail and it sublimates the greatest amount of the individual desires and incumbent social system values. It is the mediator between the residents of the urban environments and therefore is formed in the relation between the private and the public.

#### THE MANNER OF THE URBAN FAMILY HOUSE PERCEPTION

The way the urban family house concept is perceived relies on Amos Rapport's researches within the field of the housing culture and on the urban structure typology of Miloš Bobić, Gert Urhahn<sup>1</sup>.

According to Amos Rapport, the housing culture relates to the way the behavioural patterns influence forming of a residential area. This presents the search for those qualities of space that have an impact upon the user's lifestyle and it is the search for the manner in which the user has been influencing the space built in the immediate environment. Given that the role of architecture is

to define the quality of space, the crucial factor for determining the architectural house concept lies in everyday routine.

According to Bobić and Urhahn, a certain type of structure, by means of its characteristics, influences primarily the spatial concept of the houses that create such structure. The urban structure and its quality are closely studied in terms of the following parameters: density, compactness, level of diverseness and type of texture, which are, according to Bobić, crucial for drawing up the morphological house framework.

While Rapport, within the above mentioned studies, approaches drawing up of the house space through the housing culture, Bobić approaches it as the logical outcome of the environment it belongs to. It can be noticed that this research addresses the analysis of the basic characteristics of the aspect and studies the spatial quality of the house and accepts both approaches as equal and with the same significance in drawing up the spatial structure of the house. Through the system of the user's needs and family life scenario on one hand, and through the functioning demands and development of the urban town tissue and through the urban everyday routine scenario on the other hand, the relation between the man and the town reveals the entire complexity of the architectural concept of the house, and it makes it possible to diminish the opposing private and public life domains. Due to maintaining the balance between those two factors, the concept of the spatial house structure capable of becoming integrated within the urban tissue as well as of identifying itself with the user will be defined.

#### THE URBAN FAMILY HOUSE SPATIAL CONCEPT

Single-family housing possesses an individual quality and represents an independent spatial, organisational and social entity with a single household. This residential type is spatially determined by a parcel and a house and represents the entity within the inner and outer, indoor and outdoor space where all vital and some user's cultural needs have been satisfied. It is in terms of economy independent and socially relatively closed entity. Single-family housing includes private ownership and rental relation.

Throughout the process of development of the town centre, single-family housing can be implemented into the standard structure of cultural and historical core, into the residential area and depending on the characteristics of the inherited structure into the structure of multi-functional centre and into areas of distinguished morphological characteristics. While the percentage of single-family housing manifestation is extremely high in the historical core, in the areas of multi-functional centre this percentage is irrelevant.

Residential area is an inter-median element between the man and the urban environment. It includes the house – a home as the centre of human housing and the urban environment as a limited space where all functions and activities necessary for everyday life are found. The balance between the private and the public life domains establishes the outdoor – indoor relation, the extricated – involved relation, the open – closed relation and it makes the residential area in the urban town structure, owing to the above mentioned parameters, concrete. The principal value is in the private – public relation which by the level of adjustment of the spatial framework to the inherited town structure and the user’s lifestyle enables the urban housing to be the essential part of town structure and the regulator of its urbanity.

Since architecture is the main field of research, the concept primarily concerns defining the elements and characteristics of spatial house by additional studies of the principles and patterns of its formation.

#### MANNER OF URBAN FAMILY HOUSE SPATIAL CONCEPT PERCEPTION

“Cities are amalgams of buildings and people.”  
Spiro Kostof

While analysing town space Kostof points out the connection between the built form and the man as an essential element for the existence of town. Seen in a manner that Kostof perceives the town; the family house is the amalgam of man and his environment. The selection of place (where), the way the house is adjusted to the environment (how) and the level of fulfilling the lives of families and the town (to which extent) determine the house concept.

Spatial concept is a complex entity created in relation to the functional, physical and cultural dimensions. In order to enable the concept analysis to penetrate the essential relations that are established between the house and the town on one hand and its residents on the other hand, the spatial structure should be broken down into segments.

The functional and physical dimensions of the spatial concept are made concrete through the indoor-outdoor (closed-open) relation. They are determined in relation to man predominately through the internal structure of activities and functions of the residential area, i.e. through the manner the activities are carried out. As regards the relation to town they are determined through the articulation of its external structure.

The lifestyle of the user determines the internal structure. It is regulated by the everyday life and everyday activities of the users, their disposition and level of compactness, housing relation, work and leisure, by the activities and the manner in which the family life is involved in town life.

The outlined urban life code determines the external structure. Sublimation of the outdoor-indoor effects establishes the level of complexity, tissue density, urban texture, physical potential and house structure involvement in the town structure. The mutual impact of these two references determines density and form intensity and architectural quality of urban family house structure. Therefore, the functional and physical dimension as the inseparable entity that represents the architectural form will be analysed through the internal and external structure. This division has limited use, but it is required for the purpose of more thorough perception in the process of analysis.

