CRAFTING

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Facing the challenges of globalization and sustainability, some architects claim inspiration from traditional crafts in search of regional specificities and environmental performance. This article proposes to invest this practice, trying to understand factors of its emergence. And that, through the study of Mashrabiya which was renewed and interpreted in contemporary projects as ornamental skin of building, claiming to provide a local identity and intelligent climate control. This paper will focus on the concept of Mashrabiya, analyzing its contemporary features in comparison with the traditional ones, evaluating its contributions in contemporary project. Seminars, focus groups, and interviews were conducted to build a comprehensive background supporting the purpose of this study. This article is a modest scientific contribution to understand this trend and find some answers to the critical questions raised by adopting this design approach that resides in transcribing traditional elements in contemporary contexts. KEYWORDS: Design, Crafts, Mashrabiya, Interpretation, Context Anchor, Traditional, Contemporary INTRODUCTION In recent years, issues of local specificity and the search for alternatives to the global standardization of architecture and culture led architects to seek solutions in combining contemporary design concepts and engineering methods with traditional crafts. Thereby, architect's speech claiming inspiration from traditional elements to claim a cultural anchor, contextual and environmental project, especially in the territory defined for this research; Morocco and the Arab region where this observation has been found to be more relevant. Indeed, this trend is accentuated in the Arab region, where a considerable presence of tradition influences architectural design. This research tries to shed light on the sustaining factors of this trend, and to question the relevance of this design approach, through asking the following question: Is the interpretation of the traditional elements in the contemporary architectural project is sufficient to claim a natural and cultural anchor of the project in its regional context? To formulate some answers to this question, the present work proposes to examine the interpretation of Mashrabiya within the contemporary architectural context, to identify relevant factors behind contemporary transcription of Mashrabiya, in addition to examining the Mashrabiya in its historical and regional context, and then, comparing its usage in both traditional and contemporary contexts, in the purpose of providing avenues for understanding the trend of interpreting traditional architectural elements and crafts in the contemporary project. 2 Khalid Eljaouhari, Larbi Amhamdi & Larbi Bouayad NAAS Rating: 2.73 – Articles can be sent to editor@impactjournals.us The main issue is to understand the emergence of this architectural design practice and question its relevance. First, we will invest the transcription of this element in the e contemporary context, analyzing case projects using the item, and explore contemporary literature on Mashrabiya. In a second time, we will examine Mashrabiya in the traditional context, trying to distinguish its technical and functional characteristics and specific aspects, and then studying their compatibility and limits within the contemporary use. In a third time, we will try to enrich the existing debate through focus groups, interviews with designers and architects, asking them about the purposes

