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TECHNICAL POSSIBILITIES VS IDENTITY IN HOUSING ARCHITECTURE

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Abstract
The subject of considerations is the relationship between identity, technology and transformations in modern residential architecture, relationship between technology and social requirements that express changes in the individual and group identity. The current social demands are transformed under the influence of the dissemination of new technologies. Up-to-date solutions which comply with human needs have become inherent elements in design practice. New technologies still play the role of predictors determining functional and spatial layout of the building, shaping the specific nature, identity of the place. Logical argumentation, conclusions of observation and comparison of concepts and phenomena, a critical analysis of source materials like literature and architecture examined in situ were used in the verification of hypotheses.

Streszczenie
Przedmiotem rozważań są związki pomiędzy tożsamością, technologią i transformacjami w nowoczesnej architekturze mieszkaniowej, wzajemne relacje technologii oraz nowych wymagań społecznych, traktowanych jako wyraz zmian w indywidualnej i zbiorowej tożsamości. Aktualne wymagania społeczne w stosunku do architektury zmieniają się pod wpływem upowszechniania nowych technologii. Poszukiwanie nowych rozwiązań, uwzględniających potrzeby użytkowników w tym zakresie, stało się nieodłącznym elementem działalności projektowej. Nowe technologie spełniają funkcję predyktorów, determinujących układ przestrzenny budynku, kształtujących specyficzny charakter, tożsamość miejsca. Przy weryfikacji hipotez wykorzystano rozumowanie logiczne, z wykorzystaniem obserwacji, porównania pojęć i zjawisk, krytycznej analizy materiałów źródłowych, literatury oraz obiektów badanych na miejscu.

Keywords: **Architecture; Housing; Identity; Technology.**

1. INTRODUCTION

The topic of identity is a field of broad interdisciplinary scientific exploration. *Maria Lewicka* tried to explore *universals of the place* in the globalizing world from the point of view of an environmental psychologist in the book entitled "Psychologia miejsca" [1]. Conclusions are based on the environmental qualitative research. The authoress is looking for predictors of human relations with the place and explores their psychological consequences. She tries to explain what is the memory of the place, analyzes selected space characteristics and interrelations in her research: a scale and a type of the building, criteria such as *open* versus *closed*, *homogeneous* versus *diverse*. She also examines psychological causes of existing human relations in the scale of a neighbourhood and a region. The book represents an overall approach to the topic of identity, where the concept of place is a Christian Norberg-Schulz's concept of the total phenomenon [2] and where complex sociodemographic, psychological, cultural, political and urban-planning factors were taken into account in the search for the theory of place.

Probably, one of the most important cultural factors in the era of globalization is technology. Its impact on transformations of contemporary architectural places and human relations is crucial. This article attempts to explore the topic from the architect's point of view. It concerns in particular:

- the importance of the concept of identity (personal,

group, object identity) for the proper utilization of the context of place in the design,
- the impact of modern technology on architecture, new technological achievements as predictors of human relations with the place, as design conditions characteristic of certain times,
- interrelations of two determinants of architectural creation – conditioning of a place and time requirements

2. IDENTITY

2.1. The concept of identity

Polish Language Dictionary defines identity as "being the same. Identify means to determine the identity of something or someone with the use of something or someone, or be considered the same" [3]. In the social sciences the concept of identity is more complex, ambiguous, seen as:
- self-concept, a sense of being someone special, characteristic in a personal, subjective aspect of identity,
- a way of defining oneself by belonging to various social groups (cultural, national, religious, regional) in a group aspect of identity,
- a set of particular characteristics, that allows to distinguish one object from another (with respect to the object).

