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PARADOX OF SOCIAL HOUSING PROJECTS: HOUSING AFFORDABILITY VERSUS HOUSINGQUALITY

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ABSTRACT

The purpose of this research is to investigate the relationship between housing quality and affordability and examine the possibility of reconciling these seemingly contradicting two concepts in social housing design. In this respect, The paper attempts to rethink the role of architectural design principles and housing policies in the sustainable transformation of social housing. This contribution is based on multidimensional research that combines both quality and affordability aspects to analyze the conditions for transforming social housing. The literature review indicates that in recent years the attitude toward the concept of housing affordability is changing; It is not only assessed in terms of economic viability, but it extended to border issues related to housing quality, neighborhood quality, and quality of life. While focusing on the dynamic between these two contradicting concepts, the research tries to analyze the renovation of La tour Bois-le-Prêtre in Paris as a case study. The research applies a framework on this case study to analyze aspects that enhance the design quality and their later effects on housing affordability. This framework includes accessibility, identity, diversity, adaptability, density, safety, social interactions, energy efficiency, and cost-efficiency aspects. As a result, this project illustrates the successes of social housing renovation in terms of design principles. Inthe design of successful social housing, there should always be an appropriate balance between affordability and quality, with consideration of residents' needs. Lack of this balance will be economically and socially costly throughout the life-cycle of housing and directly impact on dwellers 'life quality.

Keywords: Social Housing, Affordability, Quality, Housing Policies, and Design Principles.

1. INTRODUCTION

With the results of rapid urbanization and population growth, housing people in decentconditions has become a challenge all over the world. Housing problems in both developed and emerging economies are growing, while current levels of housing are insufficient to address this shortage. "Social housing" is a solution to provide housing for those who have not been able to afford a house in the private market and need some help to live in a decent environment.

The primary focus of this research is to examine the relationship between housing quality and affordability to determine whether it is possible to develop social housing that is affordable and

yet an appropriate place to live. In other words, this paper studies the possibility of reconciling these seemingly contradictory concepts in social housing design.

The research is based on the relevant scientific literature through electronic and library resources to set up theoretical propositions as background. The first purpose of the literature review is to obtain a critical review related to the concept of housing affordability and quality and to identify the attributes that constitute appropriate social housing conditions. The relationship between housing affordability and quality is examined to understand how academics and policymakers conceptualize these concepts. The aim is to have an integral definition that encompasses all the fundamental aspects of housing quality and affordability. In this research, Social housing, like many kinds of research, has not only been evaluated in economic terms but also the concept of quality has been taken into consideration in social, spatial, and ecological terms; therefore, the research can contribute to sustainable developments.

To this end, a framework for analyzing housing affordability and quality has been developed as part of my research. The aim is to apply this framework to a case study in Paris. In this research, Tour Bois Le Prêtre is selected as of the most successful projects in the field of social housing renovation and management. In this project, the innovative renovation strategies are developed to tackle common problems of social housing like social isolation, physical decays of building and open spaces (sub-standard housing), overcrowding, simplicity, the mismatch between the demand and supply of social housing, and stigmatization. In terms of architectural design, the renovation process is done considering both the social and physical aspects to enhance the quality of housing units, flexibility, individuality, personalization, and social interaction.

The creation of social housing is a complicated endeavor that needs to be more than just constructing cost-efficient housing under rigid regulations and policies. The main aim should be having high- quality housing instead of increased quantity. Problems such as neglecting the real needs of residents, minimum standards of construction, and lack of relationship with the city, transform social housing to an isolated and simplified housing. More comprehensive research is needed to address these problems.

2. Theoretical background

2.1. Re-evaluation of Housing Affordability Concept

'housing affordability' is different from 'social housing' and 'affordable housing.' "Affordability is a measure of whether certain groups of households may afford to house. Affordable housing refers to particular products outside of the main housing market" (CLG, 2012, p.26). The main aim of affordable housing is to enhance housing affordability, through some form of state subsidy, for households whose income is not enough to provide adequate housing in the market (Gan et al., 2017).

