

Collective Memory, An Effective Tool for Adaptive Reuse in Modern Heritage: Challenges and Opportunities Identified in the Case of Gropius Törten Estate, Dessau

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Received 27/10/2019 Revised 8/6/2020 Accepted 12/6/2020

Abstract

Siedlung Gropius Törten Estate of Dessau is a social functionalist housing of Bauhaus movement. On the course of time, it is losing its originality because of technical advancement of contemporary life style. From façade color change to cutting edge installations, from social context to generation gap; it is now facing a great challenge to maintain its originality due to lack of public awareness. To understand the housing properly, literature review of previous scholars had been analyzed to know the project from every points. With enough resources prepared, an investigative social survey was conducted to compare existing literature with reality. Main approaches of collective memory were followed as method to establish effective conservation techniques in the buildings and objects those are having collective values till to date. Possible concealed implementation, installing adaptive equipment for contemporary essentials might protect its authenticity. The purpose of this research is to depict some tentative recommendations based on explicit survey results, might demonstrate the possible links for further maintainable remodeling by acknowledging the custody of Bauhaus movement. It is also necessary to figure out the real scenario of the users and trace the public opinion. Survey results will also help to reveal the implementation scopes and various potentials in conservation techniques by focusing its integrity as modern monument in future. This study will suggest that how any neglected suburban housing could easily turn it into an income generating monumental heritage by reviving early modernism in architecture.

Keywords

Bauhaus

Modernism

Social-functionalist Housing

World Heritage Site

Collective Memory

1. Introduction

Social housing project can follow two basic conditions. Firstly, it is located in a better suburban area, within the network of the city. Secondly, its evading community segregation neither allows any formation of ghettos nor any uncontrolled urban expansion in outskirts. Such projects form an opportunity of urban renewal for the underprivileged municipal areas. Following the trend, Törten estate was the pre-industrial core for Dessau and starting point for the Stadtrandsiedlung (suburban settlement plan) during 1920s. (Cumberlidge & Musgrave, 2007) The edge of pre-industrial core and settlement is made by trough of banks. After that, surrounding settlements and Alt-Törten were renewed continuously and fragmented to their existing plots by redeveloping adjacent streets. The postwar situation of 1948 showed the full development of low-storey housing modules in the surrounding areas between Heidestraße (the road of estate) and dump bank. The transitions to Heidestraße are used to form dense buffer zones strategically for such development. After reunification of Germany, Bebbauung (name of adjacent area) area along the Heidestraße Street showed vacancy and partial decay. It was due to the low standard of construction and unsound insulation of building structures and the less traffic load. All of these are now the challenge to conserve in initial state.

The construction of the houses of Gropius Törten housing estate was completed around 1925-1926 and it followed Bauhaus principles: basically cubic volume with flat roofs and with strip windows with metal frames. Thus, they were quite radical compared to their time period. Bauhaus is such a style where buildings will be also a complete artwork with simplicity and effectiveness. It will be minimal by character and will express the true appearance of material. Another important Bauhaus manifesto was, with the help of technology; mass production and maximum and innovative utilization of resources. The

main features of Bauhaus style were: asymmetric open plan and façade without ornamentation. Although ornamentation regarded as crime, but scientific and geometrical principles of classical practice was studied meticulously. Bauhaus architects used to create space in buildings rather occupying spaces by volumes. Right angles and in some masses, rounded corners are distinct features. Cantilevered balconies were common. Colors of beige and dull scheme like white, gray, black got preferred. (Pevsner, 1999) (Figure 1)



Source: Kowalsky (2009)

Figure 1. Gropius Törten in 1928.

As in the UK, at the garden city of Letchworth; village houses for workers' were created by Arts and Crafts influenced vernacular styles. The Dessau Törten's phase 1 houses entirely have the distinctive strip windows and steel front doors. Prismatic glass blocks have been used at one side and above the front door to allow light into hallway. For phase 2 houses, glass blocks have been used to provide light to the staircase, just like the large staircase windows in Masters Houses. These were slightly smaller than Phase 1, but had a separate bathroom on the first floor. Phase 3 houses were smaller than the houses from the earlier two phases. It has a 'split level' design with some of the living rooms in the basement. (Figure 2) That's why the strip of windows at the bottom of the facade is actually high up in the room on the lower level. They include the boiler and the earth closet toilet. (Down by the Dougie Blog, 2014), For information, there are eight distinguished trends in housing practice. Such segregation came

from the point of architectural expression and social organization of user based practice, as specialists suggested till present.