The private-public relation (the individual-collective) will make cultural dimension of spatial house structure concrete. In relation to man, this dimension is determined through values, cultural norms and standards, everyday life patterns, through family structure sustained within the resident's lifestyle. Cultural aspect in relation to the urban environment is determined by the nature and identity of the inherited structure, by the level of integration and permeation, by urbanity and by the sense of the place i.e. by its *genius loci*.

As long as the level of form urbanity is determined by the particular lifestyle, the level of activity and accessibility as well as the language of architecture determine the house form by the limitation and potential of the cultural context of the inherited matrix. Cultural aspect of occurrence is outlined in their mutual communication, by the way of spatial interpretation of the relation of the public and private lifestyle domain.

## FAMILY HOUSE CONCEPT ANALYSIS

The traditional urban house spatial concept is perceived through a wide range of particular examples of each epoch. According to the analysis of:

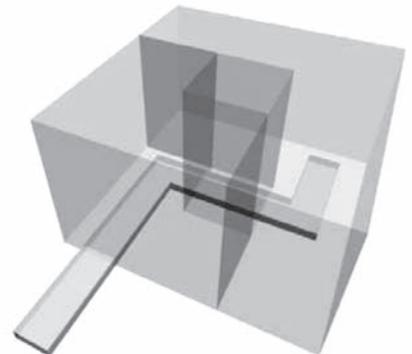
- the dimensional and positional relation between the house and the parcel and the level of use,
- the volume-surface relation, the compactness-density relation and the construction index,
- the activity diagram (back and forth, top-down, vertical-horizontal, periphery-centre),

- axial aspect, repetition, symmetry and gradation of space,
- the cultural space quality through the private-public relation, the work-housing relation, the representational-family relation, the individual-collective relation, and
- the figural quality of space through open-closed, indoor-outdoor.

The analysis is expected to demonstrate the permanent archetype values, deeply rooted in the family urban house concept, and to show those values that indicate and insinuate the potential of the traditional concept transformation. These potentially variable characteristics are to be the starting point of analysing and defining the modern family house concept.

#### THE ANCIENT CIVILIZATIONS: SMALL ASIAN HOUSE (scheme 1)

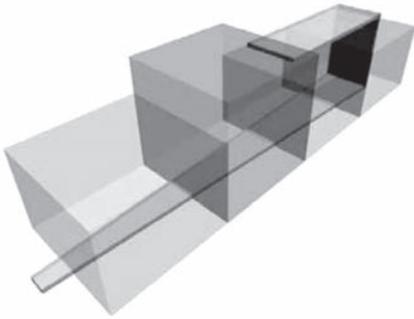
- area: house = parcel (cc.100m<sup>2</sup>)
- volume: two-storey house (500m<sup>3</sup>)
- indoor / outdoor relation: 70%/30%
- living / working relation: 100%/0%
- living / service relation: 75%/25%
- compact, closed, private / secluded domestic life
- activity diagram / diagonal axis, horizontal distribution
- organisation / central, gradation around central court
- figural quality / closed
- identity / front door decoration
- public / private relation: 0%/100%
- ceremonial / domestic relation: 15%/85%



scheme\_1

Archaeological remains of the Catal Huyuk settlement in the southern Anatolia and the remains of the residential area in Ur town, dating from approximately 3000 years BCE, and an ideal reconstruction of the typical Sumerian-Acadian house, depict the regular urban texture with an intricate street network testifying to the spontaneous development of the urban entity. There is a classical strictness in connection between the modular, residential unities with high-level organisation and equipment. According to Bruno Milić, the residential quarters' blueprints possess certain visible harmonious relation between the individual and collective living within the framework of multi-layer urban agglomerate. The compact house is spatially defined with boundary walls and inner central yard towards which the inner spaces are oriented.

## THE ANCIENT CIVILIZATIONS: THE EGYPTIAN HOUSE (scheme 2)

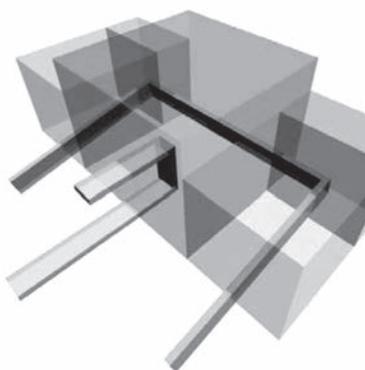


- area: house = parcel (cc.100m<sup>2</sup>)
- volume: one-storey house + roof terrace 350m<sup>3</sup>
- indoor / outdoor relation: 80%/20%
- living / working relation: 100%/0%
- living / service relation: 80%/20%
- high density, semi-private towards local community life
- activity diagram / horizontal axis, linear distribution
- organisation / linear gradation of privacy
- figural quality / closed - street, open - roof terrace
- identity / inviting – full colourful decoration of facade
- public / private relation: 20%/80%
- ceremonial / domestic relation: 30%/70%

scheme 2

Archaeological remains of the Deir el Medine urban unit, dated approximately 1000 years BCE, slightly distinguish itself from the regular texture and in that way exhibit the spontaneous side of its development. According to M Cope, the town, populated by craftsmen, merchants, painters and sculptors, possessed high level of autonomy and the house had significant role in establishing the public urban life. The town was completely enclosed by the 50m long and 130m wide wall. The main streets were 2m-3m wide. The houses were in size and shape similar to each other, 4m-20m high, 3m-5m wide. Djehutinefer's composition depicts the everyday life in an Egyptian house, the relation between the private and public everyday life domains, the roles that certain family members had, the demographic structure of the family and very vivaciously presents the proportions of some internal house activities.