Housing affordability is a new concept that becomes a common term in housing policy by the late 1980s (Whitehead, 1991). With the results of rapid urbanization and population growth, housing people in decent and affordable housing has become a challenge all over the world. The affordability crisis is the main problem of current housing policies. As a result, one of the critical roles of housing planning, which has developed over the last 40 years, is to ensure affordability in the housing (Gallent & Tewdwr-Jones, 2006).

Housing affordability problems commonly measured by the ratio of housing price to income as internationally accepted criteria in housing policy. According to this traditional ratio standard, households are considered as cost-burdened that spend more than 30 percent of households' monthly income on housing. Today, this traditional definition of housing affordability based on income and housing expenditure has been subject to criticism in academic studies, and new measures are introduced to provide more comprehensive assessments(Fisher et al., 2009; Rowley and Ong, 2012; Stone, 1993).

Recent literature indicates that housing affordability goes beyond the single measure as an economic problem and has been begun to encompass a vibrant area of research like cultural and social issues, design and urban planning concerns, and construction techniques. In this regard, researchers are beginning to consider a broader aspect that affects housing affordability that describes a collection of inter-related issues. Housing affordability is not separate from problems related to housing quality, overcrowding, and standards, size of the dwelling, location and access to amenities and facilities, availability of housing, and household size(Mulliner and Maliene, 2015).

Consuming housing with poor amenities and overcrowding housing leads to an increase in non-housing costs. So, in recent years the focus is not only on income-related housing costs but also emphasize on housing standard and non-housing costs. As a result, affordable housing becomes a complex issue deals with both qualitative and quantitative aspects.

Definitions like these move the focus from the simple relation between housing cost and income. It provides a more comprehensive definition of housing affordability, which encompasses urban planning, design principles, housing preferences and needs, housing quality, and participation of different actors. Affordability is both about housing policies and, most importantly, about people. For this purpose, there is a need to think differently about affordability and to align it with contemporary sustainable issues.

Re-Evaluation of the Housing Quality Concept

Housing quality traditionally is used to describe the built environment and architectural design. However, it is a complex term; today, housing quality cannot be defined only in terms of aesthetic and spatial standards, but must also take into account economic, political, and social aspects. In today's rapidly changing and urbanizing world, the housing quality concept needs a new understanding to deal with sustainable development issues effectively. So, there is a need for a comprehensive definition of housing quality, which encompasses all aspects of housing issues and provides interdisciplinary research. The new definition of housing quality needs to integrate into mainstream housing policy discourses (Lawrence, 1995). This comprehensive definition can provide a high housing quality that is acceptable to residents and satisfy their needs.

In the definition of housing quality, many factors influence the quality of housing. These may be specific to the dwelling itself or more broadly to the context where the dwelling located. In general housing, quality has encompassed many aspects, which include Quality of dwelling, Quality of neighborhood, Quality of Provision (affordability), and Quality of life.

The literature review indicates that conceptualizing housing quality can also be divided into two categories, which include objective and subjective attributes. According to Goodchild (1997), the objective component is related to a house as a system, and the subjective one is related to the house as a home. The objective components are about the quantitative features of housing, while the subjective elements deal with the way people experience and interact with their surroundings (Lawrence 1995). in other words, the housing quality has, in most cases, focused on one of two main features: the 'habitability' of dwellings and what might be called the 'socio-cultural features' of housing (Ozsoy and Gokmen 2005).

There is a need to develop new tools to evaluate housing quality to deal with a wide range of issues. That is the main reason to determine housing quality indicators that can assess all the necessary factors in the design of high-quality, sustainable housing (Edwards & Turrent, 2000). In summary, an integrated definition of housing quality is the one that includes the three different aspects of housing quality (dwelling, neighborhood, provision), that address both physical and social characteristics of housing.

