MEDIA FACADE
NEW CHALLENGES FOR AN (I)MATERIAL ARCHITECTURE

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Extended Abstract

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INTRODUCTION

This work intends to analyze the answer of Architecture to the changes of contemporary society, through the study of the emerging trend Mediatecture and specifically studying Media Facades as the most developing area. Mediatecture because it is "architecture that adapts rather than stagnates; transforms rather than restricts; it is motive rather than static; interacts with its user rather than inhibits" (Kronenburg, 2007: 11).

It studies the evolution and motivations that led to Media Facades development. It explores and characterizes them, developing an analysis methodology whose main threads are: Architecture, Technology, Communication and Sustainability. From this methodology a script arose – a useful tool for the conception, analysis and comparison of Media Facades.

The work aims to:

- Recognizing the influence of contemporary society in the development of new architectural currents.
- To characterize the Media Facades, its evolution and its possibilities.
- Develop a method to analyze Facades Media, through its parameterization and classification.
- Understand the impact of social, environmental and economic Façade Media.
- Suggest Guidelines for Media Facades.

DEVELOPMENT

It is not an easy task defining the contemporary society. Known as the Information Society, Knowledge Society, Network Society or even Electronic Society, definitely our society faces radically different social, culture and economic contexts from the past ones. The increasing meaning of mass media and specially the new media has been creating a society that demands new and different stimulus constantly. All this changes are mainly due to the shift from the Machine Paradigm to the Electronic one (Eisenman, 1997). Nowadays we live surrounded by an invisible network which connects us to every single point of the globe, through gadgets which allow to overtake the “old” physical boundaries (Mitchell, 2005). This invisible space, the virtual space, may have not any configuration but it is increasingly dominating our lifes and replacing the physical’s. The past desire of immersion in completely different environments with no relation with the physical one, allowed by the Virtual Reality, is now replaced by a new space concept - Augmented Reality. Taking advantage of the possibilities of virtuality to create environments that mix the virtual with the physical space.

However, in order to recreate reality with technological means, those who design these environment have to understand the perceptual process and the how to capture people’s attention. The individually
analyze of color, form and movement combined results in the visual perception. So virtuality must simulate correctly each of these elements as well the spatial perception, in order to trigger the exact same sensation as the real object (Lukas, 2010).

Architecture was always affected by the social context. However nowadays we are witnessing fast and radical changes. How Architecture, that is essentially characterized by its static and perennial nature, will adapt to this new mutable and electronic society?

Although Architecture is resisting adapting itself to this new society and contexts, virtuality offers great opportunities to Architecture. Not only by extending its spatial notions but also its plasticity ones. The introduction of the changeability and dynamism, Virtuality unbalanced classical notions of Architecture. Not only disconnect the user from its “tendency to rationalize space” (Eisenman, 1997) but destroys the idea of the architectural object as a final object. Obviously the architect knows that its project will suffer change and interventions, however, using virtual tools, the architectural object can have a changing and unfinished nature. Architecture becomes an art event, as an open platform for new experiences.

Cedric Price foretold “What if a building or space could be constantly generated and regenerated?” (cited in Bullivant, 2005: 5), Mediatecture exemplifies his saying by enriching Architecture with Virtuality. It is a symbiosis that is intended to mean an architecture more communicative, dynamic and interactive. An architecture that embraces the opportunities offered by the media technology. Media Facade because the facade is the face of Architecture, the first image, the skin of it and, as such, the first opportunity to communicate with the surroundings. Media Facade combine the desire of a more iconic Architecture with the possibility of a mutable and dynamic skin that will arouse the city and the inhabitants to its presence. The dynamic stimulus triggers us better than static ones, because they trigger reactions in the limbic system (the area of the brain responsible for emotions), therefore Media Facades is a natural evolution of Architecture to adapt itself to our society.

Media Facade is often associated with advertising displays and locations like Times Square or Shibuya crossing. Sites where the use of new technologies results in light pollution and not in qualifying Architecture. If the combination of Media with Architecture started in such places, the main goals presently are far away from those preconized there. Even though initially Architecture lost its presence to a media screen, now Mediatecture defends a symbiotic design, where the media enrich Architecture and not overtakes it.

