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CONCEPTUALISM, PARAMETRICISM, AND OTHER TRENDS IN CONTEMPORARY ARCHITECTURE

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Abstract: This article examines major trends in contemporary architecture, with particular attention to conceptualism and parametricism. It analyses the influence of conceptual art on architectural movements, its philosophical foundations, and examples of its implementation in architectural practice. Special attention is given to parametric architecture, its theoretical principles, the role of digital modelling, and its applications in urban planning. Projects by leading architects, including Zaha Hadid, Patrik Schumacher, and Bjarke Ingels, are discussed. The article also highlights the importance of computer-based modelling in the design process and the influence of parametricism on the development of urban environments.

Keywords: conceptualism, parametricism, digital architecture, architectural styles, urban planning, Zaha Hadid, Patrik Schumacher, Bjarke Ingels, parametric modelling, contemporary architecture.

Introduction

In 1917, at an exhibition organised by the Society of Independent Artists in New York, the French artist Marcel Duchamp presented a work entitled Fountain. It was a sculpture made from a utilitarian object—a urinal. Duchamp considered the work aesthetically significant for three reasons: first, because it had been presented by an artist; second, because it had been handmade and was therefore unique; and third, because it was not merely a form, but an object embodying an idea—a concept.

The idea is more important than its physical expression. The purpose of creative work is to communicate an idea; this is the essence of conceptual art and conceptualism. Conceptual works may take the form of texts and phrases, graphics and drawings, or virtual, audio, and video materials. Conceptual art is performative in character, resembling pantomime. Any phenomenon, process, or object can become the concept of an artwork. Architecture has provided particularly fertile ground for conceptualism. Non-linear architecture, paper architecture, blobitecture, architectural fantasies, and virtual architecture have readily been interpreted as conceptual projects. Conceptual architecture has often been positioned in opposition to minimalism, postmodernism, and techno-architecture.

Main Body

Conceptual Architecture

The term “conceptual art” is attributed to the American philosopher and musician Henry Flynt; the movement took shape during the 1960s and 1970s. The works of conceptual artists were often regarded as absurd and frequently provoked controversy. In 1971, the Guggenheim Museum in New York refused to exhibit Hans Haacke’s work entitled “A Documentation of the Real Estate Holdings of a Major New York Landowner.” By contrast, in 2005 Simon Starling received the Turner Prize for a wooden shed that he had transformed into a boat and sailed along the Rhine.

In architecture, conceptualism has become an integrated approach to embodying distinct ideas and images (concepts), as illustrated by projects such as the “Bird’s Nest” Stadium, the “Water Cube” Aquatics Centre, the “Orange” socio-cultural centre, and the Lotus Temple. Such concepts are also found in organic architecture, blobitecture, and related fields. In paper architecture, architectural fantasy, and virtual architecture, conceptualism offers viewers greater opportunities to interpret the underlying idea and develop their own individual understandings of it.

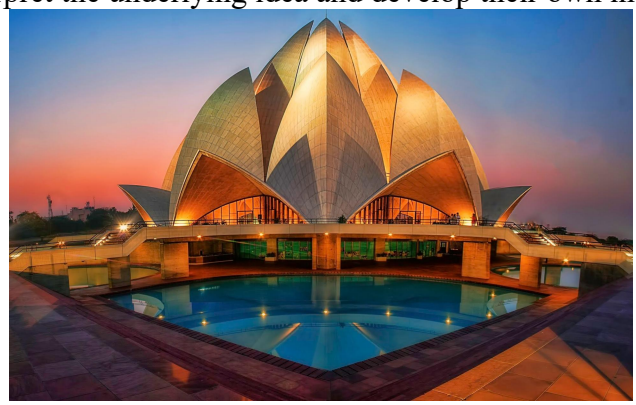


Figure 1. Lotus Temple, New Delhi, India. Architect: Fariborz Sahba. 1978–1986.

One of the notable landmarks of contemporary architecture is the Lotus Temple. It is located near New Delhi, on the site of the historic village of Bahapur (“House of Baha”). The project was designed by Fariborz Sahba, a Canadian architect of Iranian origin. Construction began in 1978 and was completed on 22 December 1986. The prayer hall beneath the dome, which has a diameter of 75 metres and a height of 31 metres, can accommodate 1,300 people.