2.2. Identity in architecture

Place

Postmodern theorists like *Kevin Lynch*, *Amos Rapoport*, *Allan Jacobs* and *Jane Jacobs*, *Christopher Alexander*, *Nikos Salingaros* and *Robert Venturi* dealt with the theory of place in the field of architecture. They examined the characteristics of the place in terms of opposing concepts, such as: simple-complex, open-closed, private-public, stability-change. Generally, postmodernists postulated a complexity as the condition of perception and the source of information. They suggested dual function, compliance with contradictory terms as the condition to meet a variety of conflicting needs of users [*Kaplan, Rapoport*]. Contemporary avant-garde architects "...do not follow the same [postmodern] design philosophy: they lead, on the whole, to simplistic, autonomous, diagrammatic one-liners that have been almost completely stripped of any trace of complexity, multiple coding, symbolic meaning, contradiction, radical juxtaposition, contextual counterpoint, irony and pluralism. In their place, the all too familiar traits of Modernism have been re-injected, in a form that is even more extreme than in the original specimens, and are now being cloned on a global scale" [*Colin Fournier* about *Charles Jencks*: The Story of Post-Modernism: Five Decades of the Ironic, Iconic and Critical in Architecture, 4]. One of the most important cultural factors influencing the Modern architecture was technology. In the realities of those days it was the technology of big industry. Today, in the post-industrial era, we can discuss rather the influence of new information technologies. Anyway, it is still technology – an important factor of modern place characteristics and human relations with it.

Relationships

The concept of well-dissolved place is often combined with the place identity. Identity can be considered at different levels:
- identity in terms of a subject, person: uniqueness resulting from the need of self-creation, visible for example in individual solutions in the apartment layout,
- identity in terms of a group: achieved when favorable conditions for the integration of a group of users exist in a building or in a group of buildings,
- we can also talk about identity in relation to the same object, which is recognizable through a set of characteristics, distinguishing it from other buildings.

In fact, the problem of identity is more complex. *Maria Lewicka* writing about the relationship of a man to the place draws attention to the conceptual confusion which prevails in the literature of the subject [1]. "Place attachment, place identity, sense of place, place dependence, insidedness, embededness, rootedness, appropriation, belongingness, residence satisfaction, topophilia or community attachment, sense of community" are different terms for a research problem that is the subject of studies in different disciplines. In fact, these terms represent a family of separate concepts with a common range of meaning. Such diversity suggests the vagueness of the definition of that phenomenon. Obsessive interest in this topic in different research is caused by universality of belief in the death of the place, a loss of its meaning in the face of economic, political, technological and cultural mechanisms in the globalizing world. The development of information and transportation technology has caused an unprecedented increase in people's mobility. Technology affects the

sense of identity which is obviously changing in these new conditions.

According to contemporary sociologist *Manuel Castells* [5]: "our world and our lives are being shaped by the conflicting trends of globalization and identity" (network versus self). The phenomenon of globalization (networking, easy access to information) promotes the exchange of ideas and the spread of new technologies. At the same time as a result of the development of mass culture and consumer behaviors the unification of technical, spatial and functional solutions occurs in projects of different locations. Turning to identity is a form of opposition to the so-called homogenization of culture [6].

Context

"Architecture must vary from place to place and people to people. This is the nature of things" [7]. The sentimental return to the local architectural tradition, in isolation from the modern reality, is not conducive to proper building of the sense of identity. Representatives of the critical regionalism, one of the main currents of postmodernism in architecture from the early 80's (*Paul Ricour*, *Alexander Tzonis & Liane Lefaivre*, *Kenneth Frampton*, *Christian Norberg-Schulz*, *Thomas Thiis-Evensen*), call for continuation of the tradition with its simultaneous modernization. Continuing the architectural traditions of the region, at the same time they draw on the innovation of modernism according to *F.R.S. Yorke* and *Colin Penn*: "To be modern is to be part of developing tradition, not to imitate the styles of the past. All the great styles were modern in their day, and here we try to explain the only architecture that is modern now" [8]. *Kenneth Frampton* [9] claims that the only alternative to the architecture which is a fashion or negating a local identity scenography is the authentic architecture, based on two basic principles: understanding of the place and the tectonics [uniformity, compositional compactness of works of art or buildings [tectonics, 3]. Architecture, which "evokes the oneiric essence of the site together with the inescapable materiality of building" [10] and is the synthesis of traditional and modernistic typology (nature and technology). These are still valid ideas of protection of the identity in contemporary architecture: "In creating new «architecture of identity» we shouldn't copy the past or the present, but make conscious architecture appropriate to the place where it arises" [11].

