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## SUPERPOSITION OF FACADE IN ARCHITECTURE IN THE BEGINNING OF THE 21<sup>ST</sup> CENTURY

### SUPERPOZYCJA FASADY W ARCHITEKTURZE POCZĄTKU XXI WIEKU

#### Abstract

The superposition of a facade in architecture in the early 21st century, is the merit of contemporary marketing mechanisms which function in architecture. The distinct relation between the exterior side of the building and the brand take effect in choosing advanced, already existing and available systems and architectural engineering, which are far from the classic process of project implementation. Investors often decide to make an effort in creating unique, innovative solutions of extreme technical and esthetic features in order to intensify the visual impression.

*Keywords: facade, innovation, brand image*

#### Streszczenie

Superpozycja fasady w architekturze początku XXI wieku to w dużej mierze zasługa współczesnych mechanizmów marketingowych funkcjonujących również w tej dziedzinie. Bardzo silne powiązanie fizyczności budynku z wątkiem wizerunkowym marki coraz częściej pociąga za sobą działania wybiegające daleko poza odtwórczy proces klasycznej implementacji w projekt dostępnych i funkcjonujących, wysoce zaawansowanych systemów i technologii budowlanych. Coraz częściej na potrzeby wzmocnienia i utrwalenia wizualnego przekazu inwestorzy decydują się na podjęcie wyzwania, jakim jest z całą pewnością tworzenie jednorazowych i innowacyjnych rozwiązań o wysoce ekstremalnych cechach technicznych i estetycznych.

*Słowa kluczowe: fasada, innowacja, wizerunek marki*

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Along with the development and creation of more and more complex social structures, the significance of the outside form of the building also began to increase. The main catalyst of the process connected with assigning appropriate meanings to the physicality of the building was most of all the expanding catalogue of functions applied into its interior. In a natural way this process developed visual methods of codifying the basic information in this scope. Another important factor was the increasingly common process of social hierarchization in which the physicality of the building became one of the mediums of information concerning the position and social status of its owner.

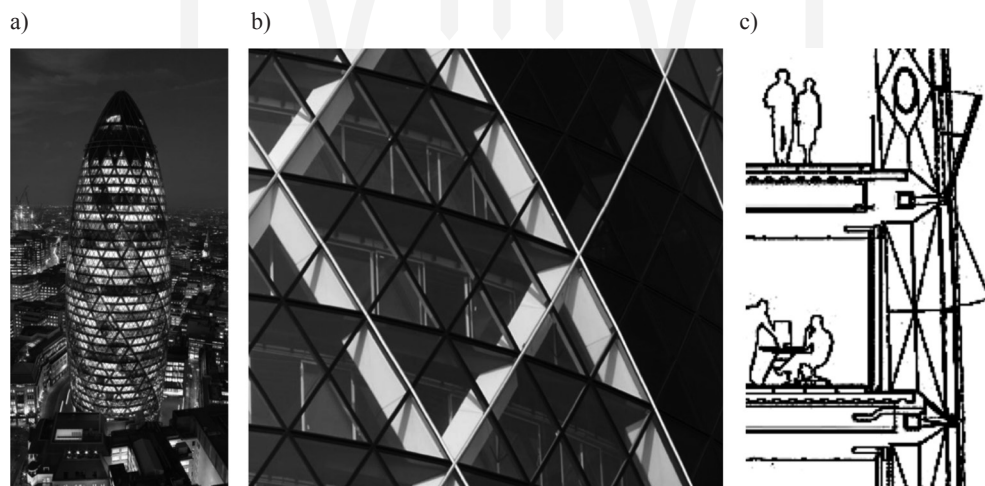
A particular increase of interest in the phenomenon of the conscious awakening of marketing architectural potential was observed at the beginning of 1990s. The main reason for this still lasting megatrend was the phenomenon of globalization, which was gathering a momentum that had not been known before. A great pretext for also using means from the field of architecture (which were to serve this purpose), appeared to be different new investments usually dictated by the necessity of expansion and construction of new infrastructure on almost all the continents. Thus contemporary architecture became in a conscious way, a medium of one of the most important marketing and market mechanisms called 'branding'. Its essence comes down to integration of attributes of distinctive and unique visual medium with attributes, as is widely understood, of the greatest value [1]. Despite the ambiguous evaluations of many aspects of globalization, the spectacular building became an ideal formula for the needs defined in this way [2]. A specific role in the process of perception of each thing and each object including a building, is played by its exterior form defined by the attributes of material of which it is made. Shape, scale, material, structure, texture, colour etc. define the physicality of each building and together create its final image, which is saved and recorded in the observer's consciousness. Both type and quality of the aroused emotions and the permanence of the record, depend on the strength and type of stimuli sent towards the recipient.

