

TOWARDS INCREASING THE ARCHITECTURAL DESIGN QUALITY IN COMPLEX BUILDINGS

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Abstract: The paper is based on the development of the main outline of a PhD research as a continuation project of a previous master research, which had the statement below:

“Today the solutions developed for space requirements are so far difficult than the solutions of the architectural space design alternatives. As the technological developments are placed in the every level of the building construction, the process of the complex building design - for instance hospital buildings- should be included interdisciplinary design team experts. In order to coordinate the team members to execute the design in the way of expected results, the design process itself should also be designed as well. Nevertheless designing the design process will provide to realize the problems in the beginning of the design process and to recover them early. ”

As a starting point for future research the questions below about the term “architectural quality” will be discussed in the paper.

- What is the architectural design quality?
- What is the quality of design process?
- What are the main issues of architectural design quality in complex buildings such as hospitals?
- What are the effects of design process quality on architectural design quality?

Based on the literature review, the answers of these questions are discussed in the paper. The outcome of the answers of the questions will reveal the main value drivers for the architectural design quality in complex buildings.

Keywords: complex buildings, design management, hospital design, quality, quality management

1. INTRODUCTION:

“Today the solutions developed for space requirements are so far difficult than the solutions of the architectural space design alternatives. As the technological developments are placed in the every level of the building construction, the process of the complex building design - for instance hospital buildings- should be included interdisciplinary design team experts. In order to coordinate the team members to execute the design in the way of expected results, the design process itself should also be designed as well. Nevertheless designing the design process will provide to realize the problems in the beginning of the design process and to recover them early. ”(Harputlugil,2005)

In the master thesis having the statement above, a new decision making model in the design management perspective was offered for the outline design of the complex buildings such as hospitals. By the decision making model; the participants of the design and their roles were overlapped with the processes through the outline design of the complex buildings. Through the studies of the master thesis it was seen that the complex buildings including too many parameters for design and designing the design process has to be classified in the context of quality in order to define architectural design quality.

This paper is to define the research project goals that will be the basis of PhD study, to find the answers to increase architectural design quality in complex buildings by design management models. The paper contents are the definition of the problem, the methodology and the context of quality through all this design processes. The aim of the paper is to discuss

these subjects and try to figure out an outline as a starting point of a PhD study titled “Towards Increasing The Architectural Design Quality In Complex Buildings”.

2. DEFINITIONS OF THE PROBLEM:

2.1. Quality

“Quality is like politics, sex or religion. It is something everyone understands and is convinced that he does correctly. Few would like to explain it, and discussions on it are generally short and superficial, with one or other of the participants soon changing the subject through boredom or embarrassment. We all think we understand the subject, and are all convinced that our ways are right”.(Cornick,1991)

Simply quality can be defined as the target that is intended to be reached. In the literature, there are several terminology used to define the term quality.

A quality system is a method of recognising, implementing, and recording good manners of action, and an agreement of their application.(Juola,2002)

Tim Cornick (1991) says that “...from the dictionary definitions of quality the notion of some level of excellence can be seen to arise. This is the definition that most people feel comfortable with it”. Another definition he made referring to the European and International Standard for Quality Systems is that quality is “the totality of features required by a product or satisfy a given need”. And the statement as a result of this definition that quality is either – fitness for purpose or – conformance to (meeting) requirements.

Therefore whatever the phrase is used, quality is defined as a standart for the defining the value. To define quality as architectural design and put out definite and universal criterias for measurement is amongst of this research’s main goals. Architectural design quality will be discussed under the two titles as design and process quality below.

2.2. Design Quality

“Architecture depends on Order, Eurythmy, Symmetry, Propriety, and Economy”(Vitruvius,1993)

Design quality is an area that requires better understanding and which is difficult to measure(Whyte et al,2003)

“Perhaps it is because design problems are often so intractable and nebulous that the temptation is so great to seek out measurable criteria or satisfactory performance” (Lawson B. 1980)

Defining main value drivers for architecture has been the key questions for years. Since Vitruvius, every architect has different ideas about what the value drivers must be. Value drivers defined differently according to the era, technology, culture and the society. Definition of value drivers are important to define quality and will have a basis to compare quality terms in the context of architectural design.

According to the CABE(Commission for Architecture and the Built Environment-CABE, 2005), to define quality design, value drivers are needed. Main value drivers for the architectural design can be grouped under 3 main tittles which -they have subtitles- named build quality, functionality and impact.(DQI, 2005) (fig.1). As all the value drivers as theirselves describe the basic value, the intersection of two values defines the added value to the design. Finally Architectural design quality is defined as the intersection of these three value drivers.(fig.1).