The importance of the specific place where the architectural object is created is highlighted by many modern practitioners, such as *Dietmar Eberle*, co-author of housing projects in the *Working group Baumschlager-Eberle*. He claims that technology inevitably results in the unification of approach, because it makes it possible to meet the needs of comfort utility, which are the same for all people (ergonomics of work, learning and habitation). At the same time, he highlights the need for differentiation, expression of the different ideas in different environments associated with the spatial context [122].

Good solutions in architecture are influenced by conditions of a place and time.

Opportunities created by modern technologies considerably influence the design determinants of certain times. They resemble global solutions used in architecture, but also change habits and form the demands on the environment. Moreover, they impact the personal, subjective identity (specific, individual needs and preferences) and the group identity (opportunities to integrate within the community).

3. TECHNOLOGY

3.1. The concept of technology

Technology [Greek: tekhnē, skill + -logiā, -logy] means in English [13]:

- the application of science, especially to industrial or commercial objectives or the scientific method and material used to achieve a commercial or industrial objective.
- electronic or digital products and systems considered as a group: a store specializing in office technology.
- anthropology. The body of knowledge available to a society that is of use in fashioning implements, practicing manual arts and skills, and extracting or collecting materials.

or [14]:

- the application of scientific knowledge for practical purposes, especially in industry,
- machinery and devices developed from scientific knowledge,
- the branch of knowledge dealing with engineering or applied sciences.

In Polish language we have two terms used to describe this concept: "technologia – technology" (targeted and cost-effective process of transforma-

tion of natural resources into products and the knowledge about this process [3]) and "technika – technique" (deliberate, rational, based-on- the-theory manner of work in a particular branch, a method, technique or a section of civilization and culture, which includes materials and skills to use them and allows a human intentional activity and the mastery of nature [3]). Architecture is a technique of creating buildings, in which a variety of achievements of different technical branches are used. The impact of modern technology on architecture is focused on the selected areas:

- tools of work in architectural workshop,
- way of shaping the form and function of architectural design objects,
- application of technical solutions.

3.2. Technology in architecture

"In architecture, as in mathematics, there is much to be said for clarity and simplification. Technology is a servant not a master, and not a plaything for architects" [8].

Design process

Modern digital devices, such as computers, cameras, scanners, DVD equipment, are practical tools which encourage the streamline of the design process by:

- providing an access to an extensive database (archives of products, solutions, maps, air photos, addresses, discussion forums, etc.),
- improving the collection and processing of materials in the course of pre-project studies,
- developing new possibilities in cooperation with professional groups and branches during the development phase of the project.

Computer techniques may replace the drawing board in the final stage of a conventional design process when a concept is prepared with the help of manual sketches or models, but they also enable quite new methods of work. In the parametric design space solutions are generated automatically on the basis of criteria of modification (algorithms and parameters) adopted initially by the designer. All items for which it is possible to develop algorithms, sets of rules to be followed in a specific order, in a finite number of operations to solve the given problem [algorithm, 3] – can be shaped this way. This can be illustrated, for example, by the structure and façade of a building, or the urban layout. It may be also a type of a flat, which in fact is the logical consequence of the chosen design criteria such as: access to the flat, number of rooms, number of residents, internal communication layout, lighting of flats, number of storeys, area standard, a manner of area division, composition, accessibility of rooms, an auxiliary area or demands of a special/specific flat. Estimation of parameters, variables taken as constants in a given situation is the final phase of the identification process. Forms that are studied in such an unconventional geometric model are usually difficult to show in the sequence of orthogonal drawings. The illustration of the final shape found in the parametric process may be digital fabrication of the model or the prototype. Similarly, building components may be fabricated automatically through digital devices. Modern IT tools, such as Rhino + Grasshopper, Processing, Scriptographer, influence the creation process in architecture. New formal, functional and technical solutions are the result of mathematical calculation.

An architect is active in the key moments of this process, at the beginning and at the end. That is in the phase of determining the criteria for modification and the phase of finalizing the results in the estimation. Working methods and results differ from those obtained in the conventional design. High costs of fabrication limit the use of such design methods in practice. It is characteristic of new technologies to be expensive and be used experimentally in the initial phase. Later, reduction of the production costs opens possibilities to use them on a large scale, which often happens. We can expect a similar scenario as far as parametric computer methods of design are concerned. It will change characteristics (identity) of designed places, user's habits and demands.

