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# **integration Novelty Design interdisciplinarity Sustainability**

Proceedings

Editors: M. Trivunić, I. Džolev, M. Šešlja

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DEPARTMENT OF  
CIVIL ENGINEERING  
AND GEODESY

# iNDiS2023

# 16 iNDiS 2023

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“Integration, Novelty, Design, Interdisciplinarity, Sustainability”

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## iNDiS 2023

Department of Civil Engineering and Geodesy, Faculty of Technical Sciences, University of Novi Sad, is organizing the sixteenth international scientific conference "iNDiS 2023" - integration, novelty, design, interdisciplinarity, sustainability. From this year, the modified format of the event starts, therefore the conference will be held biennial in the future.

Topic of the first conference, held in 1976, was "Industrial construction of apartments" because of its modernity in that period. Later, conferences were held with a considerably broader theme of "Construction Industrialization", and soon papers from all areas of construction appeared at the conference, from urban planning and design of buildings of various purposes, to maintenance and major interventions on the built construction stock. This led to the expansion of the area of expertise, covered by this conference, in which, in addition to civil engineers, urban planners, architects, engineers of other professions, who work in construction, sociologists, economists and others participate.

This conference, like several previous ones, covers the problems of planning, designing, construction and renovation of construction, geodesy, geoinformatics and risk management of catastrophic events, which have come across to an adequate response from researchers and engineers of various profiles, both from our country and abroad.

Members of the International Scientific Committee actively participated in the preparation of the conference, both as reviewers and authors. It is expected that the presentations of papers and discussions at the conference will enable the definition of the main directions of construction development, in accordance with modern trends, since many ideas and results, experimental and theoretical researches in the fields of construction have been promoted.

For this conference, the Proceedings consists of two books, namely Book 1. Papers in English and Book 2. Papers in Serbian, which enables better and more fruitful communication and exchange of experiences with colleagues from abroad.

Additionally, the possibility of establishing new and strengthening existing professional and collegial ties is also of the great importance. This year, authors from 13 countries are participating in the Conference, and the Proceedings Book 1 contains 94 papers in English, while the Book 2 contains 23 papers in Serbian, in total 117 papers.

The editors express their sincere gratitude to all the authors for the effort invested in writing the papers as well as for their contribution to this event.

*Editors of the Proceedings*

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## SPONSORS

## TRANSFORMATION OF ARCHITECTURE AND URBANISM DUE TO CHANGE OF GENDER ROLES IN SOCIETY

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### **Summary:**

Giving certain spaces, architectural features and layouts the quality of "femininity" or "masculinity" had a strong impact on cultural and sociological shifts. In this paper, we will examine the historical nature of these shifts and how the architecture can direct the position of all genders towards equality. The subject of the paper is the transformative value of architecture and urbanism induced by gender changes in society, as well as overcoming gender with the aim of segregation decrease. The purpose of the paper is a chronological examination of architecture and urbanism through both feminist and gender theory. The goal is also to debunk the linguistic and cognitive premise that compares specific architectural spaces with the female body (and dedicate it to it) and some others we liken with the male's build. The paper will demonstrate the architectural transformation through the women's movement, as well as the transformation through the reduction of the sociological difference between private and public spheres.

**Key words:** gender equality, feminism, machism, transformation, architecture, public, private

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## 1. INTRODUCTION

Gender has tremendously influenced both how we perceive space and time, and how we allocate and value them. The division into public and private spheres had a lot to do with gender and gender roles, stereotyping, and generalization, as well as the identification of gender and sex [1]. Architecture was not an exception in male dominance; on the contrary, it often supported it, pushing women into limited private spaces such as kitchens and bedrooms, "intimate spaces" where "women rule," thereby limiting their movement and safety in so-called "male" spaces. The epithet of femininity was attributed to decorative architecture, and it was followed by tender, impractical, and even dysfunctional notions. The epithet of masculinity, on the other hand, was attributed to stable, potent, pompous, and authoritative buildings, and "masculine" spaces allowed men greater mobility simply because they belonged to the public sphere. Therefore, so-called masculine architecture is seen as superior to so-called feminine architecture because it has a purpose [2]. Until relatively recently, architecture and urban planning, unfortunately, were often dominated by a single gender. However, as (post-post) modernism demands increased awareness and the intertwining of sociological, political, artistic, and personal aspects, architecture is also undergoing significant political transformations.

