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From “Absolute Idea of Architecturally Defined Space” To “Architecture as a Living Organism”

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Abstract— *This paper presents a new typology of architecture suggested by the title of the paper: FROM “ABSOLUTE IDEA OF ARCHITECTURALLY DEFINED SPACE” TO “ARCHITECTURE AS A LIVING ORGANISM”. The new typology is based on the author's theory of “Architecturally Defined Space (ADS)” according to which every architectural realization has four basic elements: Environment, Man, Boundaries and Perspectives. The term 'Absolute Idea' implies 'Space' in its broadest sense, as 'the potential possibility of realizing human existence'. The phrase 'Architecture as a living organism' covers every appearance of architecture, horizontally (across the planet Earth, its atmosphere, the Universe and other celestial bodies) and vertically (on the scale of human history). In this way, an extremely simplified picture of architecture is given, which, at the same time, can be broken down into a limited number of 'pictures', according to the unlimited number of occurrences of the natural and clustered environment.*

Keywords— *New typology of architecture, Architecturally Defined Space (ADS).*

I. Introduction

One of the most common approaches to viewing (studying) architecture is the historical approach, in which architecture is followed through the historical epochs of humanity, more or less simultaneously through the monitoring of geopolitics, socio-economic relations, philosophy (general view of the world), the state of science and the state of other branches of art. Most schools of architecture in the world add to the general history (and theory of architecture) the history of the architecture of their country or their people (ethnos). When it comes to learning the methodology and design skills in architecture, for a long time (until today) the architecture schools used an approach based on the purpose of the buildings: Residential buildings, Public buildings, Commercial buildings, Sacred architecture, Memorial architecture... At the same time, each from the mentioned groups of buildings followed through a more or less wide array of special buildings: Residential buildings (weekend houses, family houses, villas, buildings for 'collective' housing, hotels, student and student dormitories, old people's homes...), Public buildings (schools and faculties, offices, banks and post offices, museums, theaters, opera houses, health facilities, libraries...), Commercial buildings (public garages, factories, department stores, shopping centers, 'traffic at rest' facilities - stations, farms, storage silos grain, mills) ... The organization and furnishing of the 'inside' of the architectural object was treated through a special segment of design, through 'internal architecture' or interior. The perception of individual objects in the wider context of the built environment was processed through 'urban planning', 'urban design'... Regardless of the fact that such a partial approach to architecture could always be justified, it was often used in architecture to create artificial, basically non-existent, differences between individual architectural programs that often led to absurdity. The opus of certain great architects, in a wide variety of architectural programs, is the best confirmation of the existence of an 'approach to architecture', an 'approach to architectural design', which each author finds according to his personality profile (Figures 2,3,4,5,6,7) , and which he (or an observer from the side) defines as his artistic credo; sometimes the artistic credo is extremely individual, sometimes appropriate to a larger or smaller group of architects, sometimes appropriate to an entire epoch (when we talk about a movement: in architecture, in art, in philosophy, for example).

II. Typology

In accordance with the author's understanding of architecture as an Architecturally Defined Space (Figures 1,2) with its four basic elements - Environment, Man, Boundaries and Perspectives - here we will propose a typology of architecture according to the way its boundaries (envelope) are defined, and according to the specifics of global natural environments in which man can realize his existence: on Earth (type E) in open space (type S) and on other celestial bodies (type SB) [1,2], (Figure 3).

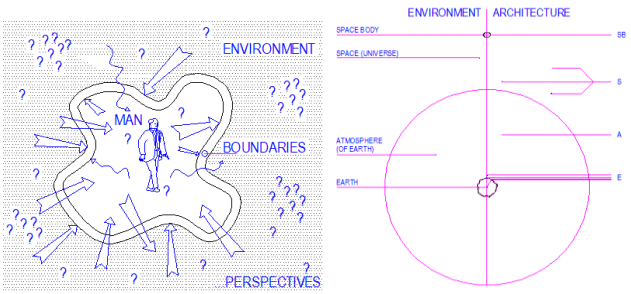

Figure 1. Architecturally Defined Space (ADS)
Source: Author 1987 (left)
Source: Author 2011. (right)

For this approach to establishing a typology in architecture, the author had in mind, on the one hand, the title of this book, and on the other hand, the achievements of architecture in environments that today are understood as 'unusual', 'extreme', 'sensational' [1,3, 4,5,6,7,8,9,10,11,12,13,14,15,16]... Everything that has been said and written about architecture

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until today is based on man's experience of life on Earth; as man has long since stepped into Space, first with spacecraft without a human crew, and later with personal presence, new spaces have been opened for his existence, and accordingly, completely new experiences in creating the boundaries of Architecturally Defined Space. These new experiences will also be transferred to the already known experiences of his life on Earth, where one can expect, until now, an unimaginable approach to defining the boundaries of the Architecturally Defined Space.

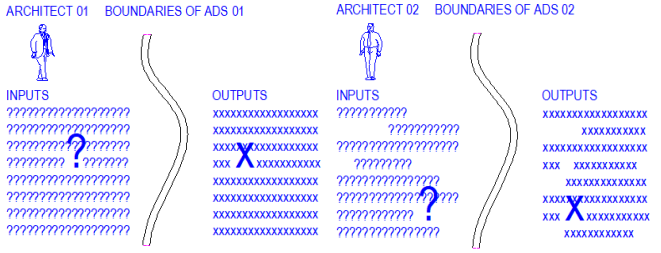


Figure 2. Architect-ADS

Source: Author 2011.

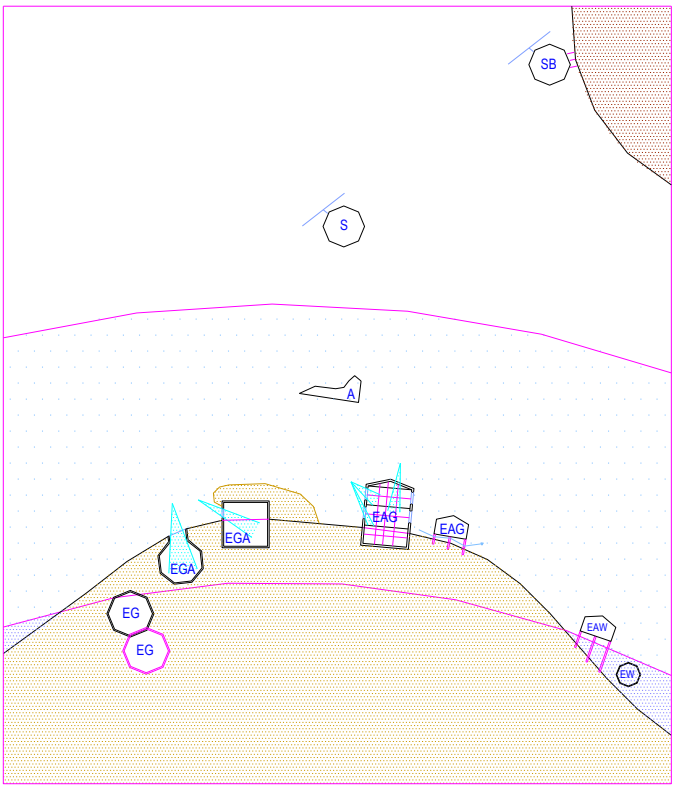
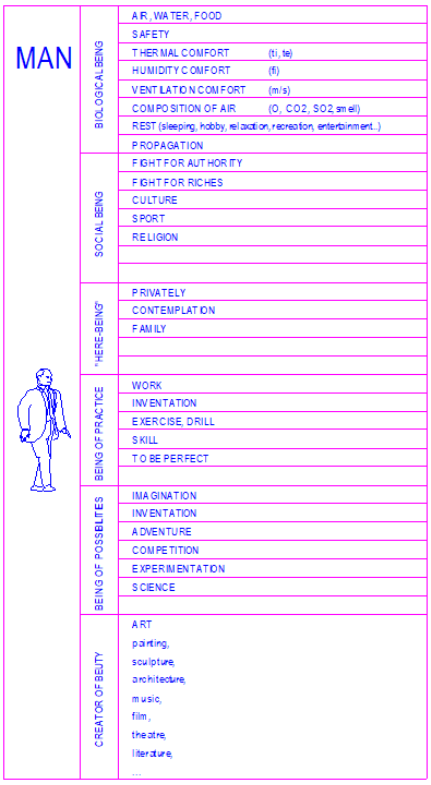


Figure 3. ADS: Typology

Source: Author 2011.



