Assessment of Aesthetic Control in Qatar's Urban Design

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Abstract

Aesthetic control is concerned with the visual appearance of the built environment, specifically in the urban setting. The built environment aesthetics can directly influence place identity, property values and the business owners' financial status in the area. People's behavior in terms of choosing a place to live or do business is also affected by the locality's aesthetics. Qatar has invested heavily in the built environment over the last two decades, which has shed light on the importance of government adopted aesthetic control measures to preserve the identity of Qatar's built form. This paper reviews the current control measures and provides some directions to adopt in the building permit process in support of Qatar's National Master Plan 2032. The paper recommends a strategy to the Ministry of Municipality and Environment for a swift implementation of aesthetic/design control in Qatar until a fully integrated solution is adopted to align with the built environment as proposed in the Qatar National Master Plan 2032. Digital tools can foster designs that can restore the quality of compromised ecosystems. A partnership platform can be created between the building permit unit and pre-selected private design-oriented consultants. Lastly, this research initiative could be used by other countries subject to similar development dynamics as a precedent to further develop their own aesthetic control measures.

Keywords: Aesthetic controls; Design regulations; Design governance; Urban Planning; Qatar

1 Introduction

The appearance of the built environment can have a direct influence over different aspects of daily decisions such as property values and the financial status of the business owners in the area. It can unconsciously direct people's behavior by affecting the place they want to live in or the route they want to take to work (Gjerde & Vale, 2015). In addition, good design can promote well-being, decrease stress, increase cultural vitality and civic pride, and enhance the sense of place in their communities (Carmona M. , 2001). Places with high aesthetic qualities are also appealing due to increased economic values, the potential for business investment, and the attraction of high-caliber workers (Gjerde & Vale, 2015).

This research focuses on Qatar's situation in terms of aesthetic control and how the process can be evaluated and upgraded to achieve high-quality design outcomes. Aesthetic control is concerned with

the development's visual appearance in its urban setting (Hawkes, Scheer, & Preiser, 1994). It is used as a planning tool to control the aesthetics and the visual impact of a building to its context, focused mostly on the external appearance of a building. It is different from design review or design control, which is more focused on morphology, internal and external spatial design, and the study of other design features of the buildings. Lack of adequate handling of aesthetics in the built environment results in standardization and a monotonous environment or chaotic, unhealthy and unattractive urban spaces (Drew, 1965; Deng, 2009; Gjerde & Vale, 2015). Literature shows that there are best practices and available technologies on aesthetic control and design regulations, some of which can be implemented in Qatar's context.

The paper proposes a phased framework for aesthetic control to enhance the current building permit approval process and swiftly integrating design controls. Therefore, three research questions are addressed in this paper: i) What is the status of aesthetic control in Qatar's urban design? ii) What parameters should be considered in aesthetic control reviews? iii) What roles would emerging technology play to assist municipalities in implementing aesthetic control as per QNMP 2032 Vision?

2 Literature Review

2.1 Aesthetic Control

Aesthetic control is a determinant tool used by the government bodies to administer and control the design proposals and/or development projects with concerns to its urban context. These control measures are reviewed and implemented by an independent local government body either through informal and/or formalized processes (Hawkes, 1999; Scheer, Brenda, Preiser & Wolfgang, 1994).

The most prominent objective associated with aesthetic control is the image and character preservation for the urban environment, especially those deeply connected with heritage (Hawkes, 1999). Scheer and Preiser (1994) mention that the improvement in the quality of life in the urban environment, conservation of unique features around the built environment, creation of aesthetically and visually congruent environment are some of the objectives for aesthetic control. Deng (2009) mentions that an ideal control model should relate to the historical, cultural, social, political and economic status of every individual that lives within a given urban context (Deng, 2009). Nonetheless, external challenges facing urban developments such as the neighbourhood image, increase in urban density, environmental challenges, services and facilities; can affect the overall aesthetic control of the whole development (Arbab, Azizi & Zebardast, 2018).

Keira (2011) explains that the existing development approval process may only consider the immediate context concerning aesthetic control instead of the whole area or the entire city (Kiera, 2011). Mostly, there are areas where some regulations practices are adapted to control the appearance of each establishment. It should be noted that aesthetic control does not mean standardization of the buildings; it promotes spontaneity and the creativity of the architects and makes the built environment more visually cohesive. Carmona et al. (2001) indicate that the appreciation of the urban environment, as Gestalt psychologists suggested, comes from the recognition and grouping of patterns. Although, variation has great significance in designing visually appealing urban landscapes, six criteria have been identified by Cantacuzino (1994) to make for a greater harmonization of new buildings within existing contexts namely: siting, massing, scale, proportion, rhythm, and materials (Carmona M. , 2001).