## 2. HISTORICAL CONTEXT

If we begin to read architecture through gender, we will notice even in antiquity "masculinity" or "femininity" was evaluated through two extremes: massiveness and decoration. So we have a Doric column that is characterized as "male" and an Ionic column as "female". The famous Vitruvius describes the Doric column as a male body and says that it depicts "the proportion and strength of the male body". Ionic, of course, with a female body, and female slenderness, and recommends that Ionic columns be used in temples of "calm, not too strong" deities, i.e. deities of water and earth (as opposed to powerful fire and air ones). The Corinthian column, as the most slender, was attributed to the characteristics of a virgin girl. And since the Corinthian column occupies the least space and is the most decorated, its appearance and comparison with the virgin girl can easily be read as fashion anorexia in a feminist key today.

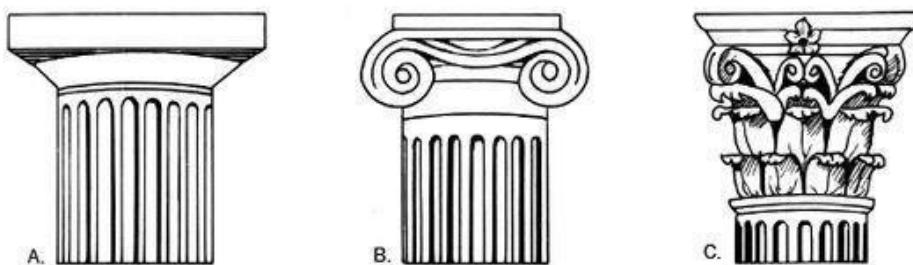


Fig. 1 Doric, Ionic and Corinthian styles

Rococo is later considered feminized, and the "female building" continues to retain the character of naivety and tenderness, in contrast to the "masculine" one, which is even more deeply constituted as functional, serious representative, stable, and significant.

The attitude towards decoration and ornamentation in the modern age is best represented by Adolf Loos, who considers any kind of decoration a crime: "The evolution of culture is simultaneous with the removal of ornamentation from useful objects. [3]" Loos describes the decoration as infantile, disdainfully stating that people with body tattoos are either criminals or freaks and as the decoration was strictly related to "female architecture", the concept of femininity once again acquired a childish,

immature character in architecture. Several times Loos cites utilitarianism as the opposite of ornamentation, which places decoration in the category of uselessness or leisure. Architects will also use the gendering of architecture capitalistically, like Sullivan, who "feminized" the appearance of the shopping center in order not to attract the female part of the population, to whom shopping is still stereotypically associated to this day.



*Fig. 2 Sullivan, ground floor of the mall*

Masculine architecture reached its bottom in the period preceding the Second World War, in the fascist regime that preferred extreme masculinity. It is precisely the end of the world war that will return women to the privacy of the home, and architecture and urbanism, like women, will have a hard time recovering from the baby boom generation and the concept of the suburbs, which deepens the issue of women's gender and private space.

### 3. PUBLIC AND PRIVATE

As John Ruskin poetically explains in his text "Sesame and Lilies", "within his home, where she rules" there is "the true nature of home" [4]. Later, in his essay on women and war [5], he underlines again: "Once again: women must use their practical influence within the home, for the sake of peace in it." This is a picture of the 19th century and one of the most influential English thinkers, which inevitably reflected on architecture, that is, the feminization of the interior of the house. No matter how poetically Ruskin presented it, these moves to place women in the private sphere were also moving women away from the centers of power.

The urban peak of the "privatization of women" took place in the era of the suburbs, i.e. the ideality of the house in the suburbs, which places women much more seriously on the outskirts, making their mobility even more difficult. In that period, strictly male spaces became business, office, and economic centers. Dolores Hayden calls this moment of the suburbs "a scene of gender inequality [6]" - where a clear demarcation is made between what is male work (public, paid) and what is female (private, unpaid) and how architecture supports the sustainability of such a system. Public spaces are being kept "masculine" even more segregated and becoming more and more exclusive, while private spaces are kept "feminine" at the level of apparent authority inside houses that women did not legally own.