Social demands concerning form and function of living spaces

Living spaces are shaped by their residents' habits rather than requirements of clearly defined procedures, like it is in some service buildings, where we can talk about technology in respect of education, culture or gastronomy processes. Habits are changing radically under the influence of modern technology products – inventions made to improve life. Appliances that revolutionary changed the style of life occurred in the apartment household in the second half of the twentieth century. A washing machine, vacuum cleaner, or kitchen equipment, such as a refrigerator and dishwasher, electric cooker with oven, microwave, as well as a TV set were initially luxuries but over time they have become available for the average users. These devices have

changed the way of life because of the elimination of services, time saving and creation of new leisure activities. The layout of the apartment changed in that new situation. Auxiliary rooms of new types (including hygiene and sanitation) appeared in the living area while some of them disappeared (like for example maid's room). A similar breakthrough in the spread of new technologies concerns fittings. Electric lighting and central heating made the rhythm of life independent of the time of the day and year. Water supply and sewerage system available in every flat changed the requirements for sanitary rooms.

Contemporary changes concern Hi-tech information technology devices and new media that appeared in flats at the last turn of the centuries. Over time they have become available for a wide range of users and step by step they have changed requirements of the living environment. New trends in housing and building equipment include:

- The Internet. An increasing number of homes are equipped with a secure, high-speed, wireless Internet access. The range is no longer limited to a single room, or even the whole house. The ability to use the Internet appears in the common spaces in the building, which creates new opportunities for work, learning and leisure.
- The third place in luxury buildings. There is a need to organize a common place, zone of social contacts for neighbours, that is something between the dwelling and the place of work or learning in luxury apartment buildings. Such spaces, with the features of a local mini-business center and internet café can be equipped with refreshments, club furniture, tables or office supplies (copiers or sets for video conferencing).
- Common media rooms. Typical lounges for residents can also be equipped with modern TV and DVD.
- Home Audio in every room. Five sound system home theaters and network media players allow playing music stored in the computer network. Dissemination of such devices enables to achieve modern audio effects in any room, even in a private bedroom. Such equipment changes the character and surface of rooms in the sleeping area.
- Systems of installations. Houses or apartments can be equipped with installations which are controlled automatically like central heating and air conditioning, modern equipment in the bathroom, kitchen or garage (like remotely controlled door), etc.
- Green solutions. Advanced technology means also intelligent ecological solutions to improve the environment of living. Recycling, eco-friendly materials, using non-conventional energy sources, reduction of heat loss, a rational use of location-based conditions, storm water, etc. are integral elements of the contemporary design.

The idea of a residential building

According to Anthony Vidler's concept of three typologies [15] the first one, pre-modern, which arises in the "organic analogy", is characterized by discrepancy of new technical possibilities arising in the industrial era and conservative solutions of the flat layout of a traditional mansion. The impact of technology on human life was not so clearly expressed in the identity of an architectural object.

Modernists were looking for new solutions in the function and form of the architectural object in 'the machine analogy' inspired by the processes of production. Residential buildings had to be errected out according to similar production procedures as other material goods. Construction solutions, which were achieved by calculation methods, were especially exposed in buildings. Prototypes were elaborated for the model residential layouts intended to be reproduced on an industrial scale with the use of prefabrication methods. Urban context was not an object of concern. International Style spread globally, regardless of the identity of the individual regions. Innovative solutions had to be relevant to the time at which they arose rather than to the specific place requirements. The sign of a new era had to be an adaptation of the environment to the modern lifestyle, imposed by the rhythm of work and rest – strict production requirements. The most outstanding projects of this period like Unite d'Habitation of *Le Corbusier* are a constant source of inspiration for modern solutions, such as for example Mirador Apartments (*MVRDV + Blanca Lleó*, Madrid).

The inspiration for a new typology came from the city in the 70's of the twentieth century. In search of the architectural identity postmodernists often derive present solutions from the past. Sense of identity was constructed by factors of place rather than factors of time. In the broad mainstream of postmodernism high-tech solutions appeared parallel to historical neo-trends. The fascination with the technology was manifested in aesthetic expression of the building technical elements like construction and installations or industrial ornament. Postmodern architecture of the city refers to the heritage of past ages and to the legacy of industrial architecture. An example of the

adaptation of post-industrial buildings for residential purposes is provided by lofts. Modern interiors in ancient technological objects that are no longer used in production. Surprising, unusual context for spaces that appears in such adaptations, represents quite a new quality. When the "new" appears in the "old" – technology and identity remain in the relationship at various levels.