Therefore, the quality of social housing should not be limited to the physical design, but also factors such as livability, affordability, availability, environmental responsibility, and social effects contribute to improving the quality of housing. Matthew Carmona (2001) stated that design quality depends on a complex framework that incorporates 17 principles. This framework includes the following aspects: context, sense of place, community, urban space, legibility, connectivity, movement, car dominance, security, innovation flexibility, choice, landscape, sustainability, mixing uses, functionality, and homeliness (p.141-142).

2. LINKING THE NOTIONS OF HOUSING AFFORDABILITY WITH HOUSING QUALITY IN SOCIAL HOUSING STUDIES

Traditionally, affordability and quality concepts in social housing design have been seen in isolation. Also, the concept of affordability is viewed as separate from dweller's needs and their quality of life. The aim is to examine whether it is possible to reconcile housing affordability with quality in social housing design.

3.1. Linking housing policies to the concept of housing affordability and quality

Carmona (2001) noted that one of the essential roles of housing policy is to pay attention to the housing quality and design. Another role of it, which has been developed over the last 40 years, is to ensure the affordability of the housing (Gallent & Tewdwr-Jones, 2006). The central government increasingly controls both affordability and quality of social housing. The construction of social housing with government interventions has begun in European countries since the late nineteenth century. Since then, with the results of rapid urbanization and population growth, housing people in decent and affordable housing has become a challenge all over the world.

During the historical development of social housing, there was always tension between affordability, quantity, and quality of housing. The social housing initially developed as a solution to the problems of low-quality housing coupled with rapid urbanization. During the first World War, governments used social housing to address the acute shortage of adequate housing and began to construct large volumes of housing rapidly. The policy was mainly concerned with the number of units of building regardless of its quality. The period between 1945 and mid-1970

is the golden age of social housing, and most of the large-scale social housing projects constructed between these years (Scanlon et al., 2014).

In most cases, the governments decided on the budget, and the aim was to reduce the cost. Therefore, in an attempt to generate as many housing units for many people, the spatial quality was decreased. The result was usually the creation of isolated social housing territories with monotonous and repetitive residential environments. The massive social housing projects constructed after the first World War, are usually criticized for their inadequate quality and capacity to meet the needs of the people.

Since the 1970s, the housing shortages appeared to be overcome, and many governments began to emphasize both on quality and affordability problems of social housing. (Oxley, 2009). After 1990, the attitude was toward initiative design to improve the quality standards, and also allocation policies began to change. In recent years because of economic crisis and inadequate housing, the emphasis on quantitative growth of housing has risen again. While in the twenty-one century, the aim of successful social housing should be to replace quantitative growth with qualitative growth. In this regard, housing planning and policies play a vital role in raising housing supply, affordability, and quality.