The gender division into interior-feminine and exterior-masculine, as stated by Anna-Maria Adams and Peta Tancred, conditioned the later feminization of interior design, as well as the duration of the premise of "women's innate understanding of household things" [7]. Such a strict division also meant a clear delineation of the influence of one

sphere on another, so Susana Torres [8] divides the influence of feminism on the transformation in architecture into six categories:

- 1. Home space design;
- 2. Changing the structure of the suburbs - initiatives to integrate the suburbs still exist today, given that urban zoning additionally kept women in areas with more crime and a worse education system (of course, these initiatives are met with strong conservative resistance);
- 3. Development of new types of buildings; redefinition of old and design of new constructive forms:

The integration of the "women's building" first all happened in 1893 quite literally, forced by the rich feminist Breta Palmer, the Woman's Building was created, designed, and built for the World's Columbian Exposition (later in 1973, this building functioned as an important cultural center and art school). When it comes to redefining constructive forms, one thinks primarily of what distinguishes "women's clubs" from "men's clubs", for example, the mandatory existence of space for self-education, and this was insisted on by both white women and African-American women at the beginning of the 20th century.



*Fig. 3 Gender roles*

In the 1970s, the first Childbirth Center was created in America (after the removal of restrictions on abortion) - and this greatly changed not only the sociological view of childbirth as such (tabooed and isolated), but also the architectural approach in which birthing rooms can accommodate more people who then participate in the birthing process, and today already include a jacuzzi and a more comfortable atmosphere at home.

Fire station number 5<sup>1</sup>, in Indiana, can serve as a good example of the realized direct influence of feminism on architecture. Namely, the mayor at the time wanted to include more women in the fire service - she hired Susana Torres to design the new fire station - and that meant redesigning the doors, toilets, buses, and everything else that until then was intended only for a highly capable male body. Tore also designed the parks around the station to accommodate people with special needs and parents with baby carriages.

<sup>1</sup> <https://www.susanatorre.net/architecture-and-design/making-room-for-women/fire-station-five/>

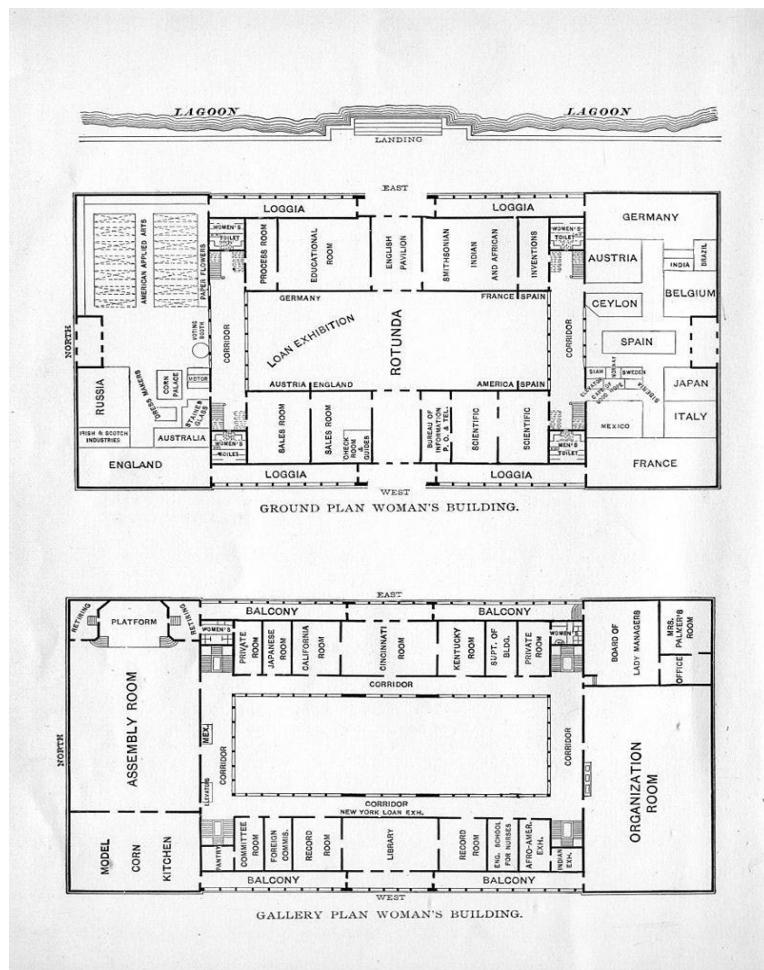


Fig. 4 Woman's Building, 1893.