According to legend, Akbar, the greatest ruler of the Mughal dynasty, had intended some 450 years earlier to build a vast palace as a symbol of unity among the peoples of India. In 1921, the Bahá’í religious communities decided that a temple should be built in one of India’s central cities; this decision was realised more than six decades later.

Parametric Architecture

Advances in digital animation during the 1980s contributed to the development of virtual architecture and related movements, including non-linear architecture, blobitecture, and other experimental approaches. In 1999, the Contemporary Arts Center in Cincinnati, designed by architects Zaha Hadid and Patrik Schumacher, was under development. Its emergence prompted discussion of the appearance of a new architectural style—parametricism.

The essence of the term lies in the use of software in the design process: the architect defines the parameters, while the designer or engineer calculates the model and its form. Changes in the parameters lead to changes in the model. Digital architecture has expanded the time and space available to architects for creative work. In terms of design innovation, parametricism is particularly evident in the development of master plans, as demonstrated by Zaha Hadid. Architects viewed these new design possibilities as a means of moving beyond what they considered the exhausted potential of postmodernism, deconstructivism, and minimalism.



Figure 2. Project for a W-shaped ("Walter") building, Prague. Architectural firm: BIG. 2009.

In her 2006 master plan for Istanbul, Zaha Hadid succeeded in creating a complex morphological structure derived from the landscape, in which each planning element had its own distinct dimensions. The morphological units were integrated with the specific characteristics of the topography. The morphology comprised three components: grid, fabric, and building (Z. Hadid, Singapore Business Centre, 2001–2003).

The term "parametricism" was proposed by Zaha Hadid's colleague, Patrik Schumacher. In his theoretical introduction, he argued that, in the context of information technology, contemporary consumer society can meet its needs only through an effectively unlimited range of options for shaping the living environment, including continuous differentiation and version management. Differentiating logic, seamless continuity, and the interdependence of subsystems—as observed in living nature—are characteristic of this approach.

According to Patrik Schumacher, several issues must be addressed to further develop the parametric paradigm.

The first is the transition from differentiating an individual system (such as a façade) to differentiating a group of subsystems, including plans, details, interior layouts, and structural elements. This is referred to as parametric articulation. Another task is to increase the volume of guiding visual information, a process described as parametric perception.

The multiple possible "readings" of complex parametric configurations may risk undermining the coherence of an image. The parameters of the designed volume and its surrounding environment should therefore be integrated into a single system—parametric design.

The urban and architectural environment possesses kinetic potential,

which provides opportunities for development and adaptation—parametric response.

The urban environment reflects the principles by which numerous buildings are organised. One of the objectives is to integrate the morphology of buildings with the principles governing their internal organisation—parametric urbanism.

Schumacher challenges Le Corbusier's commitment to classical geometry, characterised by straight lines, angles, and similar elements. The self-organisation of the urban environment constitutes a complex mathematical model. In this regard, Schumacher refers to the work of Frei Otto at the Institute for Lightweight Structures in Stuttgart. He compares the formation of settlement patterns with the morphology of metal needles in a magnetic field: the needles are held in water using foam, while small foam spheres form around them, producing a parametric structure. Using analogue models, Frei Otto developed configurations for "main roads, local roads, and

circular routes." The models operate under the influence of a magnetic field (generated by a needle) or use wool threads. Changes in the parameters of the magnetic field alter the structure and configuration of the model.

Zaha Hadid incorporated the principles of parametric urbanism into the master plans for a business park in Singapore (covering 200 hectares), Soho City in Beijing, and a district in Bilbao (55 hectares). The Asian side of Istanbul was also planned using an approach associated with Frei Otto. The road network was generated using a "wool-thread" programme. The proponents of parametricism identify nature-like fluidity and continuity in the transition from urban planning to architecture. As examples, Schumacher cites the adaptable projects developed by Zaha Hadid, Peter Eisenman, and Daniel Libeskind in the late 1980s and early 1990s, which he also regards as manifestations of the emerging style.

Parametricism proposes conceptual changes in the relationships between the part and the whole, the system and the scheme, and the subsystem and the system. At the same time, systems are understood as open and, in a sense, unfinished. Architecture consequently becomes a more systematically adaptable form of architectural design, characterised by continuous modification. Mass serial production and post-Fordism place architecture at the centre of the transformation of the living environment.