(Source: Bauhaus archive, Dessau)

Figure 2. Gropius Törten Master plan in 1928.

This housing of Gropius Törten was designed after functionalist concept by Walter Gropius. The overall list of the most prominent housing trends is –

1. Idealistic showcase model,
2. Functionalist concept,
3. Large housing unit concept,
4. Regionalist concept,
5. Concept of structuralism,
6. Postmodernist or individualist concept,
7. Ecological concept and
8. Realistic concept or “slum upgrading”.

(Larson, 1993)

2. Objective of the Study

This study will try to identify the pros and cons in such housing area which is sustaining in a far advanced society today than the 1920's. This regulation will be done according to the cultural criteria of ICOMOS. This housing site is satisfying three categories of it. Firstly, It was important interchange of human value on development in architecture and town planning which falls under criteria (ii). It also reflect significant stage human history which is Bauhaus movement and directly relates criteria (iv). Finally, the living tradition of low

cost housing idea of Gropius estate comprises its outstanding universal value which reflects criteria (vi) of ICOMOS. (ICOMOS, 1986) Everything that is to conserve these criteria is desired for our study. Any situation or decision that might hamper its authenticity and integrity will be considered as prohibited act. A field survey on the basis of collective memory will decide the flow of this study's research objectives.

3. Literature Review

It would be essential for this study to focus on the previous scholars' studies and to understand the value of heritages for possible options of conservation and preservation. This will include historical background, the criterion for nomination as world heritage, the housing practice of that particular era, the architectural and construction decisions regarding cost effectiveness and possibility for future development. Next Six step of literature review should help in terms of the conceptual framework of the study:

3.1 Authenticity and Integrity

Previous Literature study from scholars establishes that these structures, architectural style, their program manifestation, location of site and background- all are closely connected with the development of social housing. Thus Dessau bears the trends of the modernism in the Bauhaus style architecture throughout the 20th and 21st centuries. Such development of the social housing is correlated with the industrial revolution and its outcomes.

3.2 Concept of Collective Memory

Collective memory is a tool that helps us to know the possibility of thoughts and implementation by any community participation. Because of its social nature, it can be used as a suitable driver of sustainable conservation technique for urban intervention.

Two different approaches are used for collective memory in this study. For referable to a special place, we suggest conservation and for non-referable spaces, Representation (Statue, portraits). The first one is contextual for this study as we may opt to go for some conservation and renewal of memorable buildings of modern monuments. A matrix shown by Peirce's taxonomy system into three parts: Symbol, Index and Icon, which will help to decide factors of collectiveness. Then it might be evaluated by some techniques for identifying different layers of signs and categorize them in terms of different senses (Pantouraki, 2009).

3.3 Historical Background

We know that the very first worth mentioning illustrations corresponding to the perception of social housing were the so called 'idealistic' or 'showcase' projects. Its formation was mainly evolved in Western Europe. Some basic features are distinct here: masses with relatively small or minimum sized rooms where one can ensure basic amenities. In Master plan, it contains abundant green spaces and several service facilities including laundries, kindergartens, doctor's office, etc. Various notable examples of such architectural expression in interwar practice are Großsiedlung Britz Hufeisensiedlung (Horseshoe Estate) in Berlin by Bruno Taut and Martin Wagner from 1925 to 1930; Karl Marx-Hof in Vienna by Karl Ehn during the years of 1927–1930 and Siemensstadt (name of Housing Estate) in Berlin by architects like Hans Scharoun, Martin Wagner, Walter Gropius, Otto, Bartning, Fred Forbat, Hugo Haring and Paul Rudolf Henning, during the time period of 1929–1934. (Vileniškė, Virbašienė & Narvydas, 2013) Grouis Törten was modeled after a new trend of functionalist concept which introduced 'cast in situ' technique.