Fourth typology arises on the basis of computer's generative possibilities as a source of new types in architecture [16]. A layout of a flat similar to other elements of a building may be a direct result of mathematical calculation based on input data (such as program and external conditions, requirements of building regulations, guidelines and selected criteria for the type). The relationship between technology and architectural object identity (its characteristics) is exact in this situation and has a mathematical character.

Technical solutions

New technology products are used in technical solutions of residential buildings. New building materials: durable, safe for the environment and people's health, energy-saving and new solutions of efficient energy management are among them. New technologically advanced solutions influence aesthetics of the building and encourage a new type of places with a specific destiny and spatial characteristics.

4. CONCLUSIONS

Impact of new technologies

Consumers obtain the products of new technologies constantly following the fashion. New devices – novelties, when used on the daily basis, become indispensable over time. Requirements for the environment of living are changing because they have to cope with new habits. We can say that in this way new technologies affect the identity, a set of human characteristics that allows us to identify ourselves with a specific place in time and a set of environmental characteristics that allows identification with a place in space on the macroscale of a region, country, city, or on the microscale of a neighborhood, house, flat, room.

Scope

The phenomenon of transformation of identity in terms of personal and social aspects concerns first of all exceptions, the most sensitive social experimenting subcultures. Then, it is gradually shared with the public. Experimental phase precedes the events on the mass scale. Just as it happens in the production and design activities.

Projections for the future development

Changes in the shape of living environment as a result of new technologies dissemination and changes of social requirements may with great probability be as follows:

- **Perception** Common access to electronic media affects the way of thinking that becomes sensual, associative, based on images rather than on ideas and words, we may say "dyslexic". A blurring boundary between the real and the virtual reflects the way the environment is perceived. The demand for unusual solutions may be far more important than pragmatic advantages of functional apartment layout.
- **Popular forms of housing** There is a demand for housing for singles, or different forms of cohousing or temporary residence due to the phenomenon of migration in search for employment. Functional layout of alternative forms of housing is different than in a traditional family dwelling with spaces for children and adults.
- **Flexibility (work and education at home)** Automation of production means in the long run the end of work and rhythm of work designated by production and rest time. Different forms of work and education at home based on the Internet access are a fact and will probably continue to develop in the future. Such activities need a small but specially equipped place. We may expect gradual changes in the rhythm of the day which is no longer subordinated to the rigors of production. This fact may influence a clear layout of separated day and night spaces at home in favor of more open and flexible solutions. In this situation, multipurpose, open spaces, mobile solutions will be more appropriate than a flat with a clearly defined zoned function.
- **Social interactions** New media and the internet access, which are necessary for work, learning and leisure at home, influence the layout of traditional homes. Decentralization of the integration model with traditional living area to spend time together yields to an insulation type with dominating private rooms [17]. New types of semi-public space appear in multi-family buildings at the same time.
- **Environment** Perception of the human body is affected by technological achievements in the field

of medicine (implants, the development of biotechnology). The body is no longer perceived as harmonizing with the natural world source of natural proportions. On the other hand, awareness of the negative impact exerted on the natural environment by human production is increasing. The result is a search for new solutions to the problems of residential and natural environment. There are solutions oscillating between totally independent treatment of these two environments (experiments on dense urban fabric) and attempts to restore harmonic relations between the man and the nature in green houses. We can expect the connection /the combination of these two attitudes: building dense and green will bring satisfactory spatial and ecological model solutions of housing in the urban fabric.

5. SUMMARY

The impact of new technologies on shaping subjective, personal and social identity is inevitable. Social changes associated with globalization, development of networks and new media contribute to the dissemination of new standards of living, housing, work and learning at home.

Advances in technology, after a short phase of experiments in a small group of users, are mass used and spread out. Awareness of social requirements influenced by the mass use of new technology is a necessary condition for creation of current functional and spatial solutions. Building an environment that meets these requirements as well as respects the spatial context of the place and the potentials of the natural environment fosters the sense of identity.