Patrik Schumacher describes post-Fordism as a product of contemporary mass society, characterised by universal standards of consumption and a community of "strangers to one another." Accordingly, the task of avant-garde and urban (parametric) architecture is to develop a style capable of organising the needs of post-Fordist society and shaping the multilayered, changeable spaces of the city—that is, its living environment. The contemporary architectural style is based on a parametric design system, understood as a programme for applying the parametric paradigm. "We propose calling this style Parametricism," Schumacher concludes in his manifesto. "Parametricism is the great new style after Modernism. Postmodernism and Deconstructivism were transitional episodes that forecast a new long wave of innovation and development."

As a method, mathematical modelling in parametricism is well suited to the needs of urban planning because urban design must address a broad range of engineering, sociological, demographic, environmental, and economic tasks alongside aesthetic objectives. This also explains why architecture and urban planning are treated as separate fields in Western practice. The development of parametricism requires the continuous improvement of design software. Competition in the contemporary avant-garde design environment is impossible without advances in digital tools.

Nevertheless, computer technologies cannot replace the creative process. Architects working within traditional stylistic approaches—for example, without moving beyond modernism—also use parametric modelling methods. At the same time, there is no fully established understanding of the creative method underlying the new style. Schumacher speaks of natural conditions and the ordering of interacting forces, as occurs in nature. Compared with conventional design compositions, parametric compositions are difficult to divide into subsystems. Thus, a characteristic feature of the information age reappears: theory lags behind practice. The capabilities of computer modelling are extensive, but a clear theory for their creative application has yet to emerge. The formulation of axioms, the search for the principles of parametric design, and the assessment of its prospects remain ongoing.

In Russia, parametricism emerged relatively recently. The architect Maxim Malein, who studied in the British capital in 2008–2009, introduced it from London. Parametric methods were tested in the design of the Fisht Olympic Stadium for Sochi 2014.

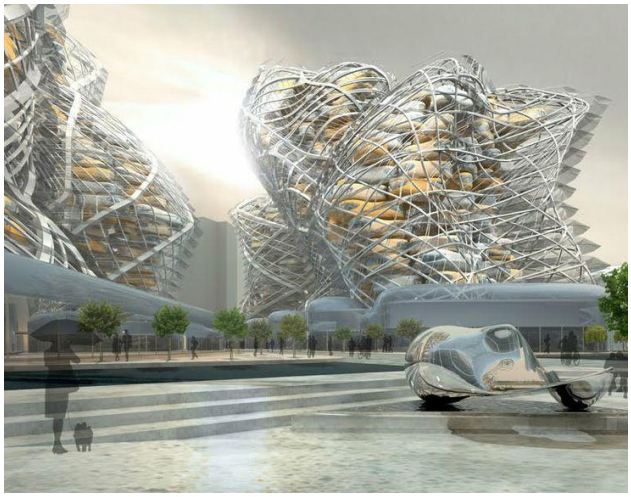


Figure 3. Shanghai development project.

One of the leading representatives of parametricism is the Danish architect Bjarke Ingels. His design for the REN skyscraper in Shanghai, shaped like the Chinese character meaning “people,” attracted considerable attention and concern among investors. Digital architecture is now taught at higher education institutions. Graduates of the Architectural Association’s post-professional design programme presented a pavilion design in a competition held to mark the programme’s tenth anniversary. The pavilion consisted of 589 unique elements and more than 2,000 connections.



Figure 4. Parametric composition. Architect: Zaha Hadid.

Conclusion

The avant-garde movements discussed above emerged during roughly the same period, around the turn of the 1960s and 1970s. Advances in knowledge, technology, ecology, and the intensification of cultural exchange contributed to a departure from the traditions of modernism and minimalism. The innovations of deconstructivism also proved limited. New approaches were needed to significantly expand the creative possibilities available to artists and architects. As a result, radical movements (conceptual art, contextualism, and Arte Povera) and virtual approaches (parametricism and generative architecture) came to the fore. Architecture capable of responding to human needs could communicate through the languages of diverse natural and ecological as well as historical and cultural contexts.

Virtual experimentation was the first to reveal common principles underlying creativity in nature and in architecture. New figurative interpretations of reality demonstrated the inexhaustible

potential of human creative thought and its capacity to anticipate the further development of that reality.