During 13th International Exhibition of Architecture, which took place in 2001 in Venice, a dozen or so models of particularly spectacular facades made of real materials in actual scale were presented among others. Constructed according to the current canons of multilayer elevations, they represented two fundamental groups of solutions.

The first group consisted of those that were constructed mainly from the very advanced technologies and systems then available on the market. A more thorough analysis made it possible to isolate two different categories from this group. One of them included solutions which may be described as classical, well-trying and functioning compilations of facade systems and isolation products, which guaranteed great functional value and predictable visual and aesthetic effects. An example of such a solution was a facade designed by UN Studio as a part of the Mercedes-Benz Museum project, the facade of the BMW Museum designed by Coop Himmelblau and the facade of the Walt Disney Concert Hall designed by Frank Gehry. A similar concept of articulating a very expressive and dynamic form of these buildings suggests that it is the geometry of their shapes that was to dominate the perception of their peculiar nature, pushing other attributes of their physicality into the background, including those formal and aesthetic ones. A definitely more sophisticated category in this group was represented by examples of two solutions which admittedly used equally recognized and well-trying systems, but thanks to an exceptionally well thought out strategy of uniting them with very innovative spatial, functional, constructive and technological solutions of the

buildings, they eventually became an important part of the structures determining totally new and unprecedented models of balanced architecture. One of these examples was the facade of the Hearst Tower and the other was the facade of Swiss Re, both designed by the studio Foster and Partners.

The main seat of the Insurance Company Swiss Re was the first such sophisticated and balanced high building in London. This unique status results from a very radical and consistent approach by the authors to architectural, technical, engineering, ecological and social issues. Using fully parametric design methods made it possible to draw up an exceptionally precise and coherent concept of the fundamental assumption, which turned out to be the circular shape of the projection of the building. On account of a very well thought out strategy of shaping the vertical section of the skyscraper, consisting of an exceptionally refined selection of diameters of particular storeys, the building reacts to the effects of the sun and wind in a groundbreaking way. A relatively low coefficient of air resistance obtained in this way translates measurably into reduction of energy consumption in the period when it is used. Angiograms of the wind profile of this skyscraper confirm not only a very clear reduction (in comparison to a linear building) of disturbances of airflow in the ground zone, which has a crucial meaning for creating a microclimate in the city, but also indicates an exceptionally favorable layout of pressures in the upper parts of its structure. It is important for the development of alternative and innovative systems of natural ventilation, thanks to which the building at 30 St Mary Axe, uses 50% less energy than any other typical office block for this purpose [3].



III. 1. Swiss Re Headquarters: a) night view, b) view of a fragment the facade, c) facade section (source: [4])

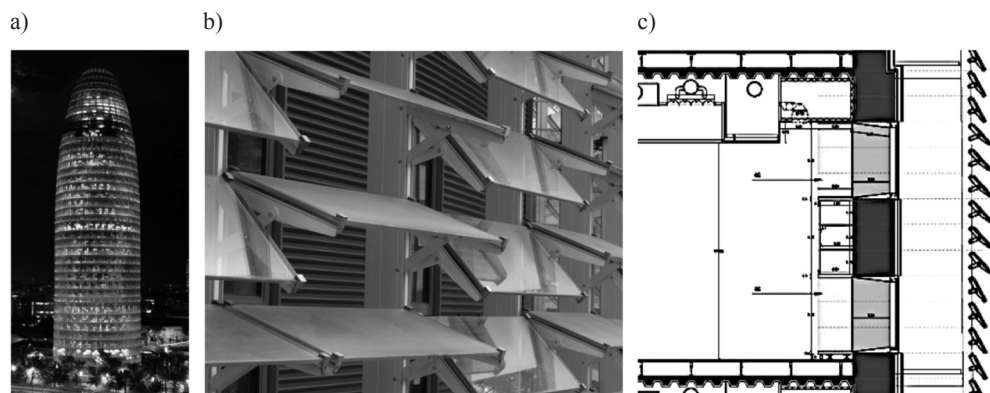
A key role in this system is played by the multilayer facade of the skyscraper which reacts actively in real-time to the constantly changing atmospheric conditions. Its outer layer is constructed on a diamond warp, which not only covers the building with flat sheets of glass in a way most appropriate for the cylindrical shape of the building, but also overcomes the hegemony of the omnipresent rectangle shaping elevations of all the neighboring buildings.