3.2. Linking design principles to the concept of housing affordability and quality

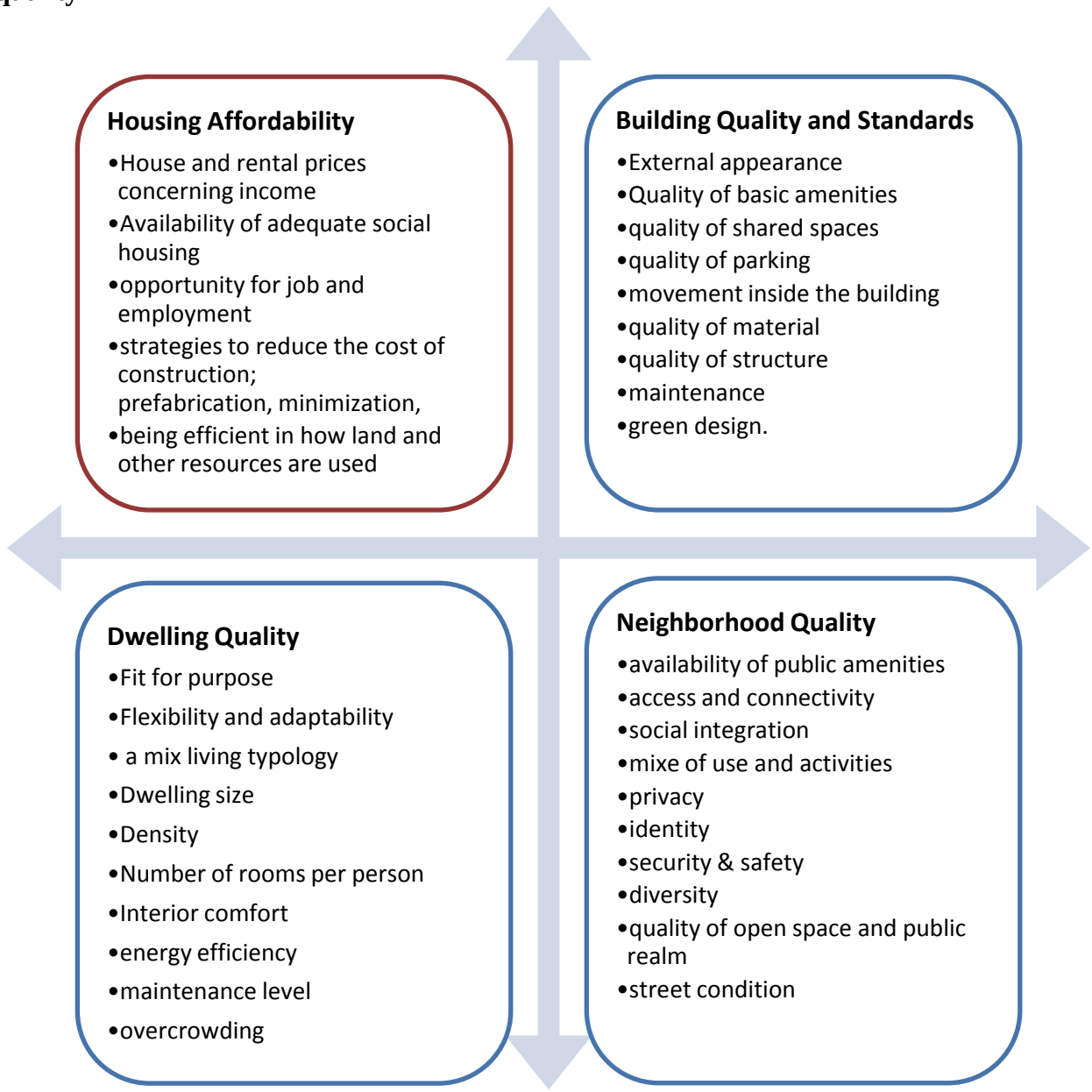
Although throughout history, there has been considerable attention to residential architecture, there is insufficient attention toward the design of social housing. The architectural design of social housing is usually seen as a means to translate policy into physical form (Davis, 1995). Social housing developers usually do not deal with specific design issues. The design strategies include rigid standards and regulations to respond to financial constraints and to reduce the overall cost of construction. While a lack of consideration of the design quality ultimately will be economically and socially costly throughout the lifecycle of the building.

Throughout the world, it seems that standardized mass-housing design is a solution, as a quick response to the housing shortage problems. Functionality, standardization, and the minimum standard is the main base for the typology of these kinds of housing. These massive constructions are associated with architectural defects as well as problems such as social segregation. The provider of such kind of housing usually does not consider the socio-cultural needs and lifestyle of residents. These standardizations in social housing have created monotonous and repetitive spaces with poor quality. Today, with developed problems of modernist housing, it becomes essential to reconsider the qualitative dimensions of housing and to create a correlation between quantity and quality.