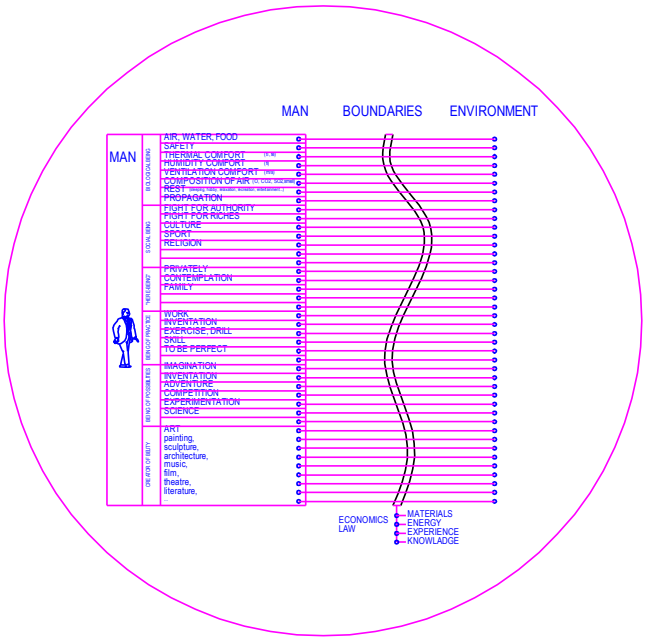


Figure 4. Man (left). Human-Limits ADS-Environment (right)

Source: Author 2011.

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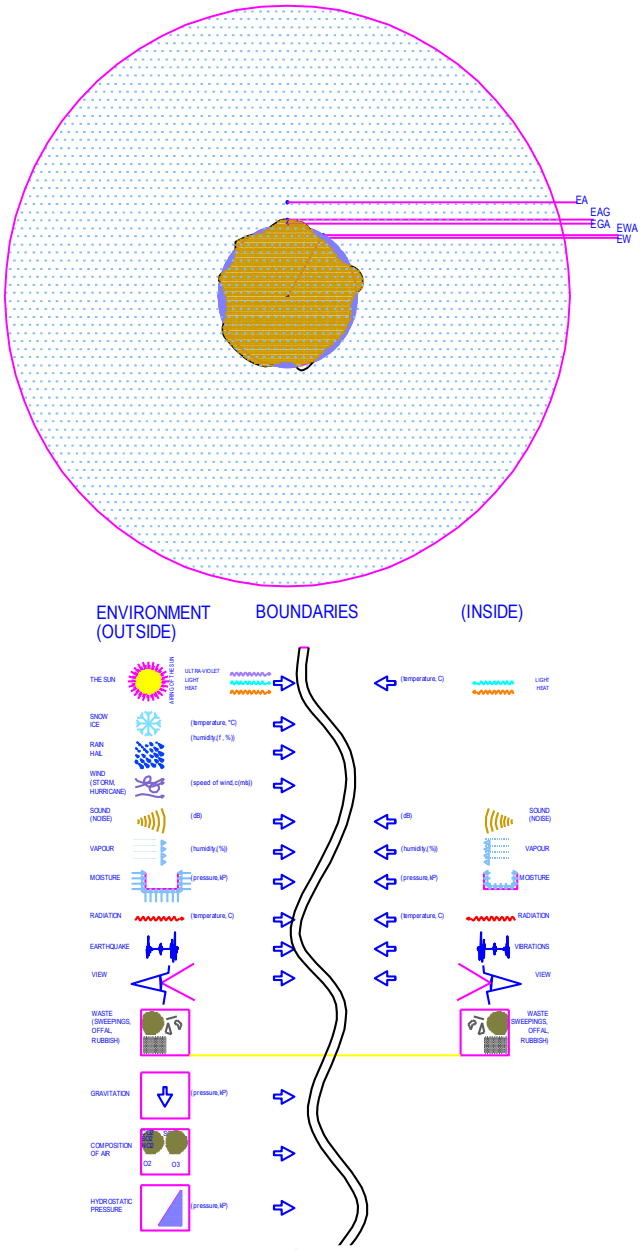

Figure 5. Environment - ADS (left). Environment - ADS Boundaries-Man (right)
Source: Author 2011.

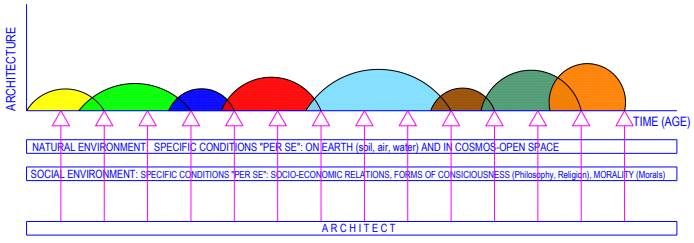

Figure 6. Defining the Architectural Space (ADS): cycles through history
Source: Author 2011.

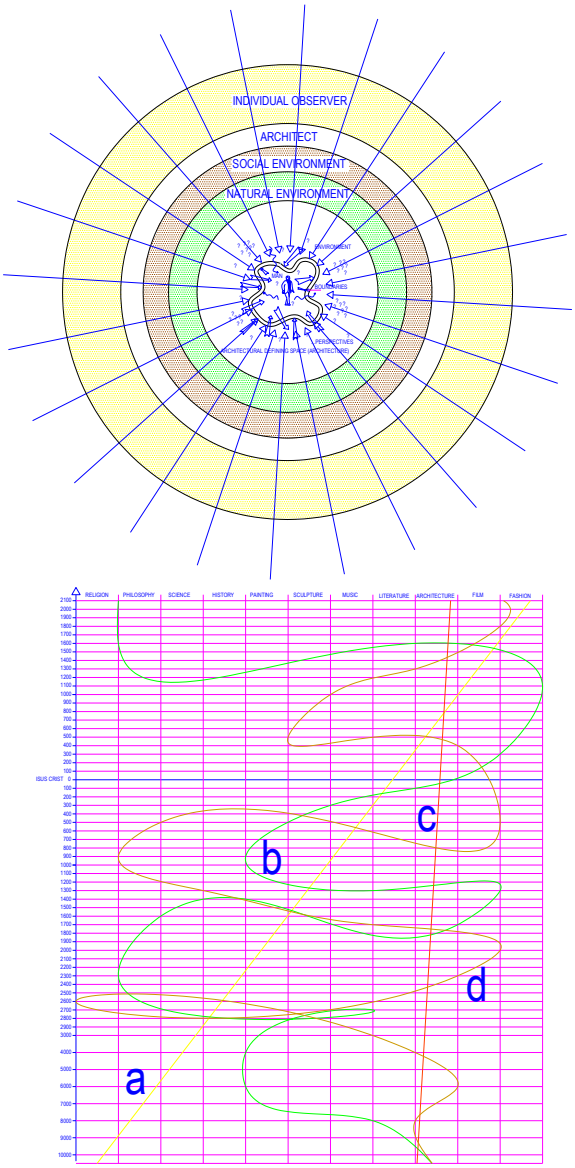

Figure 7. Architecture in context (left). Many designed images: a), b), c), d)... (right)
Source: Author 2011.

2.1. Type E

As already mentioned, type E (Earth) refers to architecture realized in the conditions of human existence on Earth [1,10,11,12] (Figure 3). Here, as subtypes, we will observe architecture realized (mainly) on the surface of the Earth, in the field, with more or less significant digging into the ground (type EAG), architecture realized predominantly in the ground, but with an essential connection to the space above ground level (type EGA), architecture realized entirely in the ground, below ground level (type EG), architecture realized above water (type EAW), architecture realized entirely under water (EW), and architecture realized in the Earth's atmosphere, as flying bodies (type EA) . In all analyzes of the aforementioned types of architecture, we will always have in mind, on the one hand, Man (in the spectrum of his clearly defined needs), and, on the other hand, the specific natural environment in which a particular architectural type is

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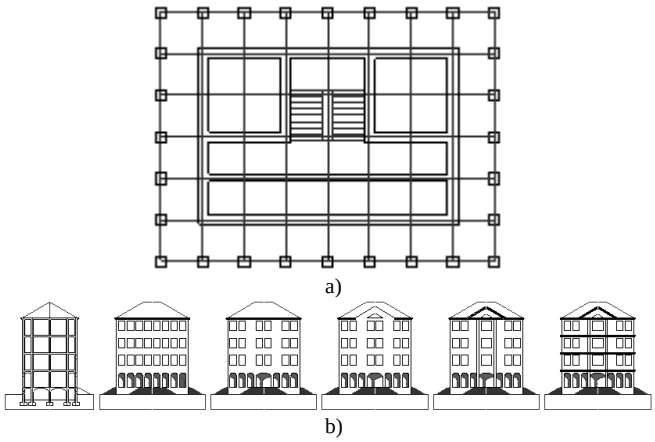
realized. In doing so, we want to see when, how and why the social environment appears as an input in defining architecture as well as the role of the architect (the immediate creator of architecture) with his knowledge, skill and subjective dimensions of his personality.