In Qatar, currently, there are no statutory aesthetic control processes. The design is controlled via the building permit regulations and approval process in two stages: Design Control 1 (DC1) and Design

Control 2 (DC2). The DC1 stage approval process consists of the submission and review of architectural drawings, including the site plan with area statements, elevations, and sections (Doing Business 2020, Qatar). The building elevations are evaluated at DC2 stage through a 'no-'objection' approval methodology based on compliance with Qatari architecture style which takes place only if the building is intended for public use, and it is assessed by the Private Engineering Office (PEO) of the government mostly based on the building's facade features.

In recent years, the development of multiple megaprojects and cities within the city, for example, Msheireb, Lusail City, and The Pearl, have made project teams advance in regulating aesthetic control to meet their stakeholders' aspirations. However, the positivity of these efforts is still sporadic and not reflected in the majority of privately led projects, which in contrast give little attention to urban design or planning regulations (Qaddumi & Ahmadi, 2017). This contrast has been recently identified by the government launching in 2019 the Doha Central Development and Beautification Projects (The Peninsula Qatar, 2020a).

2.2 Design Regulations vs. Design Governance

From an urban design perspective, the process and product of development are primarily concerned with individual pieces of development that are often inconsistent and do not support the creation of places (Carmona, Marshall & Stevens, 2006). Zoning as a tool is often used to determine pre-approved architectural styles to maintain the character and property values (Staley & Claeys, 2005). The public sector's role in the form of control regulations on urban design is often emphasized even when it is strongly influenced by the sophistication of their capabilities. Staley's and Claeys's (2005) study discuss how such rigid system is based on the past and how a new framework needs to be developed that is more dynamic and innovation driven.

On the other hand, the notion of design governance can create a complex shared responsibility that positively influences the design outcomes. Design governance is a journey that supports continuous stewardship and change for adopting a good design process. A quality design process is crucial for the optimization of each of the other design quality forms– aesthetic, project, and place (Carmona, 2016). Doha's urban growth since the 1970s has followed a master plan through the urban planning department of the Ministry of Municipal Affairs and Agriculture (MMAA) that provided legal zoning plans, some of which have been detailed and adjusted to cater to the later fast urban growth due to the oil boom in Qatar (Adham, 2008).

The vision to transform Doha into a well-connected international hub required that the existing zoning plans be remodelled (Salama & Wiedmann, 2016) to reflect the new knowledge and needs for development and redevelopment of the areas. In this regard, the QNMP launched in 2011, introduced an extensive set of key development objectives, strategies, and regulations providing a strict framework as guidance to spatial and land-use decision-making for the development of Qatar until the year 2032. The master plan has been developed with a macro-urban context focus, and its most important current challenge is the possibility of its execution in particular development-constrained areas (Salama & Wiedmann, 2016). Special Zones are not regulated under the QNMP. Their planning and design guidelines have been produced by project teams to govern and guide these projects from inception to completion. A review of these documents for the development of Lusail, Msheireb, and Education City shows that they have used some common parameters for a coherent urban design. They have considered some for the regulation of aesthetic aspects such as design rationale, design quality, style, context & identity and aspect, along other aspects more related to urban planning like

building siting, building height and, orientation and form (Lusail City, 2015).

However, the developed policies of the master plan mainly target new developments whereas the addressing issues in the current fabric via tactics of retrofitting or upgrading is not clearly mentioned in the document apart from being described as opportunities under the "Enhancing Urban Form" section (Qaddumi & Ahmadi, 2017). Therefore, the master plan's transformative role for the urban governance in Qatar is highly dependent on the overall effectiveness, flexibility, and transparency of its comprehensive legal framework, becoming the new decision-making process for all major developments in the country.

3 Research Framework

خطأ! لم يتم العثور على مصدر المرجع. The research questions are set first based on the need for the research and the insight on aesthetic control is developed through the literature review. The review helps to define the parameters of aesthetic control and the extent it can be applied in building permit approval processes. The research focuses on two main topics: aesthetic control and design regulations. Data from literature is analysed through content analysis and additional data is gathered through semi-structured interviews with several industry professionals: consultants, and related staff at the Ministry of Municipality and Environment (MME), PEO, Arrus International, Arab Engineering Bureau, Building Permit Complex and Qatar Foundation. To demonstrate the aesthetic control process in Qatar, this research focuses on controls applied to "City within a City" projects as well as the controls applied by MME and the foreseen controls coming with the new QNMP implementation.