3.4 Functional Concept

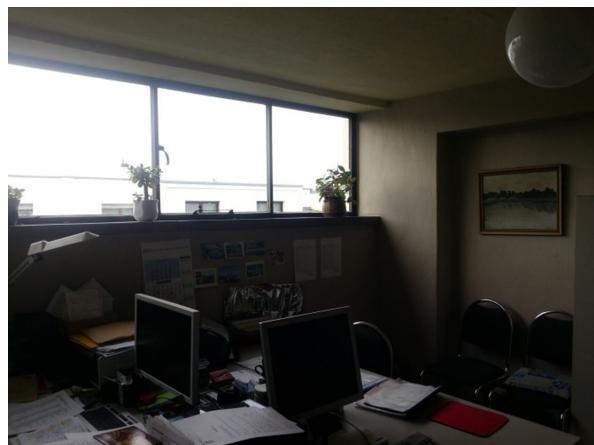
The Törten housing estate in Dessau could be a perfect example of functionalist mass-production attitude towards the affordable living space. That was

the time when government acquired vast parts of 'substandard' housing, built new-fangled highways and connected them with chunks (Turner, 1996) The ideas for the proponents of industrially prefabricated affordable housing was introduced. It was expressed in condensed manner from an iconic quote published in 1923 at his famous book 'Toward a new architecture' by Le Corbusier -"The spirit of conceiving mass-production houses". However, there are numerous less successful examples like the universally known and the most quoted as well as notorious Pruitt-Igoe case of St. Louis, Missouri, USA. This housing well embodied the gap between the good intentions of functionalist design and the inhumane environments it can create. (Melvin & Knyga, 2006) After the 1st World War, from 1926 to 1928; the Weimar Republic wanted to escalate public participation in private housing construction industry, (Stachura, 1989) inspired by Ebenezer Howard's English Garden City concept. The suburban Estate was imagined within the framework of 'Reichsheimstättengesetz' (State Home Law), meaning that the houses could be kept and maintained by the residents from the onset. (Bauhaus Dessau Foundation, 1996) Törten's main theme of building these houses were, to make housing affordable and to enable the people with low income for owning own houses. This project was Walter Gropius' first prospect to execute his concept of Haus-bau- fabrik (home-building-factory) which he already adopted as main architectural idea during 1916. (Droste, 1990) Meanwhile, Mies van der Rohe's exhibition on rational housing in Stuttgart showed the solution for the possible smallest cubage. This estate is therefore considered as an extendable 'growing house' with Bauhaus style. (Larson, 1993) "Two hundred years after the first Gartenreich (garden kingdom) of prince Leopold of Anhalt-Dessau, it would hardly inaugurate a new paradisiacal landscape, but merely a landscape of hope with unusual beauty." Gropius also told, "A landscape which is based upon a new understanding of work and labor, by accepting the



Source: Author

Figure 3. Backyard garden in 2015



Source: Author

Figure 4. Underground store converted to home office now

cultural heritage of its ancestors, which carefully removes the ecological burden". The garden is emblem of Mendelssohn's enlightening movement during the 18TH century. (Figure 3) Later, German landscape architect, Leberecht Migge's contribution to Dessau Anhaltische Siedlungsverband (Anhalt settlement Association) reinterpreted the traditional garden design as a self-sufficient 'Siedlung' (settlement) concept. There were 91 double floored houses of Dessau- Siebikg (another place) were also built far from the city, like a social 'cestrum' on a grid of parallel streets according to Migge's vision of "German inner colonization." (Lejeune, 1997) Expressive architecture was the genuine veneration for the dignity of working class, while the "Ring-road of the proletariat" was a great symbol of the united relation between the working class inhabitants. (Tung, 2001)

In Tel Aviv, during the 1930's; Dessau's such housing concept with its Bauhaus style was hired by private property-owners and real estate developers, who constructed affluent apartment buildings and labor union workers' housing projects. (Kowalsky, 2009)

3.5 Planning and Design

According to Gropius, the initial motto for this housing was 'People's need instead of luxury needs'. (Edelmann, 2009) The row houses were built in

assembly-line fashion as an effective way to reduce costs. With such combination of row and plotting housing, he solved the problem in a unique way while the inhabitants were mostly the workers of Junkers Steel. (Tomlow, 2007)