REFERENCES

[1] *Lewicka M.*; Psychologia miejsca (Psychology of Place), Warsaw: Wydawnictwo Naukowe Scholar, 2012, pp.105-107

[2] *Norberg-Schultz, C.*; Genius loci: Towards a phenomenology of architecture, London: Academy Editions, 1980; p.8

[3] *Szymczak M.* (ed.); Słownik Języka Polskiego (Polish Language Dictionary), Volume III, Warsaw: Państwowe Wydawnictwo Naukowe (Polish Scientific Publishers PWN), 1984, Volume III, pp.519, 632, 488, Volume I, pp.487, 486, 33

[4] *Fournier C.*, Reassessing Postmodernism, Architectural Review 10.2011, on line:
http://www.architectural-review.com/essays/reassessing-postmodernism/8621635.article,
access: 10.09.2012

[5] *Castells M.*; Siła tożsamości (The Power of Identity), [trans. Szymański S.], Warsaw: Wydawnictwo Naukowe PWN (Polish Scientific Publishers PWN); 2008

[6] *Dudzińska A.*; I co z naszą tożsamością. Humanistyka (And What About Our Identity. Humanities), No.2/3, 2009, on line: http://www.humanistyka.ostnet.pl; access: 04.05.2012

[7] *Allsopp B.*; A Modern Theory of Architecture, Londyn: Routledge & Kegan Paul Ltd, 1981; p.28

[8] *Yorke F.R.S., Penn C.*; A Key to Modern Architecture. Londyn – Glasgow: Blackie and Son Limited, 1945, p. Preface

[9] Frampton K.; Prospects for a Critical Regionalism, Perspecta 20, Cambridge: The MIT Press, 1983; pp.147-162,

[10] *Nesbitt K.* (ed.); Theorizing a New Agenda for Architecture. An Anthology of Architectural Theory 1965 – 1995, New York: Princeton Architectural Press, 1996; p.468

[11] *Siestrzewitowska M.*; Echa Ochrony Tożsamości W Historii Myśli Urbanistycznej i Architektonicznej (The Echoes of Space Identity Protection in The History of Architectural and Urban Planning Thought), Teka Kom. Arch. Urb. Stud. Krajobr. – OL PAN (The Portfolio of The Commission of Architecture, Urban Planning and Landscape Studies of The Polish Academy of Sciences Branch in Lublin), 2009, pp.98-106, on line: http://www.pan-ol.lublin.pl/wydawnictwa/TArch5/Siestrzewitowska.pdf, access:15.04.2012

[12] *Nerdinger W.* (ed.); Architecture, People & Resources, Baumschlager Eberle 2002-2007, Wiedeń: Springer, 2007, (in): Eberle Dietmar, Walden Gert – Miejsce i tożsamość (2007). [trans. Stępnik Ł.], on line: http://teoriaarchitektury.blogspot.com, access:15.04.2012

[13] Oxford Dictionaries, Oxford University Press, on line: http://oxforddictionaries.com/definition/english/technology

[14] The American Heritage Dictionary of the English Language, Boston: Houghton Mifflin Company, on line: http://www.answers.com/topic/technology#ixzz2Nw9FiOvk

[15] *Vidler A.*; The Third Typology. Oppositions 7, Cambridge: MIT Press, Winter 1977 (in) Nesbitt Kate (ed.), Theorizing A New Agenda For Architecture. An Anthology of Architectural Theory 1965 – 1995, New York: Princeton Architectural Press, 1996, pp.260-263

[16] *Madrazo L.*; The Concept of Type in Architecture. An Inquiry into the Nature of Architectural Form, Diss. ETH No. 11115, 1995, Zürich: Swiss Federal Institute of Technology, on line: http://e-collection.library.ethz.ch/eserv/eth:39939/eth-39939-02.pdf, access: 01.03.2013

[17] *Czyński M.*; Architektura w przestrzeni ludzkich zachowań. Wybrane zagadnienia bezpieczeństwa w środowisku zbudowanym (Architecture in the space of human behaviour. Selected problems of safety in a build environment), Szczecin: Wydawnictwo Uczelniane Politechniki Szczecińskiej (publishing company of the West Pomeranian University of Technology Szczecin), 2006