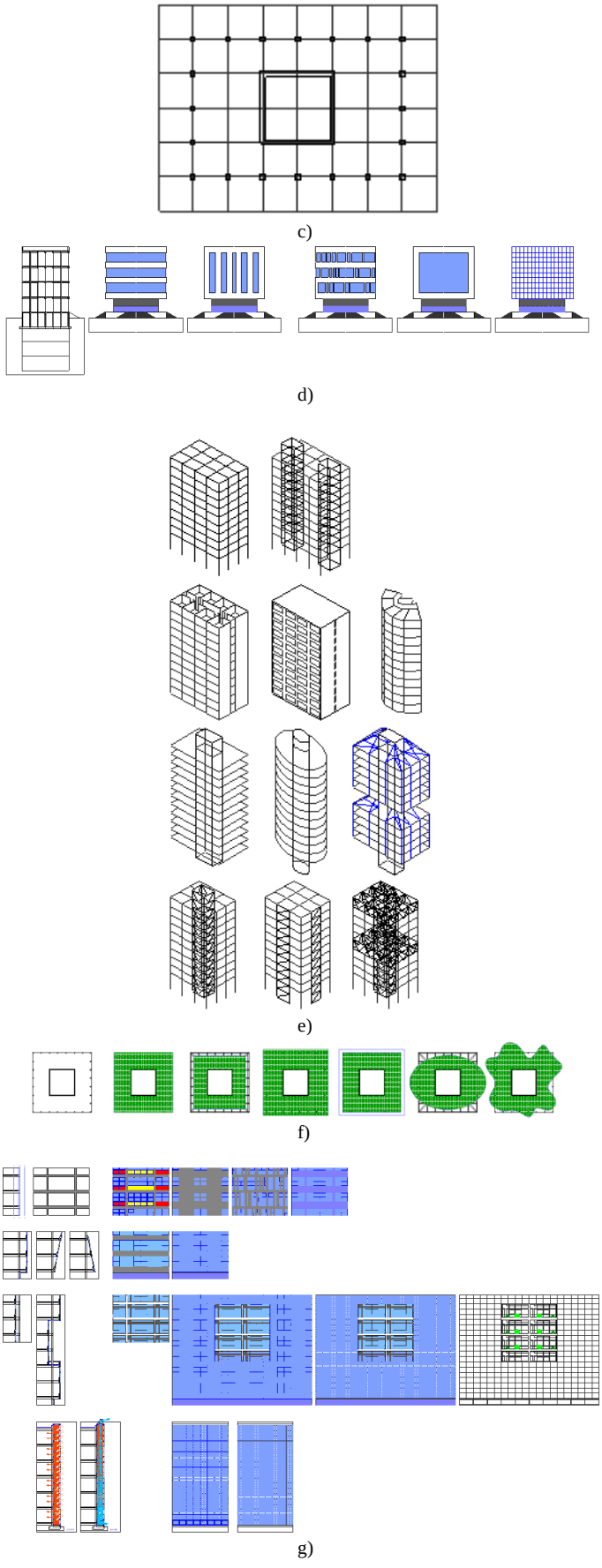
2.1.1. Type EAG

The EAG (Earth-Atmosphere-Ground) type refers to architecture that is, for the most part, realized on the surface of the Earth, at a greater or lesser height above ground level and with little or no digging into the ground. The disposition of architectural objects (horizontal and vertical plan), constructive systems, materialization as well as their final appearance reflect in a more or less visible way the natural environment in which they are established and the social environment in the overall complexity of interpersonal relationships [1,10,11,12]. We can follow the array of architectural programs with all their immanent characteristics in the manner of architecture in a historical context. As a special diopter of viewing architectural realizations, we could single out the way of achieving comfort within an architecturally defined space. At the same time, we understand comfort as a set of purely physical parameters (empirically measurable) that define the physiological and psychological comfort of a person. Considering their physical nature, we could classify these parameters into the following groups [4,8]: Thermal comfort parameters, Lighting comfort parameters, Acoustic comfort parameters. The thermal comfort parameters are: air temperature, relative air humidity, air flow speed, radiation (thermal radiation of surfaces and equipment inside the space), intensity of metabolism of people inside the space, clothing (level of drowning) of people inside the space. Depending on the social environment (historical epoch or 'style') and on the artistic credo of the architect, the final appearance of the architecture is different; the same horizontal and vertical plan of the physical structure of the building can be shaped differently (Figure 8).



a)

b)



c)

d)

e)

f)

g)

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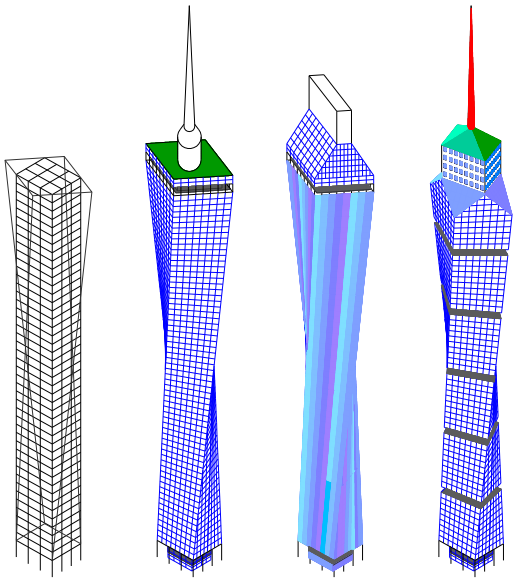


h)

Figure 8. Relationship between the constructive system and the ADS envelope
Source: Author 2011.

In a similar way of making Japanese swords, where by repeatedly tearing and bending a piece of iron (Figure 9), a sword is obtained whose blade is composed of a large number of layers (which makes it flexible and strong at the same time) and when making building envelopes of several layers, increase its thermotechnical performance, primarily its U-value (heat transfer coefficient). Determining the building envelope has long been of an 'empirical nature', i.e. an exact check through calculations (Figures 10,11,12,13,14). New concepts of the materialization of the building envelope, derived from the 'empirics of architectural physics', contributed to new aesthetic values in architectural design (Figures 11,12,13,14).

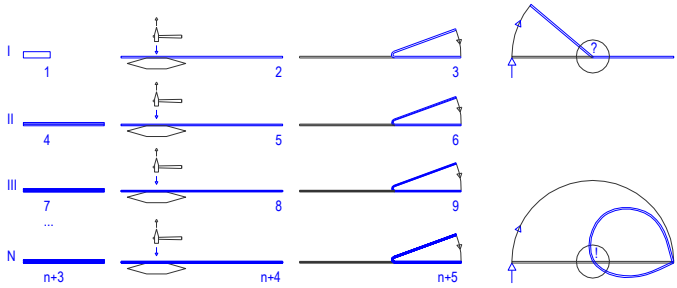


Figure 9. A piece of iron and a forged sword made of a large number of layers of forged iron
Source: Author 2011.

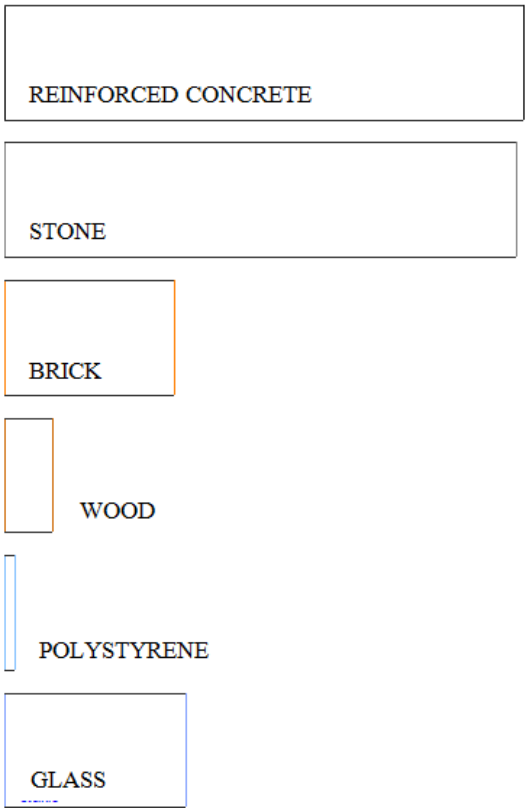


Figure 10. Different thicknesses of the external fence surface of ADS, with the same values of the heat transfer coefficient (U-value)
Source: Author 2011.

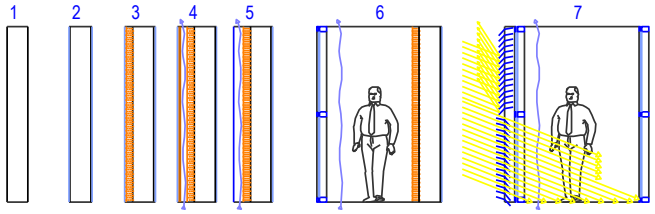


Figure 11. Development of the external fence surface of ADS
Source: Author 2011.