Putting back-to-back, the order formed semi-detached households and united them in the clusters that varied from four to twelve units. In three stages of overall construction phase; nearly 314 terraced houses were assembled here, comprised with the variations in floor space ranging between 57 sqm. to 70 sqm. Bigger one might include a area of 75 sqm. These terraced houses had kitchen gardens (350 and 400 sqm) to grow vegetables and to practice small-scaled poultry or animal husbandry like hen and rabbit. (Bauhaus Dessau, 2011) Outdoor toilet is another distinct feature of such housing. Washing and drying of clothes and cooking area of kitchen were offered in split level. (Figure 4) The façades were separated by vertical and horizontal rows of openings; uniform steel windows and doors were positioned in the facades with irregular composition. Such impression was strengthened by revealing light colors like: grey, black and white; while the interiors are decorated in light tenors. The furniture designed specifically for the projects in the Bauhaus workshops, which were unsold to the buyers for long days, were brought here. (Bauhaus Dessau Foundation, 1996)

When it came under the direct direction of Hannes Meyer and some other teachers such as Hans Wittwer and Ludwig Hilberseimer in 1930, their motto was to optimize light, air and sun, the so proclaimed dictum of the then modernist practice which Corbusier called: 'sun, space, and greenery' as the three essential elements to feel the 'joys of urbanism'. (Vileniškė, Virbašienė & Narvydas, 2013) However, Meyer and his 12 students built only five Balcony Access Houses here for a mixed development of single-family and rental properties. Each of the three-storey buildings housed 18 flats; all with 2.5 rooms layout within 47 square meters, were completed with central heating and fitted kitchens and bathrooms. Access to the flats was by staircase turned to towers which link balconies running along the north facade. The house at Mittelring 38 (middle ring) was the first to be restored to its original condition in 1992. (Bauhaus Dessau Foundation, 2012)

Today, it is used by the Moses Mendelssohn Society and considered to be outstanding amongst the perverted buildings. Designed by Walter Gropius in 1928, Konsum (Consumption) Building was commissioned for the consumers' cooperative and was erected as a landmark for the Dessau Törten Settlement. It is currently an information center and has been restored in 1990. At last, Haus Anton (name of house) is owned by the Bauhaus Foundation, one of the only houses preserved in its original condition. It belonged to an elderly lady since 1920 and many original features were saved, including the kitchen with its stove and built-in tiled washtub, backyard stall for poultry in the garden are still present there. (Bauhaus Dessau, 2011)

3.6 Construction Choice:

The State Research Association for Building and Housing Economy was founded in Germany to ensure the usage of experimental industry products and building materials in 1927 (Blanco, 2010). Since the initial plan was to build affordable housing for the mass people, inexpensive construction methods

and cheap materials like prefabricated slag concrete, cavity bricks, reinforced concrete girders, etc. were chosen for this experiment.

Structural components like slabs and beams were produced on-site, which could be regarded as an attempt for the 'Tailorization' of building sites with manufacturing. The structural joists of precast concrete, so-called Rapidbalken (Rapid beams) were prefabricated on-site and transported via small carriages and moved by cranes. Sand and granite for concrete grout were collected on-site as well. The load bearing walls were prepared from prefabricated and inexpensive hollow slag-concrete slabs with a dimension measuring of 22.5 X 25 x 50 cm. (Bostjan, 2017). The roofs were made using different techniques, ceilings with reinforced concrete joists were tightly bolted together side by side. Floors spanning between load bearing walls and external walls were sealed with light concrete blocks. The longitudinal walls were made of non-load bearing filling walls consisting of two 6 cm thick cinder concrete and blocked with an air pocket of 1cm in- between them (Markgraf, 2006) today could be easily replaced by vinyl and Gropius would really love them, Bauhaus director Omar Akbar believes (Altro.de official website, 2008). Besides, building processes were also planned with a short time activity which resulted in several activities overlapping at the same time. The overall construction followed the principles of standardization and cost-efficient work routines, which were modeled from the assembly line mass productions of the United States. (Bostjan, 2017) After the completion of housing project, defects in design and construction became notable. Consequently, residents made numerous alterations to deal with the new problems. The first change was noticed in 1934 to make a reposition for too-high windows. (Bauhaus Dessau Foundation, 2012) The plans were altered to suit their tastes, and insulation was added. This was due to the tight construction schedule which did not allow the endurance of better quality for certain materials, for example, bricks did not attain maximum strength

and thus caused cracks in the walls. In fact, the tenants were very unresponsive and showed negligence about the Bauhaus aesthetics and criticized the construction defects due to cheap labor and materials which were triggering the overall building cost to increase in another way. (Figure 5-6) Apart from the bad heating insulation, there was too much glass Surface with steel frames and the interior rain pipes did not have any repair options (Bostjan, 2017).