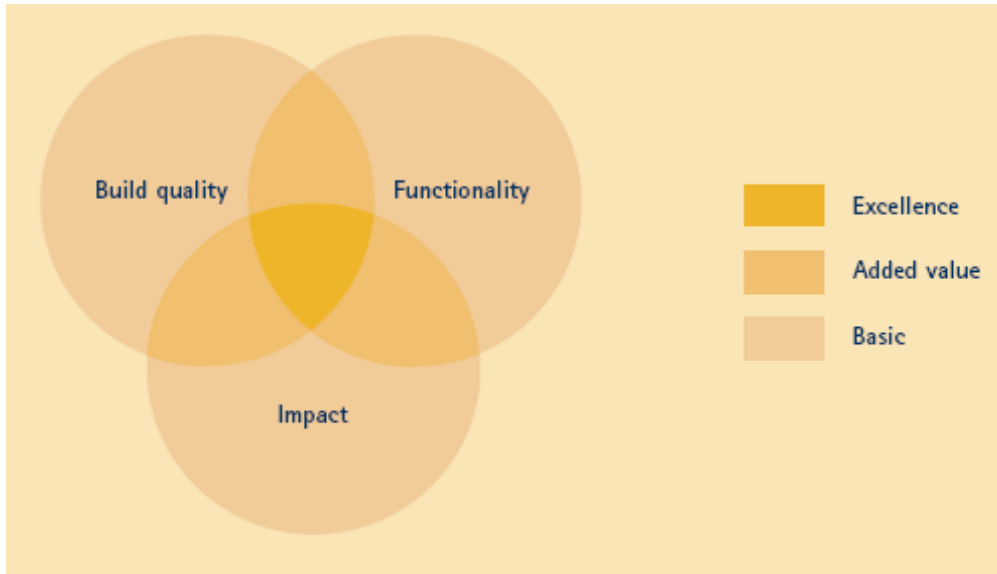


Figure 1. Architectural Design Quality (CABE)

The value drivers and their subtitles for the architectural design quality can be observed individually in each type of buildings. The problem is who will assess the value and how it will be done. If the quality is the target intended, the realisation of the target expectations should be defined for each participant and process clearly. Therefore, defining the quality for whom and who will decide in which way is the basic problem that will be searched through this research. In order to clarify the definitions the questions below will be answered (Table.1).

Table 1. Defining Quality

Quality for whom?	Quality how?
User:	Spatial
Client:	Building material
Design team:	Time
Society	Function
Contractor:	Flexibility(etc.)

The assessment procedure and technique will be discussed in methodology section.

2.3. Process Quality

“Le Corbusier would have said that client, user, architect, engineer and constructor were all the same but different.”(Dickson,2003)

“Learning and developing a good design process is not an end in itself, but hopefully just a step towards producing better designs.”(Lawson,1980)

The other important point of view during assessments is to analyze the quality in design and construction processes. Design is not the sum of the processes which is only developed by the architects. The number of participants and the processes are directly proportional to the complexity of the building. As the complexity of the building increases, they increase as well. The design of the building and the construction processes are the subjects that should be considered during architectural design quality. Architectural design quality is a criteria for the constructed buildings and buildings in use. The point is the added value of the quality of design and construction processes to the quality of the whole building in use.

It is obvious that the quality of the design process does not bring the quality of the building as a whole. Nevertheless the total quality is related with the sum of the individual quality of the processes as well. It is obvious that the definition of the quality (fig.1) must be evaluated from different perspectives for the processes and design as a whole(fig2).

The basic point is questioning the effects of the sub components of the processes to the whole design quality in order to reach the total quality. For defining the quality of the processes, the indicators are needed. Through this research with the literature review different definitions of these indicators will be analyzed. Mainly the key performance indicators will be reviewed and the methodology will be examined with case studies. As a result performance of the indicators will be compared and if necessary new indicators will be developed.