For this reason, such architectural approaches should also be promoted in Uzbekistan in order to support the country's further development. These trends in architecture can contribute to the growth of tourism, strengthen the country's position among developing nations, and attract business investment. In the future, Uzbekistan may also increasingly host Olympiads and major international sporting events, further enhancing its appeal to visitors.

References

1. Prina, F., & Demartini, E. (2008). 1000 Years of World Architecture. Moscow: Omega.
2. Schumacher, P. Parametricism: A New Global Style for Architecture and Urban Design. Available at: http://www.pavelbeliy.com/ru/newstyle/patrik.php.
3. Gössel, P., & Leuthäuser, G. (2005). Architecture of the 20th Century. Cologne: Taschen.
4. Arte Vera [Online resource]. Available at: http://ru.wikipedia.org.
5. Zaha Hadid and Her Architectural Legacy. Available at: http://www.architecturaldigest.com.
6. Contemporary Trends in Parametric Architecture. Available at: http://www.parametricarchitecture.com.http://www.parametricarchitecture.com
7. Ibragimov, N. (2024). Formation and Classification of Water Entertainment Health Centers. Innovative: International Multidisciplinary Journal of Applied Technology (2995-486X), 340–342.
8. Khasanovich, I. N. (2023). Development of SPA (Sanus per Aquam) Zones in Water Facilities. Journal of Engineering, Mechanics and Modern Architecture, (2), 306–308.
9. Khasanovich, I. N., & Sindarovich, U. A. (2020). Foreign Experience of Architecture of Water and Entertainment Health Institutions. JournalNX, 7, 07-52.
10. Рахманова, М., Юлдашева, М., & Ибрагимов, Н. (2018). Жилые дома террасного типа на сложном рельефе для районов Узбекистана. Eurasian Journal of Applied Engineering and Technology (EJAET), 123(2).
11. Газизов, Р. К., & Ибрагимов, Н. Х. (2014). Приближенные симметрии и решения уравнения Компанейца. Прикладная механика и техническая физика, 55(2), 38-42.
12. Khasanovich, I. N., Akyurek, M. E., & Irisboyevich, T. U. B. (2026). THE EVOLUTION OF WATER-ENTERTAINMENT COMPLEXES: HISTORICAL ANALYSIS AND ARCHITECTURAL FEATURES. BG pulse journal, 2(10), 1067-1074.
13. Berdiyev, M. X. (2026). ARCHITECTURAL AND URBAN PLANNING PRINCIPLES FOR CREATING A HEALTHY URBAN ENVIRONMENT: AN INTEGRATED ASSESSMENT FRAMEWORK FOR HOT-ARID AND HISTORIC CITIES. BG pulse journal, 2(10), 978-990.
14. Mamadjanova, T., Islamova, O., Berdiev, M., & Babajanov, M. (2024, November). Risks and their assessment in business: Theoretical and practical aspects. In AIP Conference Proceedings (Vol. 3244, No. 1, p. 020060). AIP Publishing LLC.
15. Bolikulovich, K. M., & Pulatovich, M. B. (2022). HEAT-SHIELDING QUALITIES AND METHODS FOR ASSESSING THE HEAT-SHIELDING QUALITIES OF WINDOW BLOCKS AND THEIR JUNCTION NODE WITH WALLS. Web of Scientist: International Scientific Research Journal, 3(11), 829-840.
16. Makhsud, A., Ziyavuddin, K., Nilufar, M., Abdusattorovna, M. S., Baxodirovich, V. A., & Rayimkulovich, S. X. (2026). SCIENTIFIC AND PRACTICAL RESEARCH AND

RECOMMENDATIONS USING TRADITIONAL MEDICINE FOR THE TREATMENT OF INTESTINAL INFLAMMATION. BG pulse journal, 2(5), 186-192.

17. Zhumayeva, A. K., Bulekov, T. A., Kushumkhanov, Z. S., Xujamov, J. N., & Hamidova, R. N. (2025). Methods and experience of cheese production from dairy products based on waste-free technologies. Eurasian Journal of Academic Research, 5(5), 117-121.
18. Boltayev, B. R., & Xujamov, D. J. (2021). Real-time analyzing of chatbot data with distributed systems. ACADEMICIA: An International Multidisciplinary Research Journal, 11(3), 2378-2382.