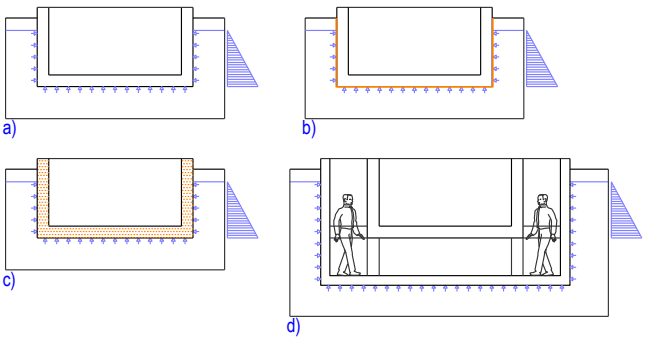
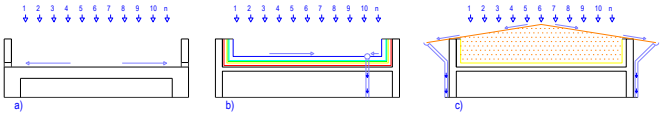


Figure 12. Boundaries of ADS in soil
Source: Author 2011



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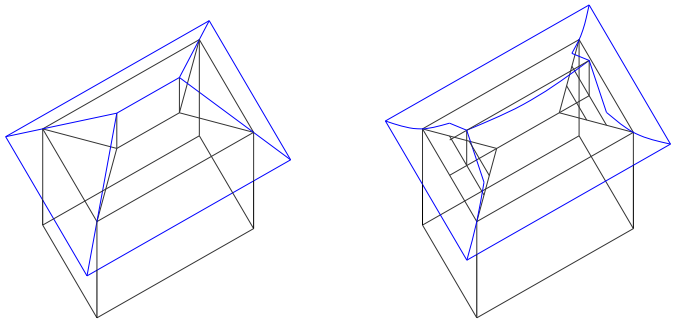


Figure 13. Roof boundaries of ADS ('fifth facade')
Source: Author 2011.

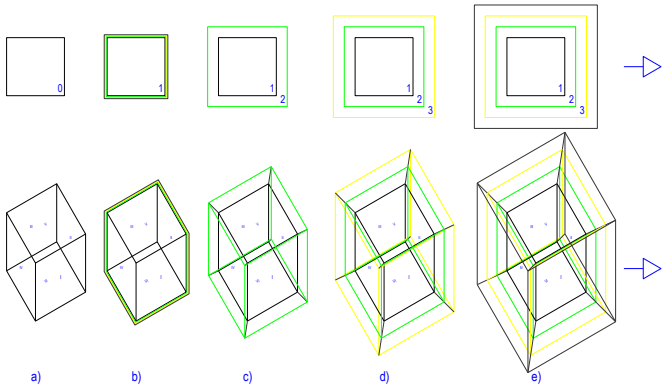


Figure 14. Evolution of the ADS's boundaries
Source: Author 2011.

Lighting comfort parameters: level of illumination, intensity of illumination, level of brightness (luminous bodies and illuminated surfaces). Acoustic comfort parameters: evenness of sound energy distribution in space, sound pressure level (intensity, power) in space, sound reverberation time. The mentioned parameters determine the basic dimension of the architecture, its expediency. Empirical analysis of architectural realizations throughout history, according to the mentioned parameters, we would find examples of anthologically important buildings that did not achieve optimal comfort, as well as architecturally unnoticed buildings in which supreme comfort was achieved; it is one of the most unacceptable controversies in architecture[1]. From the aspect of defining the physical boundaries of the Architecturally Defined Space (ADS), the realization of the parameters of physiological comfort, for each concrete architectural program, basically problematized two basic questions: the development of the horizontal construction plan, and the development of the vertical construction plan. If we were to imagine the horizontal building plan in a coordinate system in a plane, then we see that the appearance of the physical boundaries of the ADS will be a direct result of ensuring the parameters of the physiological comfort of a person realized by the constructive-spatial possibilities of a certain material (wood, stone, earth). . At the same time, the emerging image of the physical structure can be traced from the broadest interventions in space to the individual object[2]. The development of the vertical plan is always a consequence of the spectrum and intensity of human needs, and the constructive-spatial possibilities of the material with which the physical structure of the ADS is realized. At the same time, the final border open to the sky (the roof - the 'fifth facade') has always been of particular importance for the overall appearance of ADS, to the extent of being one of the most important symbols of the building contractor, in the concrete socio-historical context. The vertical (or more or less beveled) parts of the borders of the ADS (walls) are always a reflection of the spectrum of comfort parameters within the ADS, and the effort to convey the target message architecture-social, that is, the target perception of the social environment-architecture (Figures 15-20).

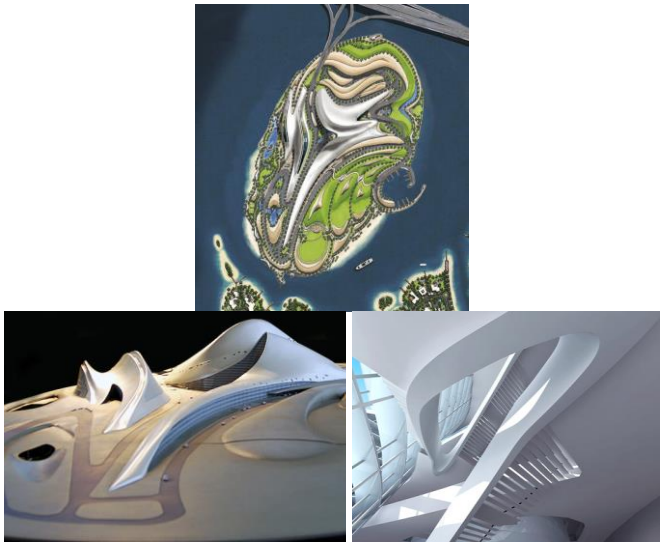


Figure 15. Dubai Opera House, Dubai, UAE, project (2006. Architect: Zaha Hadid)
http://www.designboom.com/weblog/cat/9/view/3045/dubai-opera-house-by-zaha-hadid.html. Accessed: February 21, 2023.
http://gizmodo.com/photogallery/dubaioperahouse/1001869233. Accessed: February 21, 2023.

[1] For example: good acoustics is a fundamental feature of the comfort of large cathedrals and mosques; the acoustics (reverberation time) of the Süleymaniye Mosque in Istanbul (1550-1558) is very unfavorable, although the mosque is considered a masterpiece by the architect Koc Mimar Sinan (1490-1588). It is similar with the church of Hagia Sophia (532-537) in Istanbul (architects Antemios from Tralo and Isidor from Miletus), which was turned into a mosque in 1453, and into a museum in 1922. Today (since 2020), it once again functions as a mosque.
Perhaps the most convincing examples are the discrepancy between the historical importance of architectural realizations and the achieved internal comfort:

- Farnsworth House, Plano, Illinois, 1946-1950 (Architect: L.M. van der Rohe),
- Glass House (Johnson House), New Canaan, Connecticut, 1949 (Architect: Philip Johnson),
- Palace of Assembly, Chandigarh, India, 1953-1963 (Architect: Le Corbusier)...

[2] In planning their cities, the ancient Romans used a clear horizontal plan scheme defined with a main axis (cardo maxima) oriented in the north-south direction and a secondary axis perpendicular to it (Decumanus Maximus), oriented in the east-west direction.

Figure 16. Hotel Luxor, Las Vegas, Nevada (1991-1993. Architect: Veldon Simpson)
https://planetofhotels.com/guide/en/usa/las-vegas/luxor-las-vegas-hotel-casino. Accessed: February 21, 2023.
https://www.pinterest.com/pin/500392208587847591/. Accessed: February 21, 2023.

Figure 17. Palazzo Strozzi, Florence, Italy (1489-1539. Architect: Benedetto da Maiano)
https://www.tripadvisor.com/Attraction_Review-g187895-d195020-Reviews-Palazzo_Strozzi-Florence_Tuscany.html
https://www.italia.it/en/tuscany/florence/palazzo-strozzi. Accessed: February 21, 2023.

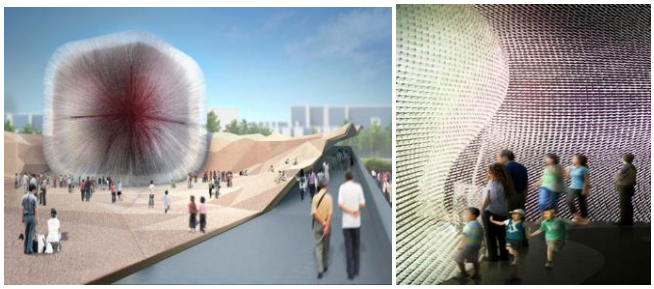
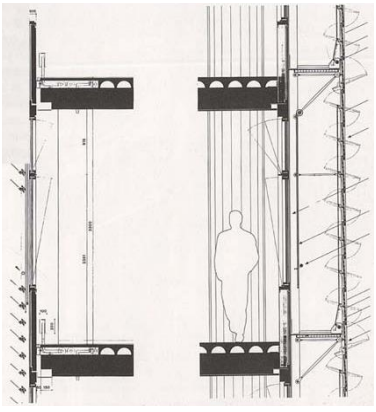


Figure 18. UK Pavilion (Shanghai World Expo 2010. Architects: Heatherwick Studio)
http://www.heatherwick.com/index.php?option=com_content&task=view&id=33&Itemid=57. Accessed: February 21, 2023.