4 Data Analysis

This section of the research divulges in the aesthetic control imposed on private development versus that of public/government-related developments. Furtherly, this section explains the gaps in regulations and implementation of aesthetic control in Qatar's Urban Design.

4.1 Regulations of Private Development versus MME Regulations

The MME is the main government body that governs the practice of building approvals and other permits related to any construction project. The municipalities under the umbrella of MME are responsible for reviewing the design process and ensuring its implementation as per the approval.

The QNDF is concerned with municipal spatial development, zoning regulations, and urban centre plans. The zoning regulations control the land-use of the area and, accordingly, the built area ratio, building height, open spaces, and other aspects of urban design. It does not consider the aesthetical qualities of the building with its urban context; however, that soon might change when its Qatar Urban Design Compendium (QUDC) project is launched. The QUDC aims to put forward a set of policies that provide guidelines for the practice of urban design and it is meant to be used as a national planning tool to protect Qatar's physical development in the future. It will act as a guide to the rationale, values, and principles for Qatar's urban design, although there would still be a need to develop a clear set of rules to implement the guidelines envisaged in QUDC.

The zoning regulations as per the QNMP are administered through the Municipal Spatial Development Plans (MSDP) requiring assessment of buildings and provision of permits based on its location land-use requirement, which differs from one location to another and between the different municipalities. Areas in Qatar except for special zones like Lusail city, as mentioned earlier, have zoning regulations enforced

There are some basic regulations to follow for building facades such as window opening percentage,

glass/curtain wall material, and allowed colour tones on the facade. In governmental/public buildings, these aspects are reviewed by the PEO in the building permit application phase for compliance with traditional Qatari architecture style and in alignment with Building Permit Complex process. The PEO follows one of the most stringent processes about aesthetic requirements. A panel in the PEO reviews developments based on its style, colour of elevations, and proportions. **خطأ! المرجع الذاتي للإشارة المرجعية غير صحيح.** illustrates different roles and responsibilities for each stakeholder, depending on the project type. This comparison highlights the differences in how aesthetic control is administered throughout Qatar's built environment and the stakeholders involved in approving such a process.

Table 1: Difference of roles and responsibilities during building permit approval process

	Private Projects	**Public/Governmental Projects**	**Special Projects**
Client	Provide Requirements Personal Taste	Provide Requirements Provide Design Brief	Prepare Special Regulations Provide Requirements Provide Design Brief Thoroughly follow compliance through all design stages
Consultant	Check MME Regulations Produce Design Get Client Approval Apply for Building Permit	Check MME Regulations Follow PEO Design Requirements otherwise Provide strong justification Produce Design Get Client Approval Apply for Building Permit	Check any applicable MME Regulations Follow Client Regulations Produce Design Get Client Approval Apply for Building Permit
MME	Check Compliance with Regulations Approve Drawings	Check Compliance with Regulations Get PEO Approval on Elevations Approve Drawings	Check Compliance with Regulations if applicable or give exemptions as required. Get PEO Approval on Elevations Approve Drawings
PEO	No input	Review Elevations for compliance with Qatari traditional architectural style. Seek management approval for justified deviations.	Review elevations and seek management approval and exemption
Main decision-maker	Client	PEO	Client

In Table 2, a comparison between the high-level aesthetic control parameters implementation in projects under the QNMP or other zones is given. In most cases, land uses marked as special zones are designated for megaprojects where the design intent is clear from the beginning. For example, for Education City, the guidelines are categorized as mandatory, firm, flexible and optional. The degree for their enforcement is based on the needs and design requirements of the stakeholder. In the Lusail project or Msheireb, aesthetic control was considered early in the design phase. The implementation for other areas follows MME regulations that provide aesthetic control at the hands of the owner and the architect.

Table 2: Comparison matrix of aesthetic control parameters implemented currently between developments in regular zones versus special zones

	Regular zones	**Special projects (megaprojects)**		
		Education City	**Msheireb**	**Lusail City**
Design Rationale			X	X
Design Quality		X	X	X

	Regular zones	Special projects (megaprojects)		
		Education City	Msheireb	Lusail City
Style			X	X
Context & Identity			X	
Building siting	X	X	X	X
Building Height	X	X	X	X
Orientation & Form		X	X	X
Glass percentage	X			
Windows	X	X	X	X
Materials	X	X	X	X
Entrances	X	X	X	X

Aesthetic control of private residential or real estate developments may have been done in piecemeal concept as most regulations are concerned with the land use, buildings height, setbacks, openings, building colour, and built area. Thus, there might be a lack of creativity to promote a better aesthetic of the built environment. The design consultants consulted by some of the authors mentioned that such individual developments can be guided, advised, and improved. It is the role of the government bodies to educate and guide individuals and/or organizations.