for which the traditional elements and crafts of art and architecture were interpreted and used within the contemporary architectural projects. From a cross-reading of all the data collected in the different moments of this research, the results will be analyzed, interpreted and discussed, articulating critical reflections on the use of elements from the traditional arts within the contemporary project of architecture. Background The contemporary architectural production in the Arab region, especially in Morocco, is distinguishable by a remarkable presence of traditional crafts built with modern materials. Tiled roofs, Arches, domes, Arabesques and Mashrabiya, elements that are specific to their time, still in use today. The use of such elements in the built environment today in Morocco and the Arab region in general, is to claim a local anchor of architecture. This posture in contemporary architecture in Morocco did not start today, but is rooted in the post-colonial era in search of a new identity of the independent state. The phenomenon takes another dimension today, related, first, to the special interest given to the local context "more resilient" in the architectural discourse, in response to global paradigms of the economy, globalization, climate changes and sustainability. On the other hand, it is especially related to facilities introduced by technology of design and engineering (new production methods such as three - dimensional printing, laser cutting technology, CNC processes, etc.), facilitating the production of geometric patterns in the scale of building; façades skins, ornamental structures are claimed to be durable and anchored in the natural and cultural contexts. Therefore, the critical question that arises is: Is the interpretation of traditional elements in contemporary architecture project relevant and sufficient to claim acultural and environmental anchor of the project in its context? The terrain Study is defined in two scales; Local (Morocco) and regional (Arab region). Particular cases from the world can be discussed. This study wills consider Mashrabiya, this traditional architectural element, which is regarded by architects as an expression of local culture thathas been revisited and reinvented in the contemporary project following the progress of technology. How can we understand this contemporary attitude which assimilates architecture to textile and cover entire buildings by almost continuous geometric pattern skins? What are the benefits and excesses of reinterpreting traditional crafts in contemporary architecture? What arethe conclusions to underline from this practice? To do so, we undertake a critical comparative study between traditional and contemporary Mashrabiya, based on an analytic grid of characteristics and use. Does the contemporary use respect the traditional features and characteristics of Mashrabiya, or it is used in a formal metaphoric way? What are the purposes for which the Mashrabiya is used insun protection. The designers have reinvented this traditional structure, often on a massive scale, assisted by the progress allowed byadvancements intechnology of design and production. This Research Reveals Three Main Goals for the Transcription of the Mashrabiya In Contemporary Architecture. First, the Mashrabiya is used as an adaptive architectural skin. Its environmental value was a key concept in a number of important applications around the world. The production of architectural skin that can respond to sun exposure and the variation of angles incidence during times of the day and year was the objective of the project Al Bahar Towers by Aedas (2012).The skin of this project uses specialized programming methods and thermal sensors that open automatically the Mashrabiya skin as origami. An earlier project considered pioneering in this field was the Arab World Institute in France designed by Jean Nouvel (1987). Secondly, the Mashrabiya is used as a structural unit to provide shade and play a structural role. In the project of St. Joseph University in Lebanon designed by the109 Architects (2011), the Mashrabiya was transformed into a structural membrane. The Pattern House in Iran (2012), was made of local brick pattern using available materials and local skills of craftsmen. Thirdly, the Mashrabiya is used as a cultural value, interpreting its formal aspect; architects use it in a metaphorical symbolic way in reference to the traditional identity. Its applications can be seen

in Master sustainable City in Abu Dhabi (2010) and Mashrabiya House in Palestine (2011), and many projects in Morocco, like the Marrakech airport (Figure 2). Factors behind Mashrabiya Reinvention in Contemporary Architecture Several factors have played an important role in the contemporary revival of Mashrabiya.In this paragraph we will discover the role played by manufacturing processes, parametric programming and new protocols in the contemporary revival of Mashrabiya. If at the beginning of twentieth century, glass was known as a new technology that could potentially create a shift in architecture fabrication, today new smart technologies have triggered major changes in architecture that have altered the expectations of architects. It is a fact that every time a new technology appears, new styles and architectural movements appear too. New technologies create a new literature in the worldof architecture; the parametric design, digital architecture and the genetic architecture, etc, are the result of the continued emergence of technologyin architecture. Some projects today are not only born digitally, but they are also made digitally via the process “file to factory". In the traditional software of modeling, astatic geometry is produced. But the new generation of digital tools offers parametric design and algorithms, instead of designing a fixed geometry. A product or building can be generated parametrically in a flexible way and can be reconfigured atany timeby changing settings. Marsa Dubai Tower by Zaha Hadid, for example, shows the formal influence of these tools on the facade of the residential tower. For the structure of the tower, the proposed solution was to use a structural unit based on a parametric pattern for the skin that has openings that become wider while ascending. This solution increases the efficiency of the structure due to the position of openings on the upper part of the building. The project of Al Bahar Towers shows the integration of an interactive facade. Its designers claim inspiration from traditional Mashrabiya to create a project integrated to the cultural and environmental context. The shape of the on temporary skin reminds the traditional Mashrabiya, while the dynamic movement of the skin component units are a Mashrabiya Contemporary Design: Cultural Anchor and Environmental Performance 5 Impact Factor(JCC): 4.5366 – This article can be downloaded from www.impactjournals.us mimicry of wild plants. The use of digital technology has made the design of this project possible through parametric modeling and algorithms. Therefore, in this new design methodology, different building parameters are defined in a virtual environment, in connection with the concept chosen by designers such as environmental principles that can be manipulated to produce an optimized pattern. The Housing project in Master is another example of contemporary integration of the Mashrabiya. The windows in residential buildings are protected by a contemporary reinterp retation of this traditional latticework. They are built using GRC (Glass Reinforced Concrete) powder mixed with local sand. “The perforations for light and shade are based on patterns found in the traditional architecture of Islam."(Foster + Partner, 2010). Using the new algorithms of parametric modeling and 3D printing, The Emerging Objects Group re conceptualize a thermal cooling brick called "Frescoes" based on the concept Mashrabiya. The project was inspired by the natural cooling features of tradition al Mashrabiya. The brick nest is based on circulation of cold water through its inner walls, cooling the air that flows through its external pores. The large-scale development of these technologies continues to change the design and production of forms. By using rapid manufacturing, genetic algorithms, CAD technologies (Computer Aided Design), BIM (Building Information Modeling), CAM (Computer-Aided Manufacturing), as well as parametric design; the architecture teaching, the discipline of architecture and the profession will face profound questions. 5- The Mashrabiya in traditional architecture In what follows, we will examine the concept of the Mashrabiya in its traditional context to understand its functions, in order to shade more light on its use in contemporary design and interpretation. The Mashrabiya was an element of traditional architectural heritage related to crafts, culture and tradition