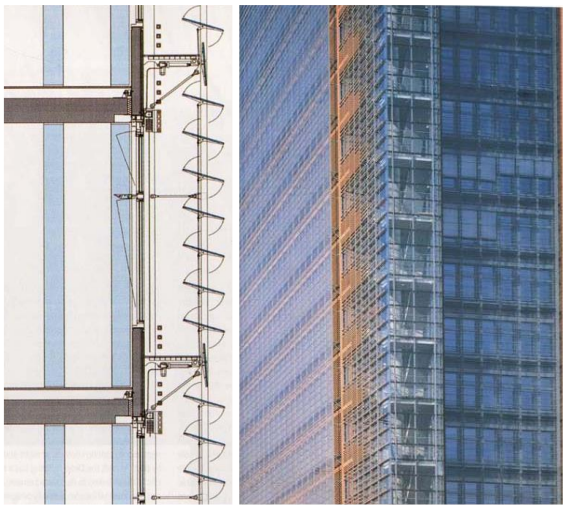


Figure 19. Debis Headquarters Building, Berlin (Architect: Renzo Piano)
https://www.pilbrowandpartners.com/work/heron-plaza/. Accessed: February 22, 2023.

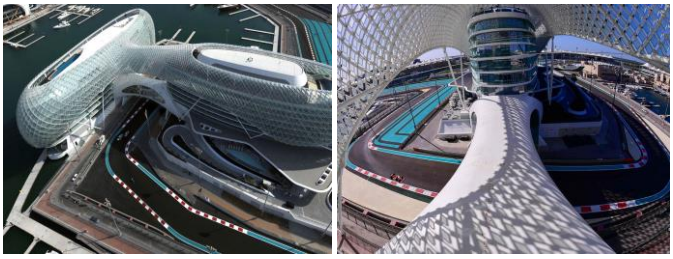
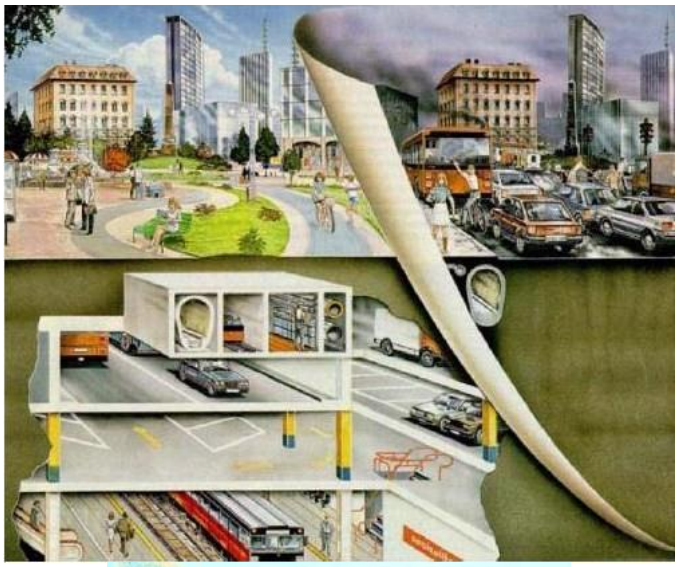


Figure 20. Formula 1 Etihad Airways Abu Dhabi Grand Prix and The Yas Hotel, Abu Dhabi, UAE (2007-2009), (Lead Architects: Asymptote Architecture: Principals Hani Rashid + Lise Anne Couture; Structural Engineers: Dewan Architects & Engineers, Abu Dhabi i ARUP, New York)
https://www.luxuryyachting.travel/f1-etihad-airways-abu-dhabi-grand-prix/. Accessed: February 22, 2023.
https://gulfnews.com/photos/sports/abu-dhabi-grand-prix-2020-how-things-stand-ahead-of-yas-marina-circuit-formula-one-showdown-1.1607756855268. Accessed: February 22, 2023.

When it comes to the segment of achieving the required comfort parameters within the boundaries of the ADS, the evolution of the materialization of the boundaries of the ADS can be followed, from single-layered to multi-layered boundaries (Figures 10,11,12,13,14). At the same time, single-layer borders corresponded with their massiveness to a more or less wide range of physical influences on the borders (both from the inside to the outside, and from the outside to the inside); the massiveness of the borders of the ADS was, on the one hand, conditioned by the possibilities of the available construction material, and on the other hand, the materialized borders transmitted a message (a lot of information about architecture in context) to the social environment (Figures 17,18,19,20). The multi-layered borders of ADS are the result of a scientific approach to architecture; their materialization is the result of scientific knowledge of the physical laws of matter and energy flows in the relationship Environment-Man and Man-Environment, for which technique and technology found a solution through materials of specific properties and

the new concept of Boundaries of ADS[3] [3]. The scientific approach to the conceptualization and materialization of ADS has led the architecture to highly sophisticated solutions in which the transparent parts of the Boundaries ('windows') are not 'weak places' but places of 'energy gains' (Figures 14,19). The scientific approach to architecture opened the way to establishing architecture in those natural environments that were once unimaginable (the underwater world of seas and oceans, open cosmic space, other celestial bodies). At the same time, architecture has never renounced its artistic component, since it is its essential component.



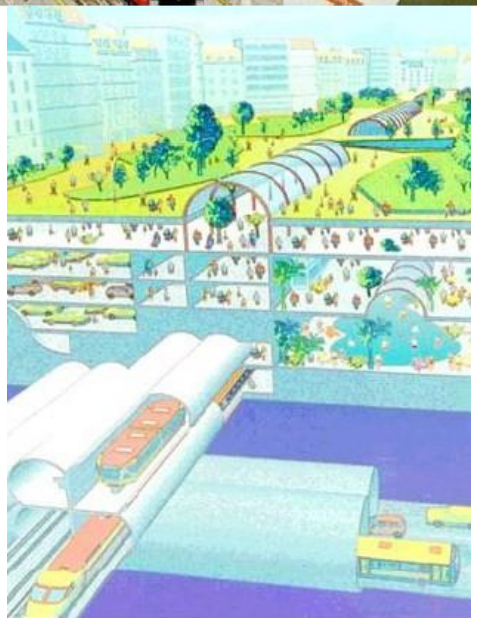


Figure 21. Underground infrastructure of cities

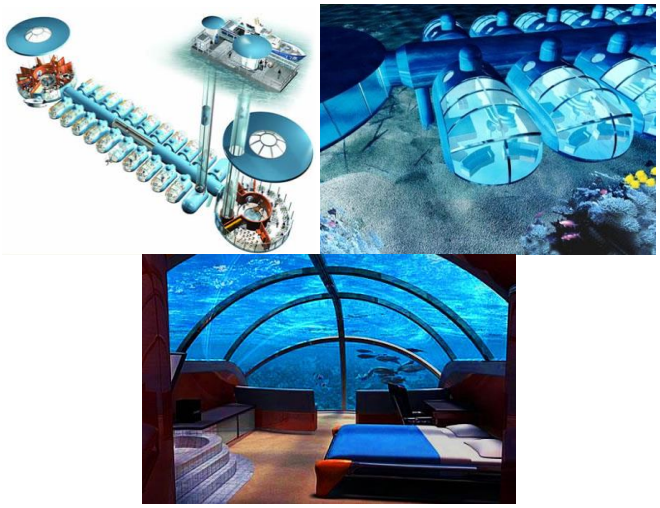


Figure 22. Poseidon Undersea Hotel, Istanbul, Turkey, Project (2008-2010. Architect: Jacques Rougerie)
http://weburbanist.com/2007/11/24/sink-or-swim-5-submerged-and-floating-seaworthy-hotels-for-the-adventurous-urbanite/
Accessed: February 21, 2023.

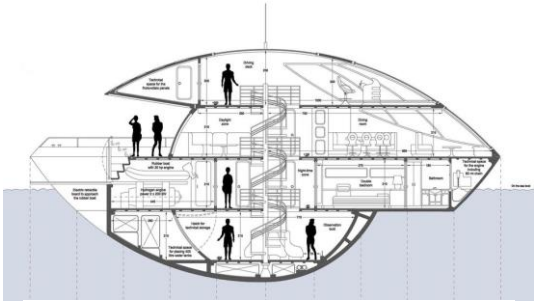


Figure 23. Trilobis 65 (2001. Architect: Giancarlo Zema)
https://www.bbc.com/future/article/20150922-the-future-shape-of-luxury-yachts. Accessed: February 21, 2023.

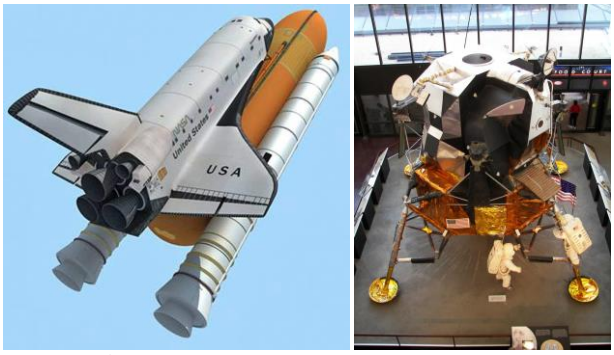


Figure 24. Left: Space Shuttle "Columbia" (April 12, 1981). Right: Apollo Lunar Module LM-2 (on display at the National Air and Space Museum, Washington, DC)

[3] Concepts: 'ventilated boundaries' (roof, wall), 'inverted flat roof', 'suspended facade', 'double facade', 'Trombo wall', 'winter garden'... are a direct consequence of the scientific approach to the materialization of ADS Boundaries.

https://www.renderhub.com/3d-horse/columbia-space-shuttle. Accessed: February 21, 2023.
https://historicspacecraft.com/Lunar_Module.html. Accessed: February 21, 2023.