Today mono-functional mass housing concepts and the sense of a finished project are no longer common in contemporary urban-planning developments (Broto, 2014). There is a need to create differentiation in social housing types. The aim should be to breakdown the standardized social housing, use flexible solutions, and also employ housing policies as a motivator for creating new types of social housing. (Bell, 2015). There is a need for reorientation of housing quality and housing policy and urban planning. Issues in terms of quantity cannot be solved through isolated housing projects. Carmona (2001) argues that the design quality of housing should be seen as a part of urban development. It is essential to investigate social housing and urban policy integrations in cities and their influence on dwellings and their surroundings.

The literature review indicates that the design of social housing is a complex issue and cannot be considered only in terms of economic constraints. It should encompass both housing quality and affordability issues, which ultimately can contribute to sustainable housing development. "Sustainable social housing should be well available, high-quality, economical, ecological, aesthetical design, and comfortable one, which would better suit the needs of a person" (Maliene & Malys, 2009, p:426). Composed from the literature review a comprehensive set of criteria to analyze social housing projects is provided which encompass housing affordability and housing quality in three scales of neighborhood, building, and dwelling(Figure-1)

Figure-1:A comprehensive set of criteria related to housing affordability and housing quality



(AlBetawi, 2013; Aravena Mori, 2016; Bican, 2016; Domer et al, 2015; Carmona, 2001; Cousins, 2008; Mulliner, E.K. 2012; Ring, 2015)

4. METHODOLOGY

This research is based on a multicriteria analysis of affordability and housing quality of social housing projects. The aim is to analyze a social housing project in terms of housing quality and affordability. For this purpose, a literature review was done on the subjects of housing quality, housing affordability, and their relationship in social housing projects to examine how academics and policymakers conceptualize the concept. Then, through an interpretive study, the main issues were conceptualized to identifying the attributes that constitute good social housing projects.

In the next step, the whole acquired data incorporated to create a set of criteria to develop a framework to apply it to a case study. This framework, as part of my research, is built on a specific set of thematic concepts including accessibility, identity, diversity, adaptability, density, safety, social interactions, energy efficiency, and cost-efficiency.

This framework analysis projects in three scale levels include neighborhood, building block, and dwelling to cover the overall effect of the architectural design. The framework is also classified into social, economic, and physical-functional aspects that should be achieved by proper design in the social housing context. This framework can be taken as a planning brief for sustainable social housing design.

4.1. Analysis of the case study; Tour Bois Le Prêtre, Paris

Tour Bois Le Prêtre was built in 1961 by architect Raymond Lopez. This social housing project has been renovated for two times. The first renovation was made in the 1980s when the building's facade was poorly restored without much attention to the interior layout. The result was a deterioration of building and the creation of a stigmatized housing.The new renovation carried out between 2005 and 2011 and is one of the successful examples of social housing refurbishments. Instead of demolishing, the architects Fredrik Druot, Anne Lacaton, and Jean-Philippe Vassal proposed a new renovation plan that uses the existing structure of the building and adds transparent spatial layers to it.

Before renovation	After first renovation	After second renovation
		

Photo-1:Transformation of Tour Bois LePrêtreproject(source:http://www.lacatonvassal.com)

In this way, a balcony is added to each apartment by stripping the façade and replacing it with modular steel construction.The extension of three meters on each floor adds about 40 percent to each unit and creates flexible spaces used as winter gardens, balconies, or living spaces.Also, this added glazing aluminum facade provides a more attractive appearance.

The use of technological facilities helped residents continue living in the existing building during the renovation process, thereby limited the social and economic displacement of residents. Using a simple set of materials for the facade (aluminum panels) and emphasizing precise interior design provides a new way to deal with budget constraints.The new renovation strategy returns the view and light which had been lost during the first renovation process. The process also includes changing the internal layouts, providing flexible uses, installing new baths and lifts and adding new lobbies and lifts and public rooms for collective activities.