## THE ANCIENT CIVILIZATIONS: THE CRETE-MYCENAE HOUSE (scheme 3)



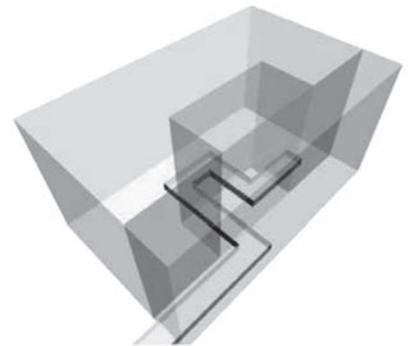
- area: house = parcel (cc.75-150m<sup>2</sup>)
- volume: 1<sup>st</sup> storey ceremonial, 2<sup>nd</sup> storey private (300-700m<sup>3</sup>)
- indoor / outdoor relation: 70%/30%
- living / working relation: 100%/0%
- living / service relation: 70%/30%
- high density, perforated towards local community life
- activity diagram / segregation, maze,
- organisation / central gradation around ceremonial room
- figural quality / dense structure open to public realm
- identity / inviting – decoration in/outside
- public / private relation: 0%/100%
- ceremonial / domestic relation: 30%/70%

scheme 3

Archaeological remains of the house at Knossos, Crete epoch, or the remains of the house at Phylakopi in the Minoan civilization, were integrated into dense irregular urban matrix. Those houses are compact, and their complex structure is characterised by the entrance area and its vestibule, the area of residential rooms, the ceremonial room area with or without a column in the middle, made from Megaron, the great hall in the Mycenaean palace, and a room for food preservation. The main feature of the concept is determined by the movement diagram that defines all internal house structures and it establishes the relation between the private and public i.e. the relation between the representational domain and the family life domain.

#### THE ANCIENT CIVILIZATIONS: THE GREEK HOUSE (scheme 4)

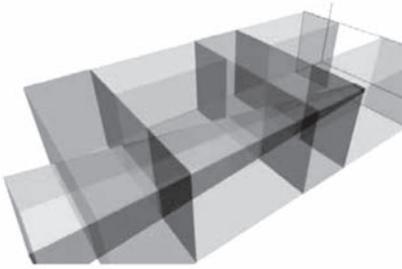
- area: house = parcel (cc.300-600m<sup>2</sup> up to 1200m<sup>2</sup>)
- volume: single-storey house (around 2000m<sup>3</sup> up to 6000m<sup>3</sup>)
- indoor / outdoor relation: 60%/40%
- living / working relation: 100%/0%
- living / service relation: 70%/30%
- compact, closed, public / private,
- duality (public–man+service, private–woman+domestic)
- activity diagram / diagonal axis, directed, front / back
- organisation / central gradation around central court
- figural quality / perforated structure open to the public
- identity / enclosed, private
- public / private relation: 20%/80%
- ceremonial / domestic relation: 15%/85%



scheme 4

Archaeological remains of the town and the house from Priene, dated approximately 200 years BCE, depict typical Hellenistic house type in relatively regular geometrical shape of the town structure and distinguished position of Mégaron. The archaeological remains of the town and the houses in Delos show to some extent different picture of the house blueprint in the irregular urban matrix. This is a slightly more simplified house type, the Mégaron vanishes slowly and it is substituted with a greater central yard with the passage as the recessive part of the former Mégaron's vestibule. The central yard was its substitute and with the passage, it defined the transit towards the residential part of the house. The structure of the house spatial concept was defined by the double sided internal structure and in that sense makes clear distinction of the space between the left-right relation and the centre-periphery relation.

## THE ANCIENT CIVILIZATIONS: THE ROMAN HOUSE (scheme 5)



scheme 5

- area: house = parcel (cc. 600m<sup>2</sup> up to 1500m<sup>2</sup>)
- volume: one-storey house (around 2500m<sup>3</sup> up to 8000m<sup>3</sup>)
- indoor / outdoor relation: 50%/50%
- living / working relation: 80%/20%
- living / service relation: 60%/40%
- compact, open, public / semi-public / private
- duality (ceremonial, semi-public-man, private-woman)
- activity diagram / central horizontal axis, gradation
- organisation / linear gradation of around courts
- figural quality / perforated open to urban life, symmetry
- identity / inviting – full colourful decoration of the house
- public / private relation: 20%/80%
- ceremonial / domestic relation: 40%/60%

Archaeological remains of the ancient town Herculaneum reveal relatively correct matrix susceptible to houses placing. There is a clear distinction of the primary and the secondary way of organising the house. Presentation of the vast number of archaeological remains, the houses from the Herculaneum and Pompeii, surpasses the prospect of this research and therefore only two typical house types are presented. The selected types in the best possible way depict Pompeii house blueprints with its characteristic structure of the Roman urban house. The concept is defined by emphasising the space activity and its gradation from the public domain of urban life style to the utterly private domain of a family house. Space concept is produced throughout their ranging around the atrium, primarily placed, and represents the essence of the Roman everyday life.