- 4. Changes in the way we experience the engraving of collective memory;
- 5. A radical revision of the attitude towards nature conservation and the introduction of sustainable design as an ecological practice;
- 6. Feminist identity as a legitimate paradigm in design:

Tore is not talking here about the question of whether men and women design differently, but about ways of implementing women's concerns and needs in design and urbanism. Feminist identity also means consideration of femininity and the nature of femininity, and in addition to Zaha Hadid's famous buildings, we can also find a visual representation of feminist identity in architecture in, say, the Spanish "Basket" pavilion in Shanghai.

#### 4. KITCHEN AND BATHROOMS AS SPACES OF SEGREGATION

After the disappearance of the concept of domestic service, the domestic space is even more deeply divided by gender, as a consequence, the most gendered room of all appears: the kitchen.

Building and maintaining family peace and comfort inside the house, as well as the emphasis on motherhood and housekeeping, made the kitchen the most "female" space. The kitchen, because of all the above, experienced perhaps the strongest transformations: from the Frankfurt school and the kitchen of Margareta Šita-Lihocki, a kitchen that saves space, all the way to the open plan of the kitchen and rituals as the central event in the central room.

The Frankfurt kitchen, although initially characterized as a feminist project because it made a kitchen for a modern woman who also worked outside the home and thus saved time with this efficient kitchen, in the long term stationed women in the small, sterile space of the dining car. Shyta-Lihocki's serious intention to professionalize housework

later suffered heavy criticism in feminist theories, because not only was that work unpaid, but with that procedure, household work was guaranteed to be assigned to women.

That's why it was a rather disturbing exhibition at the MoMA museum in 2011, in which the work of Shita-Lihocki was presented as a huge success and modernization in kitchen design, despite the then steady pile of feminist analyses on the subject of pushing women into small isolated spaces. Modernization in kitchen design, according to Susana Torres, does not mean modern kitchen design as such, but also the emancipation of women and their exit from rigid assigned household roles:

"I don't believe that any architect today would design a kitchen for one woman. The challenge is to design for the integration of all household members in the care and maintenance process. [8]"



Fig 5. Frankfurt Kitchen (1926)



Fig 6. Open plan kitchen

Placing a woman in the role of a housewife made this kitchen space lonely at first, so the Frankfurt kitchen began to be used "incorrectly", that is, by introducing other family members into it, which did not make the kitchen a less "feminine" space, but it did make it less private. With that, over time, the kitchen was adapted into a more open space where you spend time and not just work. Today's kitchens are significantly less gendered, connected to the living room, without walls, thus confronting all family members, members of both sexes, with kitchen elements and kitchen work, which is thereby demystified.

Social feminism, however, believes that the kitchen as a repressive room can be transformed only by taking it out of the home and placing it in the public sphere: wage-earning and professionalizing the kitchen would, according to that theory, make the kitchen finally genderless. In the works of Dolores Hayden, we find feminist plans (the 1880s and later) that transcend the boundaries of the home and expand into neighborhood design - even then she suggests ideas of shared highly-equipped almost industrialized kitchens and laundries.

However, just as cooking itself is slowly losing its gendered character, kitchens are becoming, albeit within the home, gathering spaces of all genders and all ages. The task of the architect is to, knowing all this, try to deconstruct the collective memory that is inscribed in the space of the kitchen.

**Bathrooms**, unlike kitchens, encroached a large part of the public sphere, so segregation was even more obvious, but due to the intimacy of the bathroom - and more accepted.

Although the idea of separate, private bathrooms and toilets seems very modern, the history of the Roman Empire teaches us otherwise. Unfortunately, as with the kitchen, the toilets were also chronologically not an easy obstacle for women. Until the Victorian

era, all public bathrooms and toilets were for men only, which again meant that women could not (physically) be in public spaces for long, that is, it sent a clear message: women stayed in their homes. It's important to put things in perspective: the first gender-separated toilet (that we know of) was in Paris in 1739 [9], however, in India, for example, women today try not to eat or drink too much while out and about - due to the lack of women's toilets. So from this point of view, gender segregation of toilets can be seen as an important development for women.