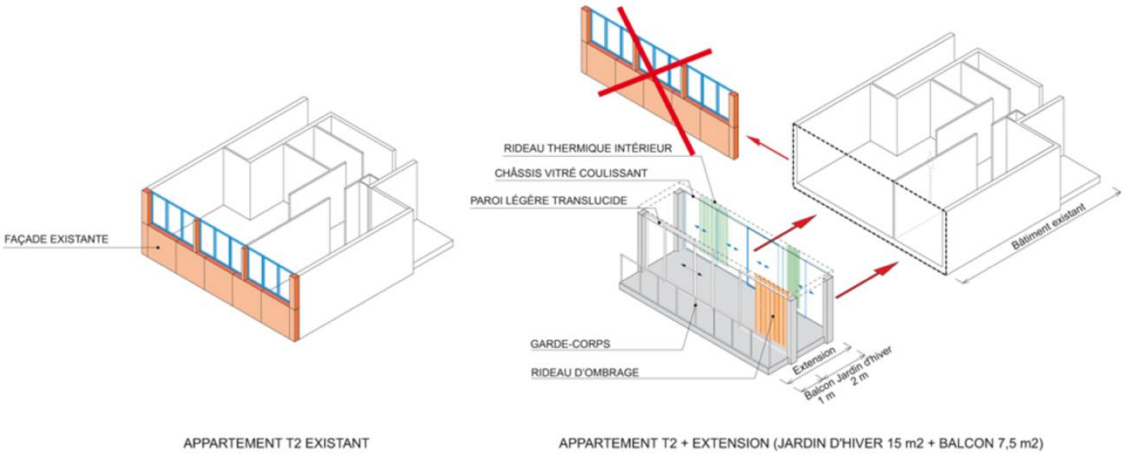
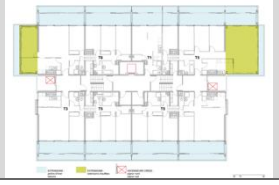
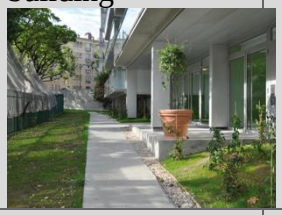
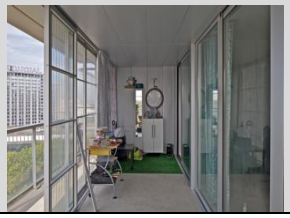
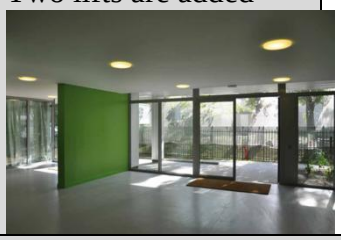


Photo-1: Schema of modification process(source:http://www.lacatonvassal.com)

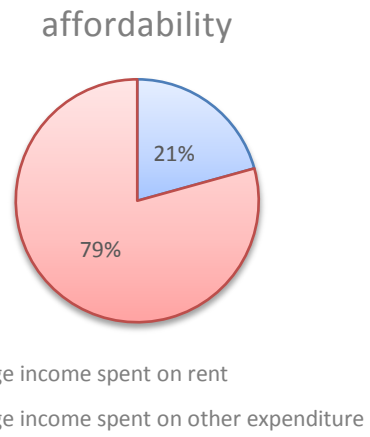
Table-1: of a framework to analysis the housing quality and affordability

Aspects	Sustainable social Housing indicators	The Scale levels		
		Neighborhood	Building block	Dwelling
Social	**Identity**	**Working with its surrounding physical context**		**meet the cultural needs of residents**
	Diversity	**Mix-use variety of uses**	**Social mix** variety in social background, different income and different needs	**Mixed typologies** variety in the types and sizes ofhousing 