The following conclusions can be made based upon the analysis of the typical representatives of each epoch of the ancient world. Development of single-family house in the dense urban tissue. Concept of spatial structure mainly depends on life style, whereas the harmonization of the nature of the urban structure takes the second place. The concept strictly follows the established codes of every-day life whereas the spatial structure adjusts to urban matrix and it shows the interpretive potential, the level of concept flexibility. It is the compact structure that with its external structure adjusts to the morphological characteristics of urban environment and its internal structure obeys the every-day ritual rules.

The enclosing wall and inner yard conceptually distinguish the spatial house concept. Within the enclosing walls, the spaces expand around inner yard, hierarchically arranged from the entrance to the more private rooms on the other side of the inner yard. With the development of the society, the need for separation of the public and private life inside the house makes the house structure even more complicated. The four main areas are: the entrance area, the ceremonial area, the residential area and the service area. They are arranged hierarchically from the ceremonial area closest to the entrance area to the residential area being completely isolated. The Roman house has one area more, at the house part facing the street, belonging to the urban everyday life. House equipment is well preserved, with visible remains of the water pipes, kitchens, bathrooms and sanitary facilities.

House is primarily determined with lifestyle. At the same time house is a home, a family nest, and the place to meet people, to carry on conversation, and to conduct business. It is the place where family, servants and even guests live.

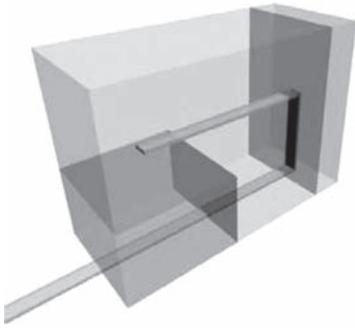
Private-public relation is settled through axial aspect and gradation of spatial frames from the street to the inner part of the block. The axial aspect is emphasised by gradation of the society, by the functions, by the size of a room and by the movement continuity.

Integration-segregation relation is established by connecting the inner yard and adjoining rooms on one part and by the division of areas, on the other part. Centralism is achieved by the orientation of the inner spaces towards its inner yards.

Open-closed relation exists due to the opposition of inner yards' spaces and closed spaces encompassing them.

Indoor-outdoors relation is defined by the entrance door presentation that clearly separates the world of streets from the world of house. On the other hand the inner part has several levels, from the public and the open towards the yard to the more private, the closed one.

## PRE-INDUSTRIAL TOWN: MEDIEVAL HOUSE (scheme 6)

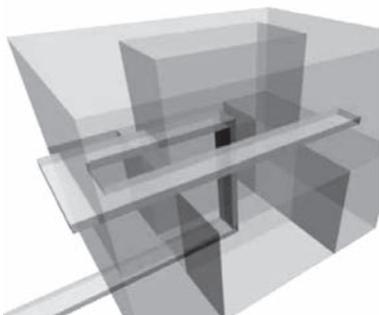


scheme 6

- area : house < parcel (house cc.60m<sup>2</sup> / parcel cc.90m<sup>2</sup>)
- volume : three-storey house (450m<sup>3</sup>)
- relation inside / outside : 70%/30%
- relation living / working : 65%/35%
- relation living / service : 60%/40%
- compact, flexible inner structure, public / private
- duality (public-working zone, private-living zone)
- acitivity diagram / gradation of privacy up / down  
gradation of activity front/back
- organisation / central, vertical repetition of structure
- figural quality / perforated structure open to urban life  
vertical and horizontal gradation
- identity / inviting – decorated (material, texture, color)
- relation public / private : 30%/70%

Typical house of the mediaeval town (Romanic, Gothic) is built on the regulation. A three-storey high house with a workshop placed on the ground floor. There is an entrance door leading towards upper storey next to the big extrados ground aperture. The two upper storeys belong to the family and only the last one has the privacy. It is impossible to say with great precision how the activities on the upper storeys took place but it is obvious that the first storey had multi-functional role. Yards, placed behind the houses, were aimed for leisure and relaxation. Later they were substituted with spare service rooms. Façade had multi-layer finishing around doors and windows. The nature and the type of window opening was the main way of differentiating the ground from the upper storey. Main parts of the inner space were wall and ceiling painting. Wealthier houses at the central area had a hall (androne).

