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Theoretical interpretations and design approaches to Openness in the architecture of urban single-family houses / Teorijske interpretacije i projektantski pristupi Otvorenosti u projektiranju obiteljskih kuća u gradu

01 Kuća je u konstantnoj mijeni.

U suvremenim uvjetima, obiteljska kuća suočava se s nizom izazova koji proizlaze iz promjene životnih stilova, demografskih trendova i urbanih transformacija. Iako intenzivno sudjeluje u dinamici gradskog života, kuća je fizički introvertirana i percipirana kao stabilan, zatvoren i jasno definiran objekt jer je određena intimnim potrebama stanara. U stvarnosti, ona je prostor u **stalnoj mijeni** – kako prostorno i funkcionalno, tako i simbolički.

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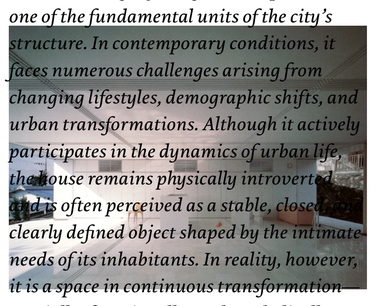

The urban single-family house represents one of the fundamental units of the city's structure. In contemporary conditions, it faces numerous challenges arising from changing lifestyles, demographic shifts, and urban transformations. Although it actively participates in the dynamics of urban life, the house remains physically introverted and is often perceived as a stable, closed, clearly defined object shaped by the intimate needs of its inhabitants. In reality, however, it is a space in continuous transformation spatially, functionally, and symbolically.

02 Kuća je Otvoreni sustav.

Dinamičnost kuće moguća je zbog toga što se obiteljska kuća ponaša kao **Otvoreni sustav**. Ona je struktura koja se razvija, prilagođava i transformira kroz vrijeme dok istovremeno komunicira s vlastitom okolinom, reagira na njene podražaje i postavlja vlastite zahtjeve spram nje.

Ludwig von Bertalanffy kaže da je Otvoreni sustav sve što je živo. U tu definiciju spada i kuća.

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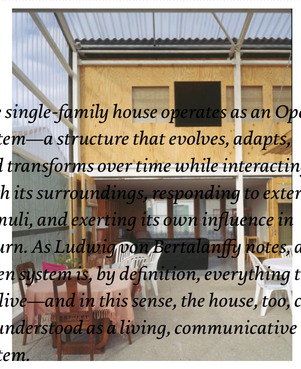

The single-family house operates as an Open system—a structure that evolves, adapts, and transforms over time while interacting with its surroundings, responding to external stimuli, and exerting its own influence in return. As Ludwig von Bertalanffy notes, an Open system is, by definition, everything that is alive—and in this sense, the house, too, can be understood as a living, communicative system.

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“ *An urgent and wide cultural, social, and economic issue, the single-family house is the architectural embodiment of specific planning policies, real-estate values, forms of property, and cultural tenants. As such, it seems to represent an ossified object, about which it is difficult to imagine a transformation — despite the urgency to do so.*

Tattara, M., Zanfi F. (2024.). Redesigning the Single-Family House: A Critical Look Back, and a Glance Forward. In What's next for Mom and Dad's House. Leipzig: Spector Books

03 Nedostatak teorijskog i praktičnog okvira za razumijevanje obiteljske kuće kao Otvorenog sustava.

Otvorenost je sposobnost sustava da prihvaća promjene, reagira na okolinu i dopušta različita tumačenja, upotrebe ili prostorne konfiguracije.
Problem koji se istražuje nije promjena kuće kroz naknadne intervencije, nego način na koji se u trenutku projektiranja može utemeljiti prostornu otvorenost, fleksibilnost i višeznačnost kuće.

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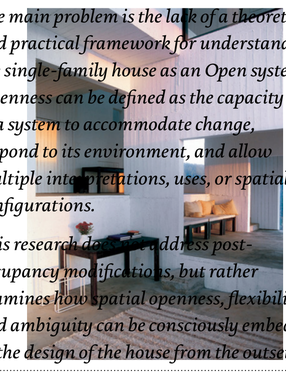

The main problem is the lack of a theoretical and practical framework for understanding the single-family house as an Open system. Openness can be defined as the capacity of a system to accommodate change, respond to its environment, and allow multiple interpretations, uses, or spatial configurations.

This research does not address post-occupancy modifications, but rather examines how spatial openness, flexibility, and ambiguity can be consciously embedded in the design of the house from the outset.

04 ~~Kako se Otvorenost može definirati, razumjeti i svjesno~~ ugraditi u projekt?

a. Na koji način se Otvorenost može ugraditi u trenutku projektiranja obiteljske kuće?

b. Koji elementi / karakteristike kuća omogućuju interpretaciju arhitektonske Otvorenosti kao projektantske kvalitete?

c. Kako je moguće prepoznati, analizirati i vrednovati otvorenost kuće kroz teorijsko-analitički model?