Source: Author

Figure 5. Repairing is needed off and on, due to cheap construction method



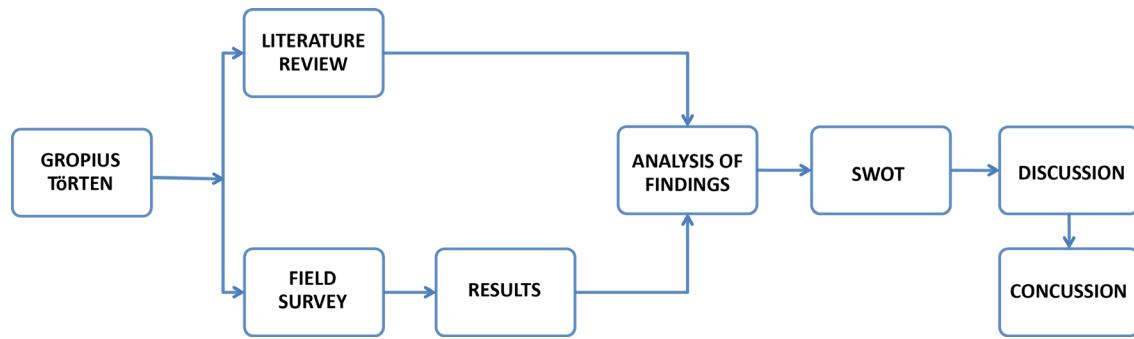
Source: Author

Figure 6. Existing decayed condition on facade due to use of cheap materials

4. Methodology

First, investigation over previous literatures of other scholars needed to be focused for the critical phases of development at Bauhaus movement. After that, a survey was conducted in the whole housing area to identify problems. Communicating with local people gave decent information of present state. Collective memory is applied in its architecture and housing pattern which might affect some strategic themes of social sustainability like social networking, communal identity, civic pride, neighborhood perceptions and community participation. Site history analysis in the suburban context of Dessau was also considered. Based on the findings from conducted social survey, some possible recommendations are also suggested to search the feasible congruencies between the category and scheme of particular housing regarding the area conservation. The aim is to find out the relationships; comparisons and generalization of their originality and how they are losing the character of Bauhaus's universal value; integrity and authenticity. Area preservation characteristics could be suggested for refitting the affordable dwelling units in order to adapt with social, functional and productive aspects of the upcoming days from the sustainability concept. Analysis of opportunities and challenges will derive possible results of this study. The whole flowchart of methodology is shown next. (Figure 7) Besides, Social survey questionnaire held on 7th December in 2015 was a helpful data collection method to understand the problems and develop an effective SWOT chart later on; which listed 9 questions as follows:

1. Is there any kind of events (sports, religious, cultural) that held here annually where all the inhabitants do participate?
2. Are there any Options for community gathering in this housing? Is it enough?
3. Where are the Places that people generally gather in this area?



Source: Author

Figure 7. The flow chart of research methodology.

4. Are services here is enough? Do you need the additional community services like hospital, school, gymnasium, playground, senior citizen club, church, restaurant, pub, bar, theatre etc. in this housing? You may propose your own idea.

5. What do you think about the architecture of your dwelling? Do you want to conserve it or transform it to a more modern house according to your financial ability? Tell some positive and negative aspects of your house.

6. What are the things that give you more pleasure living here?

7. Suppose, you are not living in this area in the future, what will make you nostalgic or you are going to miss a lot?

8. What is the VALUE of your house? Both from cultural and economic considerations.

9. Do you have any further suggestions from your part? Thank you.

5. Area of the Study

The study constructs in famous Bauhaus city of Dessau, a small town in former Eastern Germany on the junction of the rivers Mulde and Elbe. It's situated at Federal State of Saxony-Anhalt. It is 125.7 km far from the capital city Berlin, to its south. Our study area is located in the distance of 4.9 kilometer from the city center, towards the south of town hall and market plaza, known as Rathause square. The main road with vehicle and public transportation

like tram is Heidestraße, (yellow line) to the west of housing site. The site is then connected with some secondary collector road like Doppelreihe, where the 1st construction phase of this housing started in 1926. Damaschkestraße, where the 2nd construction phase started in 1927. Nordweg in Der Flanke and Am Dreieck where the 3rd construction phase started during 1928. The Südstraße could be regarded as main access road and Kleinring, Mittelring, Grossring are inner tertiary roads within the housing. (Figure 8) There are several reasons to choose this specific area for this housing estate. Firstly, it is a World Heritage Site and Bauhaus architecture by pioneering figure like Gropius. Its material practice and construction was innovative. And eventually, it is situated in a better location within the town for the working class which was made affordable.