## PRE-INDUSTRIAL TOWN: RENAISSANCE HOUSE (scheme 7)



scheme 7

- area : house=parcel (cc.700m<sup>2</sup> - 1000m<sup>2</sup>)
- volume : three-storey house (5000m<sup>3</sup>)
- relation inside / outside : 70%/30%
- relation living / working : 75%/25% up tp 60%/40%
- relation living / service : 70%/30%
- compact, closed, public / private, front / back
- acitivity diagram / central horizontal axis,  
gradation of privacy
- organisation / central, vertical repetition of structure,  
integration

- figural quality / perforated structure open to urban life  
symmetry and repetition
- identity / coded – decorated (material, texture, color)
- relation public / private : up to 40%/60%
- relation ceremony / private : 40%/60%

There is vast number of Renaissance palaces worth mentioning within this study, but it is very difficult to choose among so many valuable, well-preserved models existing even today. You can see the representative of this type in Rome, Vicenza and Venice. For the purpose of this research, the Rafael's house in Rome, designed in sixteenth century by Bramante, plays the crucial role. The model assumed the contraction of the programme of Renaissance palace and it defined the concept of the urban house for upper and middle class affordable to less wealthier merchant families. In this way, he founded the new model of urban structure of an Italian town. He also defined the basic shape of typical urban family house for the forthcoming generations.

Internal organisation scheme is the same as the one on the big palaces, and the only difference was on the ground floor that contained the shops and the store facing the street. It has symmetrical base with very distinguishing principle of axuality and centrality. The house is adjustable to both the users' standards, the width of front with three, five or seven window openings, and to the location. If the location is inappropriate or narrow, the spatial concept of the structure is lacking in courtyard or side loggias. It was characterised with Rustic ground floor and duplicated Doric column, stucco plaster on piano nobile floor (piano nobile is often the first or sometimes the second storey located above, often rusticated, ground floor containing minor rooms and service rooms) represent economical and acceptable solution of the front façade. The wide range of different small palace variables (known as palazzetto) appeared as the result of Bramante's concept and it was intended for the middle and upper class. It was the base to become for the future definition of the typical Italian urban house. The best examples of small palaces are Palazzo Baldassini (designed by Antonio da Sangallo the Younger in 1513), Palazzo Branconio dell'Aquila (designed by Raffaello Sanzio da Urbino in 1519) and Palazzo Massimo alle Colonne (designed by Baldassarre Peruzzi in 1536). They illustrate the life of upper class in Rome and symbolise their determination to rise above their former social position. Comfortable life is represented through the concept of the house harmoniously proportioned, illuminated, abounded with decorations, arranged, with stylistic dimensions, with chimneys, hot bathrooms and kitchen. The concept of the palazzetto changed the course of the development

of the urbane house and it made it one of the key elements for the forthcoming generations.

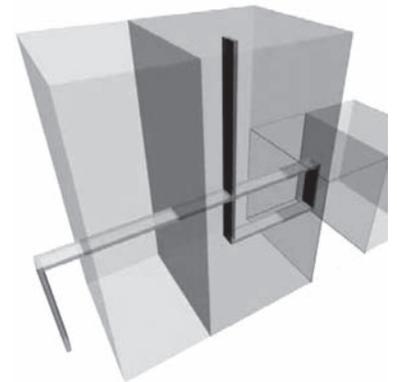
The house - whether placed within planned or spontaneously built part of town tissue, in a spatially and organised way it is related to the parcel, it forms an inseparable bond with it, and they mutually create the complete entity – according to analyses of typical examples of the Mediaeval century and the Renaissance said to be one of the main elements of the urban structure. Parcelling can be defined depending on the shape of urban structure and its origin to double-row parcelling typical for the planned and relatively extended structures or block-parcelling characteristic for spontaneously developed structures with irregular street structure and for the rugged territories. Urban parcel and house are interrelated. Their relation is the result of topographic and climate conditions and also the result of the most intimate socio-economical and cultural relations within the urban community. Urban texture and shape of the parcel conceptually determine the spatial structure of the house. Mediaeval urban parcel is extended, with its shorter side, 4m-7m wide, faces the street and it is a few dozens of metres long. Spaces within the parcel are vertically ranging. Ground part, representing the work place, faces the street; residential section is on the upper storeys in the part that overlooks the street, and the section inside the block representing the service area of the house. It was possible to reach this section from the side street if it was envisaged. House front or the front façade in the architecture of Mediaeval house has the special place and it contributes to the urban space functioning and glow. This surface represents the cross between the public and private spaces with a wide range of developing elements such as: porches, protuberant balconies, niches external stairs. Perceived horizontally, it was an open structure prone to transformation and adjustment depending on current needs. With Mediaeval century urban development, the need for making the distinction between the public and private family life, inside the house, made its structure more complex. It defined three different areas: working area on the ground floor, ceremonial on the first storey and residential area on the upper storeys. Service area was attached to each of those areas creating the volume towards the yard. The areas were hierarchically arranged with established order between the front and the back part of the house, thus the front area was representative and the back area was a service one. House equipment was not of a high quality, yards were the polluters of everyday life. Mediaeval century house was first defined owing to the lifestyle and housing culture that assumed the contraction of the amount of work, housing and life in extended family structure. Private-public relation was determined through the vertical gradation of space frameworks.