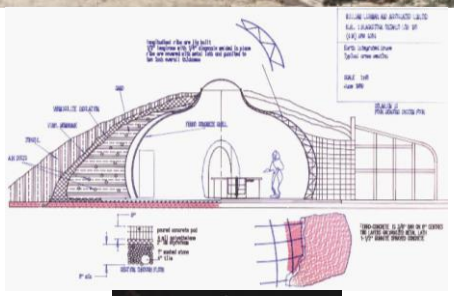
1.1.2. Type EGA

The EGA (Earth-Ground-Atmosphere) type indicates architecture that is mainly realized in the ground, but with significant spatial contact with the atmosphere[4] (Figures 3,15,25). Knowing the many benefits in achieving the internal comfort of construction (with significant energy efficiency) by digging it into the ground (recognized in many examples of vernacular architecture), today architects design and realize constructions on the ground, with the planned intention that these constructions will later be covered with earth (Figures 25,26,28,29,30).

Figure 25. Nine Houses, Dietikon, Switzerland (1993. Architect: Peter Vetsch)
http://www.bubblemania.fr/en/peter-vetsch-2007-dietikon-suisse/. Accessed: February 21, 2023.

Figure 26. The Waterworld, Shanghai, China, project (2006. Architects: The Atkins Architecture Group)
https://www.lonelyplanet.com/news/underwater-hotel-in-abandoned-quarry. Accessed: February 21, 2023.

Figure 27. Bill Gates house, Medina, Lake Washington, Seattle, USA (1992-1994. Architects: James Cutler and the architectural firm Bohlin Cywinski Jackson)
https://www.businessinsider.com/crazy-facts-about-bill-gates-house-2016-11#its-worth-at-least-127-million-today-1
Accessed: February 21, 2023.



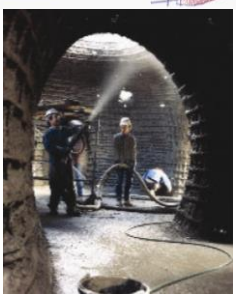


Figure 28. Underground architecture, Canada (1988. Architect: William Lishman)
http://coyote.ca/wp/2009-11-06/re-introducing-the-power-of-creative/.
Accessed: February 21, 2023.

Figure 29. House hidden in the ground, Cumbria, UK (2002. Architect: John Bodger)
https://www.visitcumbria.com/evnp/underground-house/. Accessed: February 21, 2023.

[4] Type EGA (Earth-Ground-Atmosphere) is often realized in such a way that the building is built as a classic construction on the ground (Type EAG: Earth-Atmosphere-Ground), and is subsequently covered with earth.

In some cases, certain parts of the ADS boundaries are covered with earth (with more or less technically sophisticated solutions) with the aim of simultaneously achieving benefits (internal comfort, energy efficiency) both for the individual building and for its natural and social environment (Figures 30-35). These solutions are known as green roof, living roof, green wall...

Figure 30. The Faculty of Art and Design, University of Singapore (2006. Architects and Structural Engineers: CPG Consultants Pte Ltd) https://designdautore.blogspot.com/2015/02/green-roof-art-school-in-singapore.html#.Y_UCK3bMKUk. Accessed: February 21, 2023.

Figure 31. Fukuoka Prefectural International Hall (aka ACROS Building), Japan (1995. Architects: Emilio Ambasz & Associates) https://www.stirworld.com/think-columns-acros-fukuoka-prefectural-international-hall-by-emilio-ambasz-turns-25 Accessed: February 21, 2023.

Figure 32. GENO-Haus, Stuttgart, Germany (1969. Landscape Architect Peter Philippi) http://www.greenroofs.com/projects/geno-haus/. Accessed: February 21, 2023. https://www.wir-leben-genossenschaft.de/de/Das-GENO-Haus-in-Stuttgart-local-hero-2475.htm. Accessed: February 21, 2023.

Figure 33. Hundertwasser Haus, Vienna (1983-1986. Architects: Prof. Joseph Krawina, Peter Pelikan) https://nouvellesdejardins.be/visites/allemagne/hundertwasser-quand-larchitecture-rencontre-la-nature/. Accessed: February 21, 2023.

Figure 34. Green Walls https://www.greenmatters.com/travel/2018/06/13/Z1yVaxn/green-walls-world. Accessed: February 21, 2023.

Figure 35. House covered with earth, Sænautasel, Iceland https://guidetoiceland.is/connect-with-locals/regina/saenautasel-turf-house-i-the-highlands-of-iceland-2. Accessed: February 21, 2023.

1.1.3. Type EG

Type EG (Earth-Ground) refers to architecture completely realized in the ground, at a lower or greater depth than the ground level. Initially, it was about 'engineering' facilities (tunnels, for example), and facilities of military-strategic importance for a country (command posts in case of war, airfields, factories...); today, complex communication and other infrastructure systems in cities (metros, business and shopping centers...) are built according to this principle (Figures 36,37).

Figure 36. The Shatin to Central Link and East Rail Line in Hong Kong (2020) https://www.constructionplusasia.com/hk/mtr-enters-milestone-stage-works-on-the-shatin-to-central-link-and-east-rail-line/ Accessed: February 21, 2023.

Figure 37. Underground command post, Konjic, Bosnia and Herzegovina
https://titovbunker-posjete.com/. Accessed: February 21, 2023.
https://vilasunce.ba/titov-bunker-u-konjicu/. Accessed: February 21, 2023.

These solutions ensure a high level of physical protection of people (in the event of war, for example), save space on open ground, are energy efficient, but are very demanding in the process of their physical realization, and later, in ensuring their physical stability (due to many unpredictable influence in the soil itself) of their boundaries. Due to the high level of technical equipment (systems to ensure people's comfort), mandatory provision of food, water and energy supplies for a more or less long period of time people stay in them, this architecture is largely autonomous, for a limited period of time; its autonomy must be renewed from time to time.

1.1.4. Type EAW

Type EAW (Earth-Atmosphere-Water) includes those ADS solutions that are realized above water (rivers, lakes, seas), with more or less complete contact with the atmosphere and, most often, specific contact with the ground [1,10,11 ,12] (Figures 38-40). The first EAW-realizations are generally related to vessels that man used as a means of transportation on water; later, borders were added to the floating platform of the vessel in order to protect people from various atmospheric influences (rigid or flexible roofs and walls), and more or less complex solutions for propulsion and management of vessels. In parallel with the vessels, man designed dwellings and various utilitarian architectural programs above the surface of the water, fixed in the ground, which were later included under the common name sojenica. While in the case of dwellings the main reason for such a situation was to ensure safety (against attacks by animals or people) and close contact with the source of food, in the case of purely utilitarian solutions (mills, for example) the situation above the water is a consequence of the technology of their functioning. It was the technology of functioning of utilitarian solutions of the EAG (Earth-Atmosphere-Ground) type that resulted in solutions suitable for the EAW (Earth-Atmosphere-Water) type [1,10,11,12].

Figure 38. Raft and floating holiday homes
about:blank. Accessed: February 21, 2023.
https://planetofhotels.com/hr/srbija/bajina-basta/splav-drina-2. Accessed: February 21, 2023.

Figure 39. Pile dwelling
https://mojtv.net/film/29119/potopjena-istorija--sojenice-u-evropi.aspx. Accessed: February 21, 2023.
https://agroeconomia.wordpress.com/2011/08/29/prapovijesne-naseobine-sojenica-oko-alpa/. Accessed: February 21, 2023.

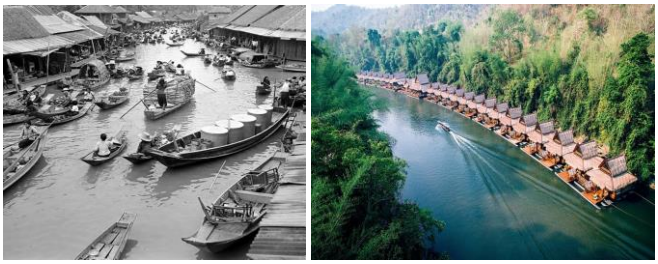


Figure 40. Life on the river, Bangkok
https://www.bangkokriver.com/river-history/. Accessed: February 21, 2023.
https://www.tripadvisor.co.uk/Hotel_Review-g2237738-d2456608-Reviews-The_Float_House_River_Kwai-Sai_Yok_Kanchanaburi_Province.html. Accessed: February 21, 2023.