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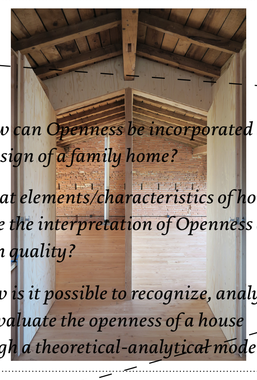

a. How can Openness be incorporated into the design of a family home?

b. What elements/characteristics of houses enable the interpretation of Openness as a design quality?

c. How is it possible to recognize, analyze, and evaluate the openness of a house through a theoretical-analytical model?

05 Otvorenost je projektirana.

a. Otvorenost nije karakteristika oblika nego posljedica niza međusobno usklađenih odluka.

b. Otvorenost je rezultat svjesnih i međusobno povezanih razina projektantskih odluka, odnosno biranja i uslojavanja elemenata prostornih koncepcija.

c. Otvorenost se može identificirati i uspoređivati pomoću jasno definiranih, univerzanih analitičkih kriterija.

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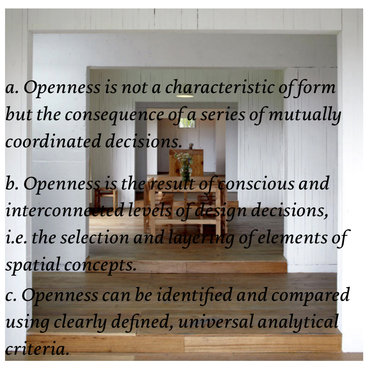

a. Openness is not a characteristic of form but the consequence of a series of mutually coordinated decisions.

b. Openness is the result of conscious and interconnected levels of design decisions, i.e. the selection and layering of elements of spatial concepts.

c. Openness can be identified and compared using clearly defined, universal analytical criteria.

06 Otvorenost uključuje prostornu logiku, granice i prijelazne zone, značenjske slojeve prostora te odnos kuće, korisnika i konteksta.

a. Definirati i artikulirati pojam Otvorenosti u kontekstu obiteljske kuće.

b. Analizirati primjere kuća koje demonstriraju Otvorenost kao koncept.

c. Razviti model za analizu i vrednovanje arhitektonske Otvorenosti u projektiranim obiteljskim kućama.

h


a. Define and articulate the concept of Openness in the context of a family home.

b. Analyze examples of houses that demonstrate Openness as a concept.

c. Develop a model for analyzing and evaluating architectural Openness in designed family homes.

07 Istraživanje

1 Teorijska analiza
2 Utvrđivanje analitičkih kriterija
3 Odabir studija slučaja
4 Primjena kriterija
5 Komparativna analiza
6 Razrada i validacija modela

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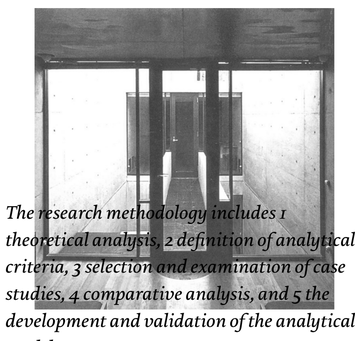
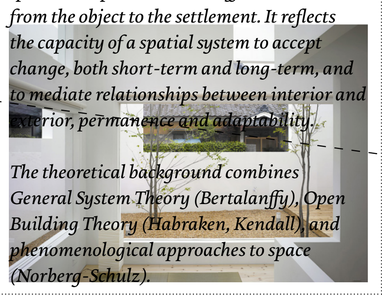


The research methodology includes 1 theoretical analysis, 2 definition of analytical criteria, 3 selection and examination of case studies, 4 comparative analysis, and 5 the development and validation of the analytical model.

1 Prostorna otvorenost

razina arhitektonskog prostora → ***pokazatelj prostorne otvorenosti***

naselje — ***propusnost***
kuća — dovršenost — ***promjenjivost***
prostorije — ispunjenost
predmeti

j


Spatial openness can be understood as a multi-layered condition of architectural space that operates across different levels — from the object to the settlement. It reflects the capacity of a spatial system to accept change, both short-term and long-term, and to mediate relationships between interior and exterior, permanence and adaptability.

The theoretical background combines General System Theory (Bertalanffy), Open Building Theory (Habraken, Kendall), and phenomenological approaches to space (Norberg-Schulz).

Perceptivna otvorenost

razina egzistencijalnog prostora → ***pokazatelj perceptivne otvorenosti***

pravci, smjerovi, putevi — tjelesna — ***protočnost***
temporalna
površine, domene — značenjska — ***višeznačnost***
doživljajna — ***doživljaj***
središte, mjesto — simbolička otvorenost

k
Perceptual openness refers to the continuous variability and interpretive flexibility of human perception in relation to existential space. Perceptual openness emphasizes the coexistence of sensory, semantic, and symbolic dimensions within spatial experience.

Drawing on theorists such as Christian Norberg-Schulz, Maurice Merleau-Ponty, Gaston Bachelard, Henri Lefebvre, Michel de Certeau, Elizabeth Grosz, and Mark Wigley, perception is understood as an active, dynamic process that constructs and transforms the meaning of architectural space.