Architecture tried to prevent or at least mitigate all possible negative products of the existence of "completely private rooms" in the public sphere. Therefore, public toilets, toilets in the workplace, in clubs, restaurants, were in a kind of open plan with a lot of visual obstacles: this was an attempt to guarantee the safety of the users, but also to reduce the abuse of that space: sex and drugs were things that tried to avoid by design. However, the psychological phenomenon of gender segregation did not only harm women here. From Lacan's "urinary segregation" to the vulnerability of male sexuality in public men's toilets, the influence of gender has changed the perception and use (or non-use) of urinals in the last few decades. Discretion was characterized as a feminized trait - so women's toilets tended to be closed and cramped, with much more space for privacy than in men's.

The design differences between men's and women's toilets didn't hit a major stumbling block until recent years when ignoring the difference between sex and gender became unsustainable. Transgender people have posed a real challenge to architects and sociologists together. And, although gender-neutral "for all genders" toilets are increasingly being seen and the walls between women's and men's toilets in clubs have been demolished, the safety of women in these not-always-so-neutral spaces is once again slightly violated or at least questioned. Therefore, at least as far as public toilets are concerned, we are in an interesting moment in time where the task of architects is to listen carefully to the needs of all genders and not rush to unified solutions.

When it comes to bathrooms, the inevitable phenomenon of the Turkish hammam teaches us how the purpose of already existing rooms can be redefined, and how this intimate, almost sacred space changed under the influence of gender. Hammams are generally designed as double (couple-hammams), rigidly divided into two parts - male and female, which are almost symmetrically placed around the massive wall that separates them.



Fig. 7 Jean Auguste Dominique Ingres - Turkish bath, 1863.

At first glance, the female and male parts of the hammam look identical, however, it is interesting that the hood of the female part of the hammam is wider and, therefore more spacious than the male part. It is also logical because women used this room more often to rest after bathing. In addition, in the women's Kapalua, according to custom, there was especially a shelter (pillow) for girls, who came just before the wedding, and

mattresses for women, who visited the hammam for the first time after giving birth, after 40 days, with a certain ceremony.

Apart from the mentioned changes, the changes in the status of women significantly influenced the abandonment of these facilities, which lost their main clientele due to the departure of women from them. During the Ottoman era, women used hammams as a kind of "café" where the most important news, gossip, and even scandals were invented. Women were, therefore, much more attached to the hammam space than men because it was a place where they could socialize without the presence of a man (because in the tradition of Islam, it is required that a woman does not go anywhere alone without a man accompanying her). After the rapid emancipation of women in the second half of the twentieth century, an increasing number of them work and pursue careers - hammams lost their target group, which now uses other spaces for socialization.



*Fig. 8 - Turkish bath/Hamam*

Nevertheless, hammams regain their charm and influence on public and social life, precisely by gender neutralization. In the Western world (especially Germany, Holland, and Hungary), gender-neutral hammams - i.e. inclusive hammams - are becoming a hit, a combination of care and enjoyment in public bathing with modern materials and rooms designed to offer full comfort and safety for every person. They again become a space for socialization: couples go for romantic treatments for couples (only in this century is it possible for a man and a woman to go to the hammam together and plan), groups hold specific celebrations or gatherings, and it is no longer rare to schedule a meeting in the hammam, which it allows with its new structure.

## 5. CONCLUSION

Architecture and urbanism at the same time both inform and are informed about how the human body is perceived, and how body and gender were almost philosophically inseparable - architecture had to be extremely gendered throughout history. However, this is no longer the case and does not have to be. The work on gender neutralization of architecture is already well underway.

The gender criterion is more and more consciously applied to projecting and designing space, as well as to urban planning. It is a criterion that must be used carefully and responsibly, taking into account the different needs of people when it comes to gender. Inevitably, cities, neighborhoods, and private spaces will transform more and more into oases of safety and equal opportunities, without gender-based privileging.

The paper emphasizes the need for an inclusive architecture that does not favor any gender. Architects and urban planners should carefully consider gender and equality in their projects to create a space that reflects inclusivity and comfort for all, regardless of gender.

Binary gender roles are associated with specific colors, materials, objects, symbols, spaces, and many more. In a world of segregation, architecture can play a key role in

bringing people together, accommodating everyone, holding space for differences and promoting inclusivity.

In essence, the work explores how changes in society and understanding of gender roles have shaped architecture and urbanism and calls for further reflection and action in creating spaces that promote equality and unity.

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