Integration-segregation relation was defined based on the division of each above-mentioned area and through the complete freedom of activities within each of them. Each zone activity, particularly the treatment of the front façade in the external house concept emphasise the centrality. Open-closed relation was established through the treatment of façade front aperture and the level of house resistance, i.e. the house resistant to community effects and the ground floor. Basically, it was a rather closed and compact structure.

Further development of single-family urban housing was in different directions, depending on the level of the political, economical or social urban expansion thus the following models have been chosen. The Renaissance house model, typical for the Italian cities (Rome, Florence, Vicenza, and Venice) from 1550 to 1650 and Baroque house model from the beginning of the seventeenth century. The next stage in house development, between 1600 and 1900, is to be perceived through the European cities, London, Paris, Amsterdam, German town and Prague, which embody European lifestyle and establish the model of European industrial town.

#### INDUSTRIAL TOWN: PARIS, LONDON, AMSTERDAM, BRUSSELS (scheme 8)

- area : house < parcel  
(parcel cc.100 to 700m<sup>2</sup>; house cc.70 to 400m<sup>2</sup>)
- volume : three-four-storey house + attic (up to 4500m<sup>3</sup>)
- relation inside / outside : 70%/30%
- relation living / working : 100%/0% up to 85%/15%
- relation living / service : 60%/40%
- compact, ceremonial / domestic, front / back
- activity diagram / horizontal + vertical axis, layering
- organisation / linear, vertical repetition of structure, segregation
- figural quality / coded and standardised elevation  
gradation inside and outside, repetition
- identity / coded – facade detail and texture
- relation public / private : up to 15%/85%
- relation ceremony / private : 30%/70%



scheme 8

Based on the seventeenth, the eighteenth and the nineteenth century analysis the following conclusions are to be drawn, and they are important for the development of single-family house in densely built urban texture.

The house was first defined in a relation to the urban texture, through a relatively regular matrix, on the extended parcel, with variable width of the front façade ranging from 5m-6m to 8m-9m. It was a multi-storey compact structure with oblique roof which was together with external structure adjusted to morphological characteristics of the urban environment. The internal house structure was conceptually determined by the rooms ranging along the parcel depth, from the entrance area, i.e. from the vestibule to the receiving and residential area and to the service area at the bottom of parcel. It was established by the back and forth relation, i.e. not so often by the gradation of the parcel's depth function and by the left-right relation, i.e. the division into the residential and communication area. Vertical communication had significant position in house functioning scheme and it represented the place where different everyday life domains met. There was three-level hierarchical arrangement of areas: relating to the position in relation to the street, in relation to the room height and in relation to the position in vertical framework. Top-down relation was settled through the activity scheme, through front façade treatment thus three areas were differentiated: the basement area with the kitchen and service area, the residential area on the raised ground and the first storey where everyday owner's activity took place and the attic area with private servants' spaces. Residential area was additionally defined due to the division of the activity into the ground floor where the public activity interacted with the environment and into the first and the second storeys with private family everyday life domain activity.

Owing to the growth of town and society the need for service spaces made internal room structure more complex and each residential space got cloakroom and auxiliary facility. This was the way of making the internal structure even more intricate and integration-segregation relation altered in direction of total activity separation. Counterpoint of the open and closed spaces defined external structure thus the area facing the street and the area facing the block were connected with the inner yard and all of them mutually formed the house space. When it came to the front façade treatment, internal activity structure was presented through the room height, the window opening treatment that ranged from bay window intended for working area in the ground floor, to the framed window at the residential area to simple small opening in the attic area. Open-closed relation was established through counterpoint of spaces facing the street and spaces facing the block. Indoors-outdoors relation was determined through the presentation of entrance area and often presentation of the ground floor and it defined the relation of urbanity and space belonging to home through the treatment of openings and cladding. Standardised house

model established the identity. Models were typologically defined according to measurable parameters such as: front façade width, number of storeys and the level of built parcel. If we talk about identity, referring to the house, it was determined through the composition of the window openings and the rhythm, symmetry was the distinguishing feature of the upper class and the entrance at the parting wall was the middle class characteristic. The seventeenth, the eighteenth and the nineteenth century house- the concept of which developed parallel to the growth of urban housing public domain and it depended on the urban culture of the urban life- was adjusted according to the position and the significance of certain spaces. The house was at the same time a peaceful family place and the place to meet the people, to talk to them and the place to perform duties. Private-public relation was established through top-down relation and space gradation in the direction from the street towards the inner part of the block. Axial aspect was predominately emphasized through communication area and in that manner the stream of activity was additionally stressed. Integration-segregation was defined through activity and function separation i.e. through fragmentation of internal structure. Orientation of internal spaces towards its yard stressed the centrality.

## FINAL PERCEPTIONS

Traditional concept of the urban family house in densely built urban tissue is defined based on the analyses<sup>2</sup> of the examples. The urban family house is a relatively short, compact urban structure with high level of construction. Urban family house is defined by the size and the shape of parcel and by its position in the block. It is the house built on street regulation between the two neighbouring buildings. It includes both, the house and not-fully-built part of parcel.

The traditional concept of spatial structure determined by extended prismatic form, spatially limited by two parallel vertical walls stretching directly, along the parcel's depth, to the street and subject to the urban structure possibilities.