2 Kriteriji otvorenosti

osnovni prostorni koncept
raumplan, plan libre, open plan..
transformacije u različitim primjerima
analiza prilagodbi kontekstu, korisniku..
identifikacija
“radnji otvorenosti”
prostorna otvorenost — perceptivna otvorenost

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The practical research begins by examining the potential of fundamental spatial archetypes to generate Openness, tracing how these concepts evolve and adapt across different architectural contexts and authors. Through this process, specific “actions” of Openness are identified, establishing the analytical criteria for the practical part of the study.

3 Primjeri za analizu

nulta situacija, parcela (0)
ugradnja otvorenosti tijekom projektiranja (II)
0 — II

postojeća građevina (I)
ugradnja otvorenosti tijekom projektiranja (II)
I — II

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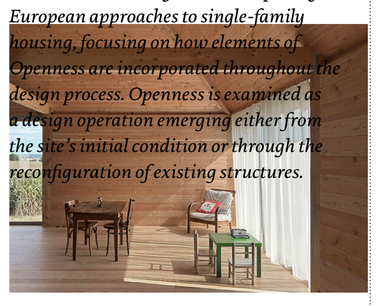
The research investigates contemporary European approaches to single-family housing, focusing on how elements of Openness are incorporated throughout the design process. Openness is examined as a design operation emerging either from the site's initial condition or through the reconfiguration of existing structures.



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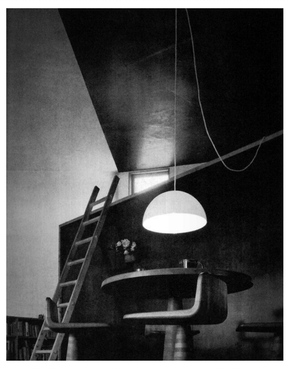

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08 Prostorna < > Perceptivna

Stephen Kendall, Jonathan Teicher
˄
Nicolaas John Habraken
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Ludwig von Bertalanffy
˅
Christian Norberg-Schulz
˅
Gaston Bachelard

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The theoretical framework situates architectural Openness across both spatial and perceptual dimensions.



Foundational concepts from General systems theory (Bertalanffy) provide a lens to understand dynamics and adaptability, while phenomenological perspectives (Norberg-Schulz, Bachelard..) highlight how space is experienced emotionally and sensorially. Structural and participatory approaches (Habraken, Kendall, Teicher..) illustrate how Openness can be embedded in material and organizational logic.

“ *Every home comes into being, first and foremost, through an act of election: a series of gestures through which we select a disparate and relatively incompatible set of objects, people, and walls and change it into a privileged place in our world.*

Coccia, E. (2024). Philosophy of the Home: Domestic Space and Happiness. London: Penguin Books.

09 Pojam, analiza i primjena Otvorenosti

a Teorijski doprinos je uspostava jasnog okvira pojma Otvorenosti te integracija postojećih teorijskih pristupa u jedinstven model čitanja i interpretacije Otvorenosti u kontekstu arhitekture obiteljske kuće.

b Analitički doprinos ostvaruje se kroz identifikaciju i sistematizaciju strategija Otvorenosti te kroz analizu konkretnih arhitektonskih primjera koji demonstriraju različite načine manifestacije Otvorenosti.

c Metodološki doprinos uključuje razvoj primjenjivog modela za teorijsku i projektnu analizu otvorenosti, koji omogućuje usporedbu različitih pristupa oblikovanju prostora te pokazuje potencijalnu primjenjivost i izvan područja obiteljske kuće.

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This research establishes a theoretical and methodological framework for understanding and evaluating architectural Openness in single-family houses. Theoretically, it integrates dispersed notions of Openness into a unified conceptual model and provides a precise definition applicable to architectural discourse. Analytically, it systematizes strategies of conceptual Openness through the examination of built examples, revealing how Openness operates as a design principle. It introduces a model for interpreting and comparing architectural approaches, offering an analytical tool extendable beyond the domain of housing.

10

01 + 02 Uvod / Introduction
03 Istraživački problem / Research problem
04 Istraživačka pitanja / Research question
05 Hipoteze / Hypotheses
06 Ciljevi / Objectives
07 Istraživačke metode / Methodology
08 Pregled literature / Literature review
09 Doprinos / Contribution
10 Legenda / Legend

s
a Shigeru Ban, 9 square grid house, 1997.
b Lacaton + Vassal, Maison Latapie, 1993.
c Louis Le Vau, Versailles
d Pompeii, Domus vettiorum
e Pezo von Ellrichshausen, Poli house, 2005.
f Bast, M33, 2023.
g Pezo von Ellrichshausen, Clen house, 2011.
h Aires Mateus, House in Azeitao, 2003
i Tadao Ando, Azuma house, 1976.
j Sou Fujimoto, House N, 2008.
k Toyo Ito, U house, 1976.
l Pezo von Ellrichshausen, Meri house, 2014.
m Bast, M38, 2024.
n Kazuo Shinohara, Earth house, 1966.
o Kazuhiro Kojima, Himuro house, 2002.
p Baracco + Wright, Outbuilding with deep garden, 2022.
r Kazujo Sejima, Plum grove house, 2003.
s Tezuka architects, Roof house, 2009.