Usually Media facades are catalogued by the technology involved (Haeusler 2009) or the type of communication the facade establishes (Sauter 2004), but we added others dimensions. Architecture,
Technology, Communication and Sustainability where considered the main guidelines to the analyse, conception and design of Media Facades. Although there is an interdependence between all of them, is essential to understand them individually, in order to understand its importance in the combination of all.

Perrella (cited in Haeusler, 2007) called attention to the necessary differentiation of various types of facades: the Media Facade worked to enhance the reading of the message in a clear economic perspective, the facade that reflects a symbol, or rather, facade worked to communicate a message, in which as consequence itself becomes a symbol. As it was explained before, the main goal of Meditecture is a symbiotic relationship between Architecture and Media, as consequence analyzing how the both are integrated is essential. By Architecture we mean not only building itself, with an integrated design, but also with the surroundings. Media Facade must have respect for the place, must claim its presence but simultaneously look up to what exists already. Also the materiality of the facade and the immateriality of media content must be design jointly, allowing extending the notions of materiality and plasticity.

Towards the technological classification is important to distinguish first between Electronic Media Facade (communicates with light) or Mechanical Media Facade (communicates with moving parts). In this work, we focus mainly in the electronics' and distinguish them by the basic technology involved: Projection Media Facade, Illuminant Facade and Display Media Facade.

If the first one, the facade works simply as a canvas for a temporary media installation, the last two have greatly opportunities to integrate positively media in the facade. Illuminant Media Facade uses an existing grid or a created one to make it work as a pixel. Each pixel, usually a conventional lamp, is controlled independently but they work together as a bright stain. The low resolution of this technology allows it to blend with the material skin. The concept of the Display technology, such as technology Illuminant, based on the idea of the pixel. However, if the first pixel is connected to a lamp, in this technology works like a giant screen with high resolution. Specific Technology with LEDs have emerged, conceived and designed specifically to media facades. The LED lighting has many advantages compared to conventional lighting (incandescent or discharge), such as using less energy, produce less heat, have longer life, smaller and faster response to change.

If the lead characteristic of Mediatecture and specifically Media Facades is its dynamic and communicative nature, its content and how it communicates with the environment will reflect the success or not of the mutable skin. Therefore defining correctly the goals of the communication and how will they be reflect by the design of the content is crucial. Interactivity must be the maximum target of the Media Facades. A true dialogue, where the facade influences the user and the user influences the facade, is only accomplish with a interactive communication. Even though presently,
there is few media facades with a true interactive communication, they are several prototype being developed and it is expected to be the future. The most common is a autoactive system, with a pre-record media content, or reactive system, where for example the facade reacts in real time to the surrounding. The communication parameter relates strongly to the technology. The resolution, the design and color of the content desired affect the technology to be chosen. And consequently the chosen technology affects the sustainability.

Understanding the true impacts of using Media Facades is fundamental. Media Facade have not only potential and opportunities, but also risks and that must be take together in order to define the pertinence of its use. In the Sustainability parameter, all its dimensions (social, environmental and economic) were analyzed. It is subtle the boundary between its iconic nature and the disneyfication of a Media Facade. In order to analyze its the social impact, the social meaning of the message as well the level of light pollution were analyzed. In the environmental dimension of sustainability the energy consumption, the embodied energy and CO2 emissions were calculated. Lastly in the economic one, the maintenance and reversibility of the facade allow us to understand the consequences of embodying media technology in architecture.