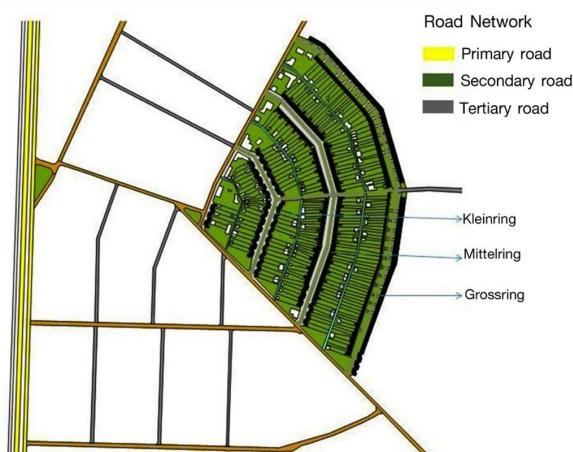


Figure 8. The overall road pattern and leafy area of Gropius Törten at Dessau, prepared by author in AutoCAD software

6. Findings, Survey Results and Analysis

For further residential and commercial development, this social housing project should become a “better located within the network of opportunities in a city” to avoid social segregation, formation solution of ghettos and any non-sustainable urban expansion. (Cumberlidge & Musgrave, 2007) The complexity and contradictions of socially orientated architecture in constantly changing economic and environmental conditions and proves that the individual problem needs individual solutions. The next few pictures of pie charts will explain what really the general public opinion in this housing area is. Pie charts are always easy to understand at a glance, thus it was chosen to reflect the results. It gave us a great opportunity to explore this area from user group perception as the people are not open there. In an adverse situation we could reveal some of the astonishing truths. Fear is, nearly 60% of respondents wanted to modernize their home. School playground was their favorite place of gathering and they are also satisfied with it! Youth clubs, gym, theater all were demand of the young generations who represents tiny portion of the population. The elder group of people loves the landscape and inherent tranquility, nearly 40%. Most importantly, the respondents, 50% knew about the world heritage site value of this housing which was a positive sign. And majority of the people thinks there are not enough year round activities for community to bind them as inhabitants. Nearly 45% expressed their dissatisfaction. (Figures 9-14) Now, all these survey results could be explained and compared with literature findings with available data.

Things that give you more pleasure

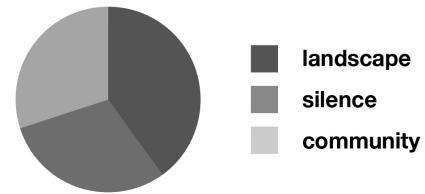


Figure 9. Landscape 40%, Silence 30%, Community 30%

What do you think about the architectural conservation of your dwelling?

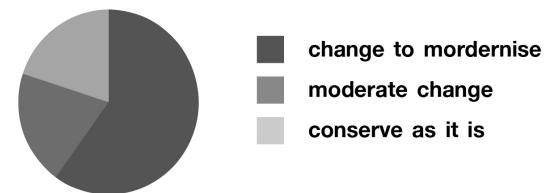


Figure 10. Change to modernize 60%, Moderate change 20%, Conserve as it is 20%

Are community services here enough?



Figure 11. Enough 75%, Youth club 13%, Theater 12%

Which Places in Gropius Torton estate people are generally used to gather?

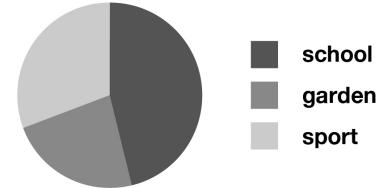


Figure 12. School 60% Garden 30% Sports 40%



Figure 13. Heritage 50% only adoption 16% cheap 18% community 16%

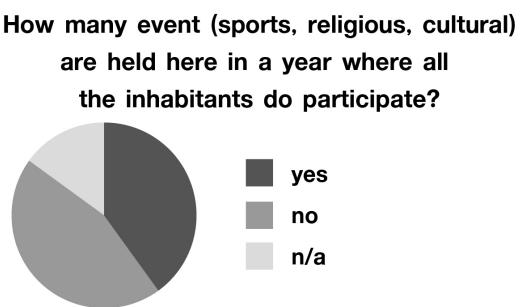


Figure 14. Yes 40%. No 45%. N/A 15%

6.1 Strength

a) The best asset of this housing is high quality architecture and public spaces designed by famous architect Gropius and the housing itself is an UNESCO world heritage site. Integration of the gardens, taking inspiration from the forms of nature and characteristic organic shapes are notable. The characteristic functions of this medium scaled housing may include public, commercial and residential purposes. (Figure 9)