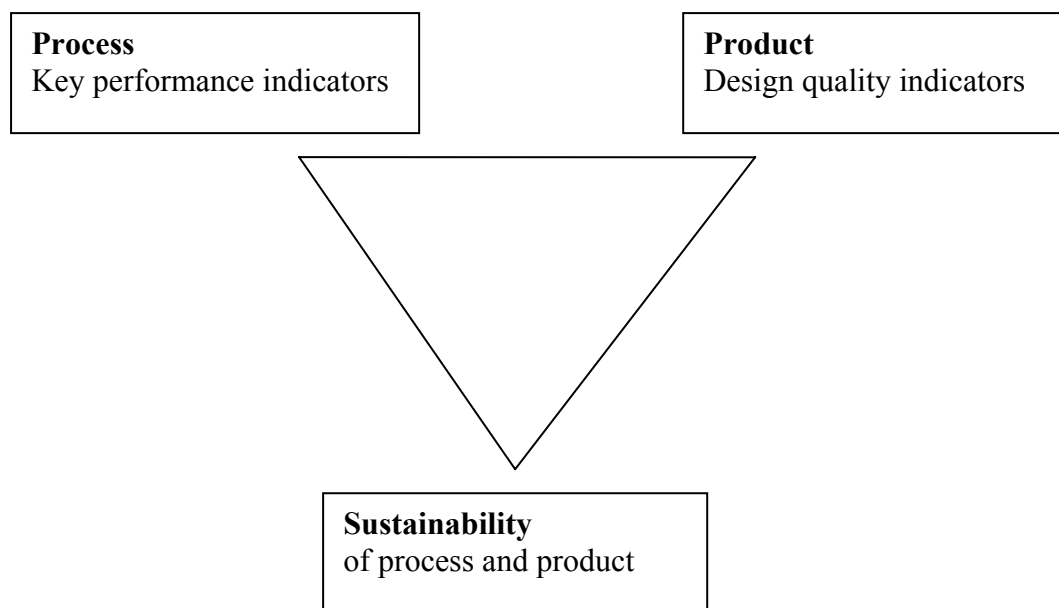


Figure 2. Process-Product and Sustainability(Prasad,2004)

2.4. Why Do Complex Buildings Need Quality?

“The problem is that buildings need to function in so many different ways. They are spatial and social, they function in terms of thermal environment, light and acoustics, they use energy and affect people’s health, they need to be constructed and are made of physical components that can degrade and need to be maintained. On top of all this they have an aesthetic and cultural role, as well as being financial investments and playing an important role in the economy. Almost all of these factors are interactive-decisions taken for structural

reasons have impacts on environment or cost- but are often relatively independent in terms of the domains of knowledge that need to be applied. This gives rise to a complex design problem in which everything knocks on to everything else, and in which no single person has a grasp of all the domains of knowledge required for its solution.” (Penn A., Conroy R., Dalton N., Dekker L., Mottram C., Turner A.)

As the society and the social life develops, the spatial requirements change due to life style, needs and technology. The new definitions of the spatial requirements emerge by the time. Building gets more complicated as the number of the users, functions and needs for the spatial comfort increase. Design process of the complex buildings is much more complicated and takes much more time than the other buildings. The number of the participants of the design process is directly proportional to the complexity of the buildings. As the number of participants of the design process increase, an effective planning of design is vital for the quality. The discomfort of the whole building in usage process will be less if each of the design participants do his/her job effectively and also collaborate with other design participants through the design processes. Since the reasons told an effective planning through the design process and management is needed. As the complexity of the buildings increase the importance and need for management of the design is essential.

One of the reasons for this research is the lack of quality criterias in the decision making model offered in the master thesis, for the complex buildings which design processes were overlapped with the participants of design with an offered organization. So that this research study is to make a step forward for the decision making model to bring out quality with the effective design management.

3. HYPOTHESIS

Under the consideration of all the statements above, the research question that will be discussed for PhD work is;

- What are the main issues of architectural design quality in complex buildings such as hospitals and the effects of design process quality on it?

Design of the complex buildings are composed of a number of different processes and different professions as participants. The quality of each individual process will bring the total quality of whole spatial design. Spatial quality is not only a functional or dimensional quality but whole quality of all considered parameters in each processes. Based on this idea, the proposed hypothesis is “The architectural design quality of complex buildings depends on not only the solutions of spatial requirements but also added values defined by the stakeholders as owners, design team members, users, etc. The total quality of architectural design should be inquired within the quality of each individual processes.”

Within this research this hypothesis will tried to be verified.

4. FUTURE METHODOLOGY

As methodology the quality criterias for the present buildings will be observed, the effects of them will be analyzed. In the analyzing period the indicators of the quality will be observed and pros and cons of them will be revealed. To reveal them; interviews and questionnaires will be made with the design participants and with the users (the doctors-the nurses-the patients etc.). The term quality will be defined for each of the users in different serving area of the hospital. All the interview and questionnaires will be placed in spider diagrams to compare the results. Thinking that spatial and aesthetic values are changable from time to

time and technology, possibilities of creating a universal criteria for the architectural design quality will be searched. This research will be held in Türkiye where this PhD will be studied. Considering the changes in the result may vary from culture to culture and society to society, to have universal criterias for the architectural design quality and compare the changes in the societies, the same interviews and questionnaires will be tried to be applied in different countries. With the indications, the design management models with the case studies will be compared according to the success levels of the quality.

The aim of this research which will be the basis for PhD study is not only to increase the architectural design quality with the offered design management models but also discussing the present solutions of hospital architecture and bring out new spatial solutions in order to increase architectural design quality.

5. CONCLUSION (Preliminary Conclusion And Future Work)

As a result with this research it is aimed to find out new indication systems which will evaluate the complex buildings in the perspective of quality in universal norms from beginning of the design till the usage of the buildings. With these indication systems it is aimed to increase architectural design quality with the design management models which will be offered where all the participants of the whole design (the client-architects-engineers-professionals-etc) will agree and can be applied through all the design processes. Depending on the research, the new design management model offered will be the adaptation of the present systems or a new one will be developed.

This research aims to define architectural design quality and increasing of it in complex buildings through offered design management models with all the design processes and aims to be the basis of the PhD study titled “Towards Increasing The Architectural Design Quality In Complex Buildings”.

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