## Internal structure

Internal structure assumes organisation of activities and functions within residential space (open-closed) and the manner of establishing the bonds between the private and public everyday life domain. Thus the inner structure is determined by the area distribution in the house and the manner of connecting them, and through the level of activities integration in the house. Internal structure concept is determined by the two approaches. The first, the Roman

house (domus), which is determined through atrium's central plan and surrounding spaces and therefore spatial centrality is emphasised. The second approach is based on defining the mediaeval plan created through the vertical disintegration of the house along the parcel's depth and thus the space axial aspect is stressed. Relation top-down separates the areas mutually. The level of openness of activity changes from the basement to the attic. Back and forth relation mutually distinguishes the activity of the same area. Activities with integrated private home domain and the public domain of the environment are oriented towards the street, those with private lives are oriented towards the block. In the horizontal vertical relation spaces are determined according to its direction of designation. The activities are grouped and the horizontal axial aspect, i.e. spreading along the spatial depth, defines activity stream and vertical hub as opposed to establish the house activities, and is thus determined as the space of meeting and conflicts. The axial aspect stresses the change of openness of the ambience in house, and the level of penetration of the public urban domain of the environment into the private home domain and it shows the manner in which the activities are performed<sup>3</sup>. The spatial axial aspect defines horizontal stretching and the manner of the functions ranging within the same area, vertical hub defines the manner of different areas inter-connection. Due to their mutual permeation, spatial centre and place of meeting of all activities from the private and public family life domains are defined. Activity gradation is established through activity stream, bottom-up, and from the street towards the block. Kitchen, cellar and additional auxiliary spaces are in the basement, the working space or receiving room, library and yard, bathroom and auxiliary spaces are on the ground floor, private owners' rooms accompanied with auxiliary rooms are on the higher storeys and private servants' rooms are in the attic.

The concept enables adjustment of every individual space within each of above-mentioned areas, but it does not allow for the change of the manner of common functions connection. Circumscribed-involved relation emphasises the quality of fragmentation through secondary space division and intended space use, settled in advance, through shape and size of the room. Percentage relations between the different activities as well as the ratio between the residential and service areas are precisely defined in this way. If we talk about standard mediaeval middle class house, area ratio is well balanced and the number of service spaces is reduced to minimum. With citizens' increase of standards (bourgeoisie and aristocratic house), the area ratio changes. Receiving areas are superseding the residential ones, the number of service areas in relation to the residential ones, has enormously increased.

## External Structure

The external structure assumes positioning, shaping and involvement of the house into urban structure of the environment; it is a concept determined by the size and the position in the block, by its volume references, by the architectural framework and at the last by the ratio of open and closed spaces and by the minimal and maximal values of the shaped environment code.

The external structure concept reveals prismatic form with multi-layered nature. There are two distinguished approaches in defining the external structure. The first one is the Roman house-domus- established through the central plan where a part of the environment is included within the house space. Clear borderline towards the urban environment is represented in the shape of the house and the parcel, and living in the open part of the space is contained within everyday home activities. The second approach in external structure defining is made by the concept of the mediaeval house, defined by the bipolar back and forth relation (house-yard). The house and the parcel represent a unique entity but activities in the house and on the parcel are performed separately. Due to their combining, it is the developed traditional concept of the plan that contains the idea of the house and the parcel in the back but with the additional diversity because a spare building is constructed in the back part of the parcel and which is connected to the primary one by the inner yard. In this way the inner yard, often closed or semi-open, becomes the meeting place and the centre of house structure. Thus, the traditional concept is defined through alternation of open and closed spaces along the parcel's depth.

The house and the parcel size vary on the basis of the resident's standards. It is interesting that the concept of external structure, despite its standard, sustains the same proportions whereas the size changes. In the proportion of the parcel 1:4 (4,4) to the house 1:2.5 (3.5) the concept is developed through prismatic, compact, multi-storey volume, front width from 5m-7m for the lowest standard, over 9m-12m for the middle and up to 15m-18m or even 21m for the high standard. According to the same principle the house size varies from 150m<sup>2</sup> to 2000 m<sup>2</sup>. Thus, the concept of the initial structure remains the same; the change is visible in the field of augmentation, multiplication and addition of service and auxiliary rooms. Due to the above mentioned conclusions, the level of parcel use is 55%-75% and the construction index is 2.5-3.2. The open-closed relation is defined through front façade treatment and standardised code that regulates the rhythm of window openings, façade geometry and its materialisation. The internal-external relation is determined through entrance

position, and the circumscribed-involved relation is established through clearly defined line that separates the private and public life domain of the resident, and through the relation towards the inner yard<sup>4</sup>.