that evolved through time. It is the foreground window that overlooks the street or the courtyard of traditional Arab houses. In the past, the name of Mashrabiya was given to the space which is enclosed with openings with wooden lattice, where water pots were placed for cooling by evaporation which is caused by the movement of the air through the grid openings. Later, the name was given to Mashrabiya wood lattice screen itself. This architectural element had a reputation in the Arab world, Islamic and South Asian countries like India and Pakistan and has even reached Peru and Spain. It was used in Islamic countries for reasons of privacy, while in the countries of South Asia, it has been used for its light control performance, cooling, air flow control and the temperature reduction. Previously, the Mashrabiya was manufactured by developing and assembling a network of small pieces of wood that are then assembled to form the big assembly. Historically, this system has five maintained architectural functions by the parametric variation of its functions, the passage of light, control of the air flow, cooling the temperature of the air flow and visual privacy (Fathy 1986). A descriptive definition of Mashrabiya is presented by Samuels (2011), which says it is a carved wooden screen that allows ambient light to enter and restricts direct light. In addition, the Mashrabiya ensures the privacy of the 6 Khalid Eljaouhari, Larbi Amhamdi & Larbi Bouayad NAAS Rating: 2.73 – Articles can be sent to editor@impactjournals.us occupants, an important factor in Muslim countries. The basic principle of Mashrabiya is simple, being a lattice constructed based on oval tours, attached and composed by short links turned and ribbed. Samuels (2011). Seminars and Discussion Groups Seminars and discussion groups around the subject were conducted under this study to deepen reflection on this topic. Bryman (2012) mentioned the importance of focus groups in deepening knowledge; it is again of time listening to the views of various people together in one place. The targeted persons or participants, as explained by Bryman (2012), can express and discuss issues as a member of a group rather than an individual interviewed person. This may be beneficial to research, because people can exchange and share ideas developed by themselves. The purpose of the focus group with professionals and academics was to get feedback on specific themes of the research. The limitation of this method was evident regarding the difficulty of analyzing a large amount of data, a data transcription method was adopted, on which the analysis will focus.

REFERENCES

MASHRABIYA CONTEMPORARY DESIGN: CULTURAL ANCHOR AND ENVIRONMENTAL PERFORMANCE Khalid Eljaouhari1, Larbi Amhamdi2 & Larbi Bouayad3 1Research Scholar, Center of Doctoral Studies, National School of Architecture of Rabat, Morocco 2, 3 Professor, National School of Architecture of Rabat, Morocco