4.2 Gaps in Regulations and Implementation of Aesthetic Control

With reference given to Table 2, it is apparent that there are disparities in aesthetic control regulations for developments that fall under regular zones, as the regulations are too general. MME regulations for these types of development focus on building height, building siting, location of entrances, and height of windows with some constraints related to sustainability aspects like the percentage of glazing. Apart from those, the designers and clients are free to incorporate their creativity without any limitation. Although the government buildings need to follow traditional Qatari architecture, there seem to be no guidelines on shaping the aesthetics in the development projects.

The interviews with urban design professionals in MME revealed that MME is shifting towards form-based codes, particularly in the West Bay and the prime urban centres. The Municipality Spatial Development Plans codes are currently used with some local municipality regulations, but these have been in-house efforts rather than a broad level adoption for the built environment.

There are three major actors in the aesthetic/design control of projects in Qatar: The Client, PEO, and MME. While MME is the authority entitled to direct the outcome of the built environment, it is noticed that it has minimal impact on the aesthetic/design control on private projects and thus on the generated urban context. In contrast, for the special projects, MME guidelines are superseded by the client requirements. In such cases, the design outcome is guided through workshops and discussions' involving all the project players. This aspect of design review through a multidisciplinary design panel has not been incorporated within MME procedures for building permit applications. With QUDC guidance under the MME, the urban context may be served better as it will provide instructions on design control implementation so that the design can be achieved to serve not only an individualistic purpose but also to make the urban context better.

Qatar is one of the pioneering countries to have an electronic system for building permits, launched by MME in 2014 to include all the transactions and procedures required for building, the platform

mostly works as a document management system to transfer the transactions to all parties involved in the process of issuing building permits (The Peninsula Qatar, 2020b). In contrast, the actual tasks required by different departments are still conducted traditionally, which makes it harder to track the information and decision-making streams in the aesthetic control process.

5 Discussion

A contemporary urban planning process demands human-cantered development, where future technologies are intertwined with traditional approaches. Innovative design, parametric planning, digital tools, experts and executive planners' experience allow the fostering of designs that can restore the quality of compromised ecosystems. A smart digital environment, supporting informative decisions and facilitating the exchange of information between stakeholders to design the built environment and public realm, is thus the key in developing cohesive aesthetic control regulations (Fink & Koenig, 2019).The challenge is that the different planning teams within MME and the planning and design industry use different technologies and software to run separate analyses and produce/review designs at the different scales of the city planning process. With this, the resulting data integration becomes almost impossible to achieve without the exhaustive time and resource deployment. This hampers a coordinated and informative decision on the outcome.

Some countries have already identified this gap and have put measures to support the integrated control process. For example, the Future of Planning Programme of the UK aims to transform its planning system into a data-driven and digitally enabled system. Developing a comprehensive vision with different stakeholders involved in the planning can help to establish the requirements and create a new planning technology platform. In the last Plan tech week, 2019, The Royal Town Planning Institute (RTPI) and Connected Places Catapult (CPC) launched a shared vision for the digital future of planning including a manifesto made up of 11 points as starting principles for mapping the road towards a digital planning system (Harris & Webb, 2019). These digital planning technologies can develop an aesthetic control system that is not biased and adaptive to each zoning regulations.

5.1 Steps to Cover the Gaps

A phase wise strategy proposed here can be adopted by MME to start a swift implementation of aesthetic/design control in Qatar until a fully integrated solution with the implementation of all QNMP, QNDF, and QUDC components using state-of-the-art technologies is achieved.

Phase1: As an immediate action, the upgrading of MME resources is recommended specifically to cater to the needs of private projects. A partnership platform can be created between the building permit unit and pre-selected private design-oriented consultants. The architectural drawings of building permit applications can be routed randomly to these consultants at the DC1 stage for review by design experienced architects targeting to identify the gaps in designs and their quality within their context and provide comments and guidance on their improvements. A pre-requisite to this step is to include in the building permit submittal for consultants a "Site Specific Appraisal," where the consultant studies the project context and highlights the needed design response. This review should be done with firm key performance indicators and in parallel with the building permit review process. In the site-specific appraisal, information to be evaluated can be like what is mentioned in Table 2, such as the context and identity of the site and design rationale.