We selected four case studies with different characteristics that allow assessing the range of possibilities for media facades. Kunsthaus Graz, C4 Contemporary Art Center in Cordoba, BMW Museum in Munich and the African Pavilion in Expo 2008 in Zaragoza, have in common an effective design and communication where Media enriches Architecture. Kunsthaus Graz and C4 Contemporary Art Center in Cordoba want to affirm theirs presence by creating an artistic platform to the city. With media concept that follows the building’s similar, both cases have a monochromatic low revolution content of an Illuminant technology. BMW Museum and African Pavilion use personalized display technology to allow a higher resolution to answer a more precise communication goal that combines a artistic with a advertisement message. However the African Pavilion distinguish itself from all the other case studies, it is a mix of a mechanical and electronic media technology, allowing a wider communicative nature. The comparative analyses of the quoted case studies, added with Greenpix Wall (the first self sufficient media facade), allowed us to conclude some considerations over the sustainability parameter.

Regarding the social dimension, all the case studies’ message improve the social development of society, although the BMW Museum and the African Pavilion have also a advertisement goal. As well all, the fact that they are very well integrated and concealed in the facade, dissipates the intensity of light and away from possible risks of light pollution. The environmental impacts will be developed in the following conclusion.

The analyze of the economical impacts allowed us to understand that the incorporation of media technology should be designed in an integrated manner, either technologically or aesthetically,
considering the maintenance. The choice of technology and how it is assemble in the facade will influence the future maintenance costs. As well, when designing the facade, will be positive thinking and allowing its reversibility, in case the initial justification for communicative skin, no longer makes sense. In this case, the role that the media take on the facade are determinant in this capacity or not function without them. In the case studies presented, the ability to safeguard reversibility is, once the initial premise of choice was the symbiotic relationship that is established between Architecture and Media.

CONCLUSIONS

Dynamic stimulus trigger more attention because it is the exception in our perceptual field. But when it trivializes and repeats, their power diminishes. Moderate and selective use is essential to ensure successful communication and to ensure that they will not contribute to the disqualification of quality imagery of cities. Thus, the relevance not only economic but also social of adopting a communicative skin, must be justified by the use and the character of the building. Namely Cultural or public buildings that promote the development of the communities. If on the contrary, advertising and corporate objectives, even if economically justifiable, will not be considered socially sustainable solutions. It the architect responsibility to evaluate contexts and avoid the risk of proliferation of media facades, the only way to ensure its communicative nature.

In fact, as proved by comparative analysis of case studies, media facades in their majority, are not sustainable from an environmental standpoint. Surprisingly, its biggest impact of a media facade is neither in the embodied energy of its construction, neither in its energy consumption, but on its CO2 emissions.

Although the LEDs significantly increasing the energy cost of the facades that use this technology, the embodied energy of building facades media is not very different from a current facade’s. In turn, the relevance of the energy consumption of media devices in relation to total energy consumption of the building is conditioned to the use of the building. In buildings with high energy requirements, may represent a minimal percentage. And if the facade media have means of producing energy, its cost and its energy consumption will be minimized.

However, the greatest environmental impact of media facades derived from its main feature: the dynamism. The dynamism and mutability, assume constant consumption of energy and hence CO2 emissions throughout the life cycle. In the cases studied, when compared the CO2 emissions related to construction with the life cycle’s, we get significant differences. This dissertation has been demonstrated, clearly, that no media facade is sustainable from an environmental standpoint is not to produce energy. Only the self energy production compensates and avoids CO2 emissions and ensures an energy consumption equal to zero.
AG4 (2006), Haeusler (2009) and Kronhagel (2010) argue that the symbiosis between architecture / media, to respect the environment and a social message are the key defining factors of the success of a media facade. However, it seems crucial to introduce this definition, the sustainability indicator, and in particular the self energy production. The redefinition of success in this type of facade is revealed that they represent fundamental to modern society in a broader sense and that users identify themselves with it and accept it. The current guidelines, not only of architecture as society itself, value and support the concept of sustainability as ensuring a better future.

However of all the case studies analyzed, the Greenpix wall had the greatest deficiencies in the way the media devices relate to the architecture. This weakness of the only sustainable media facade anticipates the future challenge of the Media Facades. The design of the Media Facades should ensure the compatibility of three components - Architecture, Media and Sustainability - in an aesthetically, interesting and effective solution.

REFERENCES