Two-colored sheets of glass represent the twisted nature of the functional and formal layout of the interior, thus emphasizing the dynamism of the whole form even more. The inside facade with classical divisions is constructed about one meter deeper. Mutual relations of the outer facade, the emptiness between the two facades, the inner facade, floors and ceilings as well as the technical solutions applied to them, play a crucial role in the aforementioned system of cooling, heating and ventilation of the building [4]. At present the building is the most characteristic element of the panorama of the capital city of Great Britain.

The other group of solutions concerning elevations, were examples which already at the moment of the first contact with the onlooker aroused in them some kind of curiosity resulting mainly from the mysterious nature of their construction. A lot of people were enthusiastic about and delighted with them. Thus the elevations already indicated that at least similar reactions will also be invoked by buildings covered with them. Similarly, as it was in case of the first group of solutions, the other ones also made it possible to define two categories.

The first category concerned solutions the idea of which was totally subordinated to the aesthetic vision intended by the author at the beginning. The vision was to be implemented by means of non-standard and innovative means of expression. All the other functional aspects of those facades such as thermal, wind and humidity insulation, were implemented with observance of very high normative standards, but without any elements of innovative solutions in this scope. This group included: the facade of Kunsthau Graz, covered with bent, acrylic, sky blue glass designed by Peter Cook and Colin Fournier, the facade of Matsumoto Performing Arts Center by Toyo Ito with its concrete slabs embedded with 'slivers' of matt glass, snow white panels of wavy acrylic constituting a reminiscence of fabric blown by the wind on the facade of the building of Christian Dior by Kazuyo Sejima i Ryue Nishizawa, the rhomboidal structure of the self-supporting facade of the glass and diamond building of Prada and the pumice and glass facade of purple concrete of the Catalonia Forum by Herzog and De Meuron.

However, an outstanding solution was the unique design of the facade of Torre Agbar by Jean Nouvel, which as the only one from among all the solutions presented then, combined the features of a highly advanced technological structure with the aesthetics of an exceptional nature. The 142-metre-high office block being the seat of Aguas de Barcelona (AGBAR), put into operation in 2005, is now the third biggest building in the city [5]. The most characteristic feature of this skyscraper is its oval shape tapering towards the peak, and topped with a dome, as well as its exceptionally sophisticated aesthetical and technological elevation. The well-balanced characteristics of the building, based mainly on the bioclimatic energetic concept, made the office block shape both its external relations with the natural environment and the internal functional conditions in an exceptionally sensitive and optimal way. One of the most important elements of the whole system is the multilayered elevation of the building. Its main load-bearing wall was made in the reinforced concrete technology (50–30 cm thick). Its 'surface without the beginning and the end' includes about 4400 square, abstractly arranged windows. [6] The outer surface of this wall is covered with a ventilated facing of red and black fine-wave metal sheets. A system of horizontal blinds made of transparent and matt glass is placed about 80 cm under its surface. The blinds react appropriately to the changing weather conditions, disrupt the sharp shapes of the windows and soften and blur the color boundaries of the wave facing.



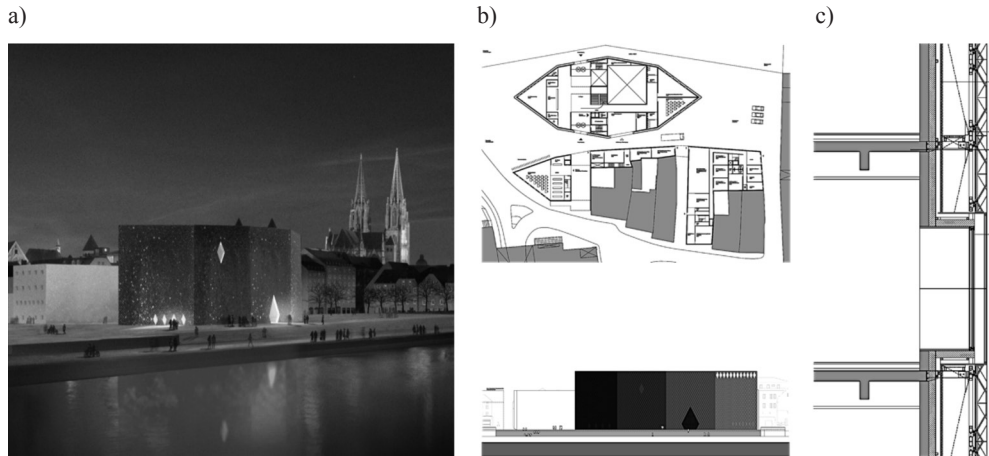
III. 2. AGBAR Tower: a) night view, b) view of a fragment the facade, c) facade section (photo by W. Radwański, drawing source: El Croquis 112/113, Jean Nouvel 1994–2002, Madrid 2002)