EAW-type architectural solutions are also common today, especially in those natural environments where water (river, lake, sea) is the basic source of food, the basis of existence, and the space for building on land (next to water) is limited and expensive. Using the many benefits of direct human-water contact, on the one hand, and the mental strength of vernacular solutions (which remind man of his natural origins), modern hotels, restaurants and tourist resort complexes are often realized around the world. At the same time, the development of vessels reached a high technical-technological and architectural-design level, in a wide range of solutions for different functions (transport, entertainment, sports, economy...) [1,10,11,12].

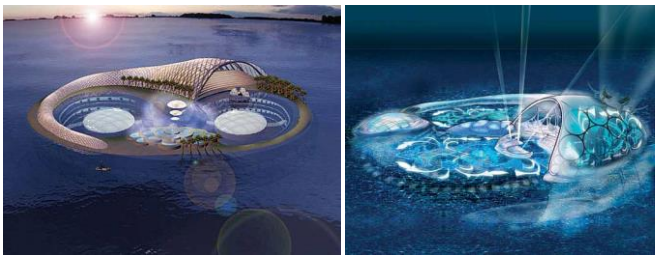


Figure 41. Hydropolis, Dubai, UAE, Project (2009. Architect: Joachim Hauser)
https://www.architecturalrecord.com/articles/3463-hydropolis. Accessed: February 21, 2023.

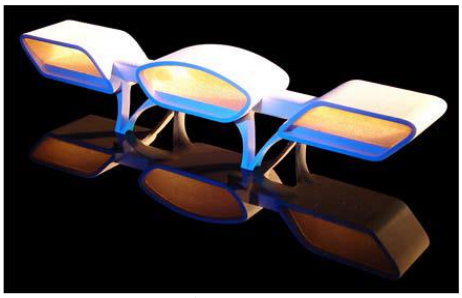


Figure 42. Underwater Residence for the Near Future (Architect: Kelly Hogg) https://archinect.com/features/article/77867/underwater-studio-extreme-environments-design-class. Accessed: February 21, 2023.

1.1.5. Type EW

Type EW (Earth-Water) refers to those ADS solutions that are completely realized in the void (Figure 42). The basic question related to this type of ADS is: what are the needs that lead people to build in a complete environment of water? The environment of water, similar to the environment of the atmosphere and the environment of the soil (below the ground level), forms that part of the planet Earth that we call the biosphere. It is the framework of existence for many living beings, and as such, represents a special world with its specificities that make it special [1,10,11,12]. Many parallels can be found between the underwater living world and the world of the Earth's atmosphere, many common properties that, in addition to their specificities conditioned by different environments, classify them into the same biological groups. Man is an exceptional living being that, among other things, despite his physiological-anatomical destiny for life in the Earth's atmosphere, wants to enter other worlds (under the ground, in water, in the open space of the Universe, on other heavenly bodies...). Sometimes he does it in the way of imagination, sometimes he steps into other worlds (with a longer or shorter stay) for reasons of curiosity, sometimes for reasons of reaching new knowledge about himself and the world that surrounds him, sometimes for reasons of mastering the resources that enable him to live more comfortably in his natural environment. environment, almost always for reasons of gaining an advantage over other people. Any stay of a person in a complete environment of water implies the establishment of those parameters of the environment in which he normally lives (atmosphere). As the physical parameters of the water environment are different, it is very often, technologically very demanding and limited to a certain period of time, to ensure the conditions for human existence in them. High rigidity (resistance to high hydrostatic pressure) and perfect sealing are the basic requirements that must be ensured by the ADS boundaries in the conditions of a completely watery environment. Modern realizations of ADS in a completely water environment (or combined water-atmosphere) are mainly the result of exhibition efforts, with the ultimate goal of making money.

1.1.6. Type EA

Type EA (Earth-Atmosphere) includes those ADS solutions that are realized in the atmosphere, in such a way that all its boundaries are in contact with the air. If we follow some living organisms for which the atmosphere is the basic living environment (birds and insects, for example), we must note their anatomical-physiological predispositions that enable them to fly and float in the air, that is, the ability to overcome the Earth's gravity (Figure 43). Since man, as the most perfect living being, has the desire to master these abilities as well (for which he is not predestined due to his anatomical and physiological predispositions), he learned the physical laws of flying and floating, and devised technical solutions that provide him with these possibilities as well (Figures 44,45). These solutions are to a certain extent the inverse of ADS solutions realized in a complete water environment, but they also have their own specifics. Being man-made solutions, they are always tied to the Earth's soil, that is, their establishment in the atmosphere is limited to a certain period of time.

Figure 43. The bird is kept in the air, in one place https://birdfact.com/articles/how-do-birds-fly. Accessed: February 21, 2023. https://www.aau.edu/research-scholarship/featured-research-topics/why-do-birds-fly-differently-new-study-examines Accessed: February 21, 2023.

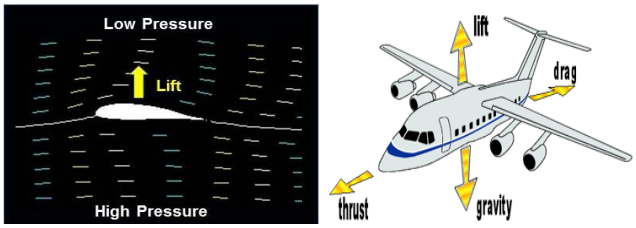
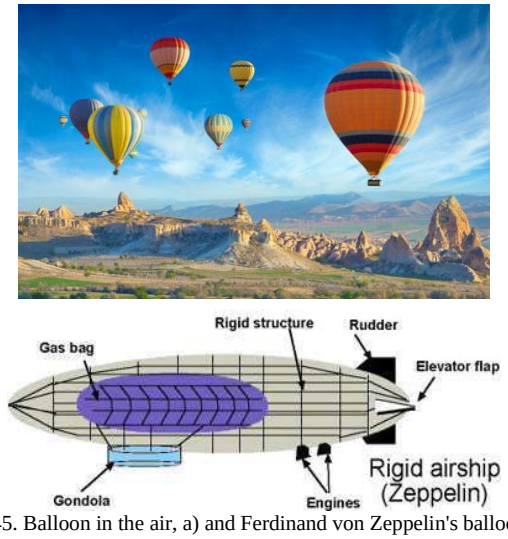


Figure 44. Aircraft maintenance in flight (in the air) https://www.grc.nasa.gov/www/k-12/UEET/StudentSite/dynamicsofflight.html. Accessed: February 21, 2023.



Figures 45. Balloon in the air, a) and Ferdinand von Zeppelin's balloon, 1899, b) https://www.planetware.com/world/best-hot-air-balloon-rides-in-the-world-us-ut-198.htm. Accessed: February 21, 2023.

Ahmet Hadrovic, "From "Absolute Idea of Architecturally Defined Space" To "Architecture as a Living Organism"," *International Journal of Multidisciplinary Research and Publications (IJMRAP)*, Volume 5, Issue 9, pp. 78-92, 2023.

For now, we recognize two basic ways of establishing ADS in the atmosphere:

1. Rigid, heavy, structures that are maintained in the air by more or less powerful engines, based on the principle of balance of the driving force (generated by the engine) and the Earth's gravity (Figure 44),
2. Flexible structures (or structures in a combination of rigid and flexible elements) that are maintained in the air by the balance of buoyancy force and Earth's gravity; the buoyant force is initiated by a light, hot gas (hydrogen, helium or air) in a voluminous, flexible balloon; in the rigid part of the structure is the utilitarian part of the ADS (Figure 45).

1.2. TYPE S

Type S (Space) includes those realizations of ADS that have been achieved by man in free cosmic space (Space). Similar to type EW (Earth-Water) and type EA (Earth-Atmosphere), here too man, in a natural environment that is different from the one he was destined for at birth (type EAG, Earth-Atmosphere-Ground), achieved his existence (Figures 46,47). Man came to know the Universe long and hard, step by step. These realizations are also threatened by a large number of human victims.

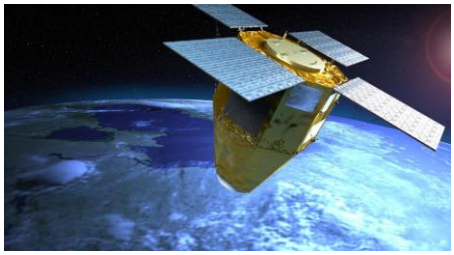


Figure 46. Airbus satellite (2016)
https://spacenews.com/airbus-invests-in-4-high-resolution-optical-earth-observation-satellites-with-no-government-net/
Accessed: February 21, 2023.

Figure 47. Zero-Gravity USA
http://www.incredible-adventures.com/zero-gravity/photo09.html. Accessed: February 21, 2023.
https://www.gozerog.com/article/10-really-fun-things-you-can-do-in-zero-gravity/. Accessed: February 21, 2023.