For more significant real estate developments, it is recommended to have a similar partnership platform between MME and the "Special Projects" client teams, who have experience in guiding the design of large developments to create a multidisciplinary design review panel. It is recommended

that the consultants engage with the panel for guidance at early design stages to clarify design expectations for the specific project character and context. At this phase, making any changes to the current process for governmental projects is not recommended.

Phase 2: The second phase relies on the full implementation of the guidelines, regulations, and policies related to the QNDF and all its subcomponents supported by the planning regulation law. In this phase, MME is recommended to upgrade its human and technical resources concerning aesthetic/design control. This may come from phase 1 of the control process. In parallel, it is recommended to activate action areas where the outcome of the implemented regulations, the QUDC guidance and the localized form-based codes on intended urban design and aesthetic results can be visualized. At this phase, it is recommended that the design governance be managed entirely by MME through a governance network model, where collaborative and partnership arrangements between public, private and voluntary organizations are established (Adams & Tiesdell, 2012). The collaborative platforms created in Phase 1 can be strengthened through an integrated collaboration model. The awareness and adoption of these policies by the wider industry is also an important task that should be taken up by the MME. This could be achieved through educational campaigns, training sessions, incentives, and involvement through design competitions and awards.

5.2 Steps to be Adopted in the Future

The integration of digital technology into urban planning supports the development of smart cities for their efficient operations. Qatar is developing Lusail City as some of the world's first cities to be fully integrated with smart systems. Qatar aims to release the Qatar Smart City Framework in 2020 with guidelines and direction for the development of smart and sustainable cities (Oxford Business Group, 2020). The use of technology and data to its full potential can benefit the nation to become a more efficient place for services and socioeconomic development as mentioned in (Zhongwen, 2018; Catapult Future Cities, 2018). Although comprehensive planning is challenging to adopt in the absence of real data and plans (Qaddumi & Ahmadi, 2017), the use of technology and data analytics can support the development of data-driven solutions (Tomer, 2019) for urban planning. This strategy could include aesthetic control in relation to the urban context.

Several parameter-based modelling methods have been tested in recent years. These include the integration of BIM (Building Information Modeling), GIS (Geographic Information System), and CIM (City Information Modeling) to support form-based codes and to demonstrate that parts of the building permit process can be automated by the integration of BIM and geospatial data. Such an integration promotes analysis of the building design through quantitative, visual and qualitative criteria (Kim, Clayton, & Wei, 2011); (Olsson, Axelsson, Hooper, & Harrie, 2018) Olsson, Axelsson, Hooper & Harrie, 2018). Hence, the automation of design reviews would support municipalities to focus more on design governance through an integrative and informed decision-making process, and the implementation of a context conscious aesthetic/design control.

6 Conclusion and Recommendations

This research presented an investigative analysis of Qatar's current approval system regarding aesthetic control, how it is currently administered and how it can be improved. Although some design regulations need to be abided by, analysed evidence shows that the current system of building permit approvals has yet to implement any aesthetic control regulations. The ongoing special megaprojects in Qatar have their own aesthetic control regulations that are implemented to several degrees of success around the country and these, by comparison, could act as precedents to MME to put forth

their own regulations without limiting the creativity and aspirations of the end-users. In theory, the finding of this research highlights a clear gap between the current design regulations and implementation. Accordingly, the paper showcases steps that can be endorsed to overcome such gaps.

In answer to the three research questions posed in this paper and as can be summarized from all the literature reviewed and interviews conducted that there is still no urban planning legislation that is put in place for aesthetic control. The current focus is on the regulations based on zoning. Aesthetic control practices in Doha's urban design are limited to a site's physical attributes rather than the urban design aesthetic aspects of the built environment. It is found that the parameters integral to aesthetic control reviews are the design rationale, design quality, style, context and identity, building siting, height, orientation and form, glass percentage, windows, materials and entrance. MME can use these parameters and the megaprojects' expertise to implement a sound aesthetic control measure in the building permit process. It is also established that the use of technologies in assisting the implementation of aesthetic control and the aesthetic control review process for MME, provide a 'creative hub' for designers to focus on the scale of the urban context to achieve a better aesthetic control.

Research on aesthetic control can focus on land surroundings and physical form in neighbourhoods. This can help to build in localized form-based codes in aesthetic control. Additional studies can be on current aesthetic control applications in different buildings developed through different municipalities to find more common features of aesthetic control, differentiation needed and commonalities to be induced.

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