Regulation of the airflow and natural ventilation by the multilayer structure of the dome additionally contributes to a reduction of temperature in the whole building. The incorporation of these elements into the central control and energy management system, facilitates the whole cooling and ventilating system optimization, which significantly improves the energetic balance of the skyscraper [7]. This structure, constituting a very exceptional example of a building shaped by the concept of balanced bioclimatic development, that ‘every day wakes up to life’ just after dark, offering the inhabitants of Barcelona a spectacular and sophisticated show. Sending bright signals to the city, this building very effectively attracts attention of all those who take part in the city’s nightlife. Since its construction, the AGBAR Tower has been honoured with numerous prestigious awards, most of them for the innovative way of combining art, technique and nature [8].

A new international architectural competition for a new seat of the Museum of Bavarian History [Neubau Museum der Bayerischen Geschichte (MdBG)] was announced in 2012. The building is to be constructed in the next couple of years in Regensburg. Unofficial materials published in the local media informed that before the final decision to place the museum in the former Ratisbonne was made, the city authorities had for several years been competing with other centres such as Munich, Nuremberg or Würzburg.

Because of the existing historical buildings in this area, the plot designated for constructing this building is of quite irregular shape. Searching for information extending the scope of knowledge about Bavarian history, we have come across e.g., materials regarding the history of the Wittelsbach dynasty, which had reigned in Bavaria since 1118. Among numerous interesting pieces of information, there was also mention of one of the largest and most precious diamonds ever named after a dynasty, the Blauer Wittelsbacher. In this way our new building MdBG became an architectural metaphor for this Bavarian crown jewel and the octagonal heart of the geometric structure of the drawings of the Wittelsbach’s blue Diamond’s cut, gave the shape to the building’s design.

The concept of the facade of this building constitutes a consistent development of the idea of integrating the blue diamond into the world of architecture. Its main element is a reproducible, spatial, one-compartment panel of acrylic glass in the shape of a truncated



Ill. 3. Museum the History of Bavaria (MDBG), Competition Project, D. Radwanski, J. Muszyński, T. Berezowski, P. Fojcik

rhomboidal pyramid which is installed on a steel grill 110 cm distant from the building structure. A wall made of reinforced concrete is covered with a 20-centimeter layer of polyurethane and a sky-blue wave metal sheet, is spread across its own grillage. A lighting system was constructed in the 90-centimeter empty space separating the outer surface of the metal sheet from the inner surface of the glass panels. The light, directed towards the wavy surface of the blue metal, makes the reflected, diffused rays of blue light penetrate the transparent space of the glass panel of the facade, resulting in the whole building emanating a blue glow.

Rivalry is an important part of human nature and the physical image of the world which we have created over thousands of years and in which we now live is largely its result. Since the Neolithic Revolution buildings have been an important field of manifesting this feature. At the turn of the 20th and 21st centuries, in the period of clear acceleration of globalization processes, buildings significantly strengthened the status of marketing material, increasingly aspiring to the title of the symbols of states, regions, cities, districts, companies and corporations. The synergy of the latter and representing all the trends of modern architecture, design studios aspiring to this title have made it possible over the last two decades to implement plenty of exceptional projects, a huge part of which stuns with innovative aesthetic and formal quality of the facades. On the 2nd April, 2001, two Swiss architects: Jacques Herzog and Pierre de Meuron received the Pritzker award. During the ceremony the president of the jury, J. C. Brown said, "It's hard to find other architects in history who turned towards the outside, the skin of the building with such great imagination and such virtuosity" [9]. Twelve years after that event we may certainly say that the superposition of the facade in architecture at the beginning of 21st century seems to be firmly established.

## References

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