	Social interaction	**Availability of shared green and open space:** a new garden created on the back of the building 	**Availability of Shared facilities**shared rooms arelocated on the sides of the hall	
	Safety	overlooked public space and pedestrian routes	meet the security requirements in Communal entrance doors and shared spaces	

Spatial-functional	**Adaptability**	**Availability of multi-functional Open space**	**Availability of multi-functional Shared space**	**Flexible design** winter gardens provide a flexible useable zone 
	Accessibility	**Access to Public transport accessibility:** can be reached on foot **Access to Facilities and key services** There are a variety of outlets in immediate area	**Redefined communal access andcirculations** the access stairs have been removed -the ground floor made on a level with the exterior -Two lifts are added 	
	Density	**High density Building** Gross floor areaUsable area: 8900 m2 existing + 3560 m2 extension		
Ecological	**Energy-**	-take advantage of	**improve energy**	-receive sunlight,

	efficiency	direct sunlight	**efficiency through use of energy efficiency technologies and materials**	-dual aspect dwellings -winter gardens act as a barrier provides thermal comfort and sound insulation 
Economic	**Cost-efficiency**	**Compactness**	**Economic design strategies:** -Reuse of existing structure  -use of cost-effective materials:prefabricated materials in facade	

Housing affordability: Average regional monthly income: 2236€ Average income spent on rent:463€ The ratio of rent to income:21%	

DISCUSSION

The analysis of the case study illustrates how two paradoxical concepts of quality and affordability are brought together in the redevelopment of a stigmatized project. In terms of

housing affordability after the renovation, the housing estate remains 100% social housing, and mix-tenure strategies are not applied. In this project, although the living area of each apartment increased by about 40 percent, the rents remain stable and affordable.

The intervention policy of the government was to demolish the housing estate. However, architects Fredrik Druot, Anne Lacaton, and Jean-Philippe proposed a new strategy for renovation instead of demolishment. Architects claim that renovation has a more cost-efficient consequence as demolish and rebuilding of a unit is three times more expensive than the renovation of the existing unit.

In terms of quality, the design principles for renovation consider a wide range of interventions in different scale of neighborhood, building, and dwelling. For example, the relationship between private and public space, the movement of people is redesigned to solve the problems related to social problems in the neighborhood. Also, the ground floor isdesigned to promote social interactions by adding public rooms.

The refurbishment of the façade generates added values in terms of social, economic, and ecological benefits; it creates a flexible space that is used according to different social needs of residents. These transparent spaces that act as a thermal barrier create homes with a good view and optimal use of natural light. Besides, the use of existing structure and prefabricated materials helps to cope with economic constraints.

CONCLUSION

Contemporary social housing is a multidimensional issue that encompasses more than just cost-effective constructions and addresses more critical issues related to housing sustainability. Social housing should breakdown standard-based approaches toward flexible designs and provide innovative solutions to reconcile minimal budge with optimal quality. Strict social housing planning policies should be replaced by more comprehensive design principles that include both quality and affordable solutions. To develop such a concept, we must have a unified perspective that includes not only economic and political factors but also social and spatial issues.

The design of social housing should lead to more sustainable development. Sustainable social housing is affordable, high-quality, ecological, housing that meets different needs of its residents (Maliene & Malys, 2009). It should also be well-located and have good access to jobs, key services, and public transport. Sustainable social housing provides a higher quality of life for its residents and enhances social interaction in the neighborhood.

The renovation of Tour Bois Le Prêtre project illustrated utilizing new design strategies and creative solutions instead of formulaic approaches. Concerning this project, it can be concluded that design principles include radical external and interior interventions to create a high-quality residential environment. These transformations promote the construction of identity and integration to the surrounding urban areas. Moreover, new design principles will help to add quality value rather than cost.

Lack of balance between quality and affordability will be economically and socially costly throughout the life-cycle of housing and directly impact on dwellers‘life quality.Finally,

considering this balance in the design of social housing provides more potential for sustainable developments.

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