### The Private - Public relation

The private-public relation is established by the connection between the work and housing and through gradation of the public openness of the house space. Two options of the private-public development relation have been emphasised: the determined plan in the concept of the Roman house, Domus, and the integrated plan in the concept of mediaeval town house. Further development of the concept is balanced between these two and at the same time it shapes a part of the house where the exchange of functions is not possible and the part the functions of which are strictly defined (relaxation space, sleeping space, kitchen and bathroom). The space of the working area at the part facing the street appeared in the Roman house. The working area has become inevitable part of the pre-industrial town house. Further development of the concept provides two directions of the development of the work-housing relation. The first assumes working area on the ground floor of the house at the part facing the street in case the space is predisposed for trade or some other public use. The other one assumes the working area on ground floor, in the part of the house that is behind the receiving area, and in case the space is intended for enterprise that at the same time acquires the private and the public character of space. In later version ground floor is usually elevated from the street level. Thus, the house in a densely built urban tissue is the one where work and housing are in co-relation and where urban everyday routine is the part of home space. Integration of the urban and family everyday life activities has started to evolve from the Roman house, Domus, where the internal atrium had the role of the public space for gathering and peristyle had the role of the private space for gathering. When those two are opposed one to another, the house was graded through three areas: the public area, the family area and the individual use area. The development of spatial structure concept brought the change related to the space gradation. House plan was becoming complex and the feature of distinguishing inner spaces through secondary division emphasised the segregation concept of the internal house space. Grading, transitive form established through axial concept of the horizontal plan and under the influence of urban tissue texture coagulation, was exchanged with vertical disintegration of the house. Because of this the prismatic floor was transformed into the representative area, the storey was transformed into the family area, and the higher storeys were altered into the individual spaces of

the residents. The integration of the urban and family activities of everyday life was reduced to opening of the ground floor at the part facing the street.

### Identity

The identity of traditional family house spatial structure is primarily determined through the social code of its residents (belonging to a certain class, profession and lifestyle), and spatially is adjusted to but not determined by the urban code of the urban structure. Identity has been standardised and socially accepted (individualised to the smallest extent); determined through geometry and proportion, through applied style order, details and materialisation of front façade.

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### NOTES

- \* *The research of the transformation of the urban house has been divided into four thematic sections. The first part, which is the main topic of this paper, deals with the Traditional urban family house. The second part investigates the development of the urban family house in the first and the second half of the twentieth century. The third part relates to the perception of the potential development trends of the contemporary house in the town centre at the beginning of the twenty-first century and represents the complete whole with the final fourth part that sublimates all the other parts and produces the definite study.*
- 1 Rapport, A. (1969) *House, Form and Culture*, London: Prentice-Hall, Inc.; Rapport, A. (1983) "Development, culture change and supportive design", *Habitat International* 7 (5/6): 249–268.; Rapport, A. (1985) "Thinking about home environments: a conceptual framework", pp. 255–286 in Altman, I. and W. C. Werner (eds), *Home Environments* (Vol. 8 of *Human Behaviour and Environment*). New York: Plenum.; Rapport t, A. (2001) *Theory, Culture and Housing*, *Housing, Theory and Society* 17, pp. 145–165.; Bobić, M. & Urhahn, G.B. (1994) *A Pattern Image: A Typological Tool for Quality in Urban Planning*, Thoth Pub.
- 2 The urban family house terminology is not uniform as it is shown by the analysis of examples.

From the Roman house (Domus), seen as spatial structure that clearly defines household organisation of the ancient Rome onward, to the town house (terrace house) that defines the upper class urban house, to the row or attached house that symbolises working class, to the urban house i.e. cluster house, the element of enclosed neighbourhood, which in its structure and manner of activity performance is closest to multi-family housing. It is the same urban structure, usually low-storeyed and with high level of compactness, it is a traditional concept of compact house built in marginal manner as a part of urban structure of town or block.

3 As the ancient world house concept nourished the symmetrical plan and centrally positioned axis (T-5), mediaeval house moved axis towards parting wall (T-6) for the purpose of better use of complete parcel width. Traditional concept either sustains axis position, moved towards parting wall, or if the front width is adequate to enable positioning of two rooms with minimal width of about 4m it is in the central position of the plan (T-8).

4 In the ancient world, the concept points out the quality of enclosing and disabling to see life behind both sides of the wall (T-4). The entrance is the only place with clearly distinguished users' nature and user's position at the social scale. The Roman house, Domus, opens front façade only in case when it is with its function related to urban environment. Family life domain remains hidden until the appearance of mediaeval house which partially through distinguishing of different front façade's nature emphasises the relation between the private and public domain (T-6). On the ground floor openings there are big and enabled developments of the different works related to urban environment. Elevated floors' relation distinguishes residential spaces with range of windows, placed centrally in relation to front width, and more private spaces with minimally stressed window openings. The house is partially opened, and part of the environment is included within house activities. Renaissance introduces symmetry (T-7); it establishes order and rhythm through symmetry and proportion in wall to opening, wall to secondary division of façade, door to windows, and window openings to details. Spaces are strictly defined with their position in the unity, due to their relation to environment, relation to inner yard and through their hierarchy. Further house development sustains established rules about front façade, relying onto previous experiences it standardises both relation of house to environment and their user's identity. Thus until the end of nineteenth century the range of standards, used in different variations in conceptualisation of external structure of urban house, was established (T-8).