As the parameters of the Space environment are significantly different from the parameters of the (natural) EAG environment, man, in order to survive at all, had to design and realize the ADS Limits of extremely sophisticated performance in the Space environment, i.e., within the Limits, achieve the conditions that are him, as a living being, predetermined by the EAG - environment. For ADS type S (Space), as it was conceived and designed by man, it could be said that it is an almost completely closed system, that is, that between Man (part of the system that unites the elements of the system) and the Environment (part of the system outside of his Boundary) there is no exchange of matter or energy. In fact, man designed an ADS type S (Space) open in part of its partial power supply (via PV-systems, which are more efficient in S-environment than EAG-environment) [1,10,11,12] (Figure 46) . This, however, does not mean that there is no exchange of matter and energy (in the way of transmission through the ADS Boundaries) in type S as well, since we have not yet learned about them. Reflections on ADS type S have long been not only in the sphere of interest of specialized scientific and research institutions (NASA, space programs of Russia, China, India, Europe...) but also special programs of architectural studies[5]. The establishment of ADP in Space has already acquired its commercial dimension[6].

Figure 48. The WhiteKnightTwo in flight
https://newatlas.com/space/virgin-galactic-order-two-whiteknighttwo-motherships/. Accessed: February 21, 2023.

1.3. Type SB

Type SB (Space-Body) implies that ADS that is (will be) established on other celestial bodies. Since its inception, man has tried to understand and determine his place and role, both on Earth and in the Universe: from the myths of ancient civilizations about the 'ordering' of the Universe (Ancient India, the Sumerians, Ancient Egypt...), the naive realism of Miletus philosophical schools of Ancient Greece (with Thales, Anaximander, Anaximenes, 5th century BC), Pythagoreans, atomists, Aristotle, Ptolemy, ... Copernicus, Tycho Brae, Kepler, Galileo, Newton, I. Kant, J.H. Lambert, W. and J.

[5] The Sasakawa International Center for Space Architecture (SICSA) is a unique research, design and education organization within the University of Houston Gerald D. Hines College of Architecture. Their mission is to plan and implement programs that will advance the peaceful and beneficial use of space and space technology. SICSA is also working on planning and designing severe and extreme conditions on Earth, which could benefit from these advanced approaches. Here, students and professionals explain how their work at SICSA is helping them explore their space dreams. SICSA is internationally recognized for its leading position in the field of space architecture. NASA awarded certificates of appreciation to SICSA for their significant achievements, which contribute to advanced design initiatives. This organization was founded in 1987 with a permanent endowment of 3 million dollars, donated by the Japan Shipbuilding Industry Foundation. This is the largest foreign gift the University of Houston has ever received.

[6] Today, through commercial flights, even 'ordinary' people who are ready to pay dearly for that adventure can stay in Space.

Herschel, E. Hubble (1924), Einstein (1932), F. Hoyle, H. Bondi, T. Goldom (1948), Arno A. Penzias and Robert W. Wilson (1965). Over time, a special science (astronomy) was established that studies the Universe in its overall complexity; it is mainly based on physics and mathematics (thus, on exact measurements and calculations), and, quite often, on assumptions at the level of philosophy. Parallel to the scientific approach to understanding the Universe, part of humanity is inclined to believe (according to the holy books) that the Universe is the work of the Great Creator and as such is definitely unfathomable for man [4]. Man's interest directed towards other heavenly bodies and the Universe in general is based on his immanent nature, in the need to learn. This need (after the mastery of certain knowledge) has, regularly in history, been superimposed on other (also immanently human) needs, first of all, the mastery of new resources, which confirmed the superiority of individuals and their groups over other people. As much as the human aspiration to penetrate into the unknown is worthy of universal admiration, its results (through application) at the level of social relations deepened the gap between people, and in a certain way turned against the shell of the essence[7]. In the design of ADS type S (Space) and SB (Space-Body) first had to solve a series of physical-scientific and technical questions about how to get into space and land on other celestial bodies. The answers to these questions had to always have in mind the Man and the Limits of ADS, which will ensure his safety (not yet the comfort that he provides in the EAG environment). This regularly led to the search for materials with unprecedented performance[8], for their assemblies (Boundaries) that will respond to flows of matter and energy for which there is no experience on Earth[9]. The visions of the city of the future by architect Antonio Sant'Elia (1914) have been greatly surpassed today (Figure 49). There is no doubt that today's visions of cities on Earth (Figure 50) and those in Space (Figure 51) will be achieved.

In the future, architecture will certainly be studied according to individual celestial bodies (Moon, Mars, Venus...), in a similar way as today we talk about the architecture of Ancient Egypt, Gothic architecture or modern architecture, for example.

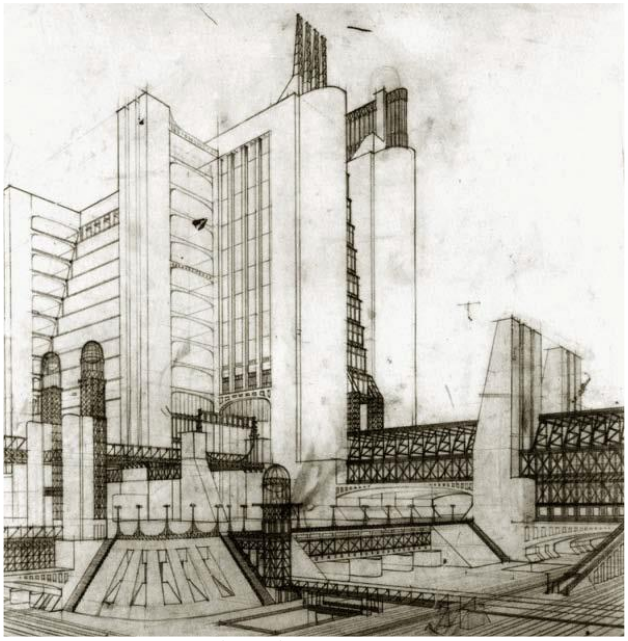


Figure 49. Futurist Manifesto of Architecture (1914. Architect: Antonio Sant'Elia)
http://lebbeuswoods.files.wordpress.com/2009/11/se-4a.jpg?w=600&h=611. Accessed: February 21, 2023.

Figure 50. One vision of the city of the future (2022. Architect: Manas Bhatia, New Delhi). Bhatia also asked the AI software to imagine residential towers embedded in trees, which continue to grow over time
https://edition.cnn.com/style/article/ai-architecture-manas-bhatia/index.html. Accessed: February 21, 2023.

[7] For example: one of the most brilliant human realizations about the unity of matter and energy, the unity of the world (E = mc2, A. Einstein, 1905) resulted in its application through an atomic bomb of incalculable destructive power.

[8] Such materials are called supermaterials. Their mechanical strengths and resistance to high temperatures, for example, exceed all the extreme values of materials that man works with on Earth.

[9] Precisely because of the ignorance of the numerous inputs that determine the ADS Limits of type S (Space) and type SB (Space-Body), even the slightest recklessness in materializing the Limits of ADS can end tragically. This is also confirmed by the disaster experienced by the American Space Shuttle "Columbia" (February 1, 2003) on its return from space to Earth, where the ship caught fire upon entering the Earth's atmosphere. Seven astronauts died on that occasion. A later investigation showed that the cause of the accident occurred during the launch of the Space Shuttle „Columbia“ from the Earth into space, when a solid object damaged the wall (boundary) of the Space Shuttle, which was enough to cause in that place (at a temperature of 1600 °C), develops a fire and destroys the aircraft.

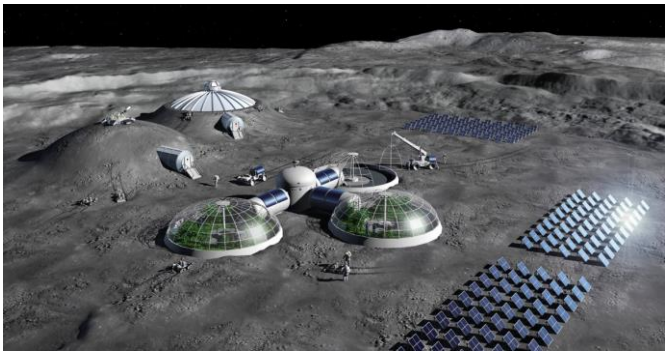


Figure 51. NASA reveals plans to colonize the moon with an astronaut base (2020) https://metro.co.uk/2020/04/07/nasa-reveals-plans-colonise-moon-astronaut-base-12519711/. Accessed: February 21, 2023.

III. CONCLUSION

Architecture is the 'framework of life' and, as such, extremely complex and full of controversy. This paper already with its title, “ABSOLUTE IDEA OF ARCHITECTURALLY DEFINED SPACE” TO “ARCHITECTURE AS A LIVING ORGANISM”, suggests a new typology of architecture that includes all possible manifestations of architecture. Individual architectural realizations, which entered all the anthologies of world architecture, were created as a result of the "architectural credo" of its architect, despite the fact that these realizations do not meet the basic requirements of human comfort - who will use these buildings as the 'framework of his life'.

This work suggests the importance of the 'scientific component of architecture' which, above all, provides a comfortable space for man, in accordance with the nurturing 'definition area of his comfort'. In architecture, there will always be an 'affective approach in its creation', but this approach needs to be recognized and be able to understand it.

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