b) The fabric in neighborhood pattern was formulated by certain configuration while the ring street is more resistant and layer of rings shaped its morphology. It reflects a unity of form in such plots of an inner urban or suburban and peripheral-urban area. The units are relatively well-fenced with greater privacy while living side by side. There is also some freedom to alter interior arrangements in its free-standing houses. Municipal services are more economical that are provided in the Törten area compared to other suburbs of Dessau. Community gains and attendant stability in such housing is proven as vital issue for this study. (Figures 10-12)

c) This row housing provides more space in an economical way. More families can be accommodated on the same amount of land ensuring efficient use with net actual usable open spaces. Social and economic conditions of the inhabitants suggest the values for such social housing, was clearly identified earlier in 1920's and it is still continuing. These values are determined by market value of the houses against the demand of the space among the people, if the government has no sanctions for any home loan. To evaluate economic facts, one needs to consider the density of the housing first. The total area of the housing is 4.37 km^2 and overall population housing is about 2,475. Thus population density is 566 inhabitants / km^2 here. Three distinct economic classes are found here, lower middle class in the small ring, middle class in the Mittle ring and upper middle class lives in the large peripheral GroBe ring. Here, cost of per square meters is 2,250 € . Thus, a 57 sqm apartment costs 128,250 € and a 75 sqm apartment costs 168,750 € accordingly. Contemporary German society's low income status population is 20% of its total population and the average net-adjusted disposable income of this bottom line are maintaining their livelihood in a estimated amount of 12,025.25 € per year. (OECD portal, 2016) The percentage of the Germans owning their houses is nearly 52%; which is the lowest for the entire European Union. But at the same time, Germany has only 1/9th space left on its land surface for inhabitation. (How to Germany, 2019) The average price is 1,500–2,500 per square meter in any real estate, now a day. Thus average price for a 57 square meter property or small apartment costs 142,500 €, while a 75 square meter apartment's average cost is around 187,500 €. It means, Törten housing is offering more than 20,000 € cheaper apartments compared to any desirable sizes of apartments in contemporary time. Moreover, the housing loan provided by German banks, first consider clients' eligibility and mortgages which is typically for a period of 25 to 30 years and also with interest rates fixed for the first 5 years or so on. Are not inhabitants in this Gropius Törten housing happy enough?

6.2 Weakness

- a) The roads in the small ring are narrow and only one car can go through. Only the large outer ring has proper street lights, rest others are dark.
- b) The orientation of the buildings is not at its best, half of the building can't get enough sunshine hours, thus are not utilizing warmth of sun properly. It is found that only front yards of GroBe ring are heated up at the early morning. The lack of sun light and absent solar energy utilization system is acute problem here.
- c) A close link between nature with indoor and outdoor spaces, built spaces and private rooms is important. Undeveloped areas such as the trough banks and interposed green spaces and rear channels (Mist way) shall be kept left over spaces like original design for recreational use. Besides, built space scenario today shows an unexpected and haphazard improvement, for example; accumulation of care services in the spots like road intersections, which is definitely not a proper representation of its Bauhaus identity. Lack of huge gathering space pushed them toward the school field and even though they have less communal events. (Figure 14)
- d) Low cost models of this housing still remained as a positive example, but are not introduced on the wider scale for the question of recurrent repair, which is kind of harassment. From environmental perspective, its thin partition walls transmit sounds from adjacent units.

6.3 Opportunities

- a) The parking was not required in 1920's but now a street level parking could be developed as it is possible to turn the existing washing kitchen into a garage or can be centrally arranged in a selected left over premise.
- b) Pedestrian way is much effective than the green spaces in a housing. Here opportunity for sudden introduction with a new neighbor is possible, the arranged green spaces now failed to attract social need which was the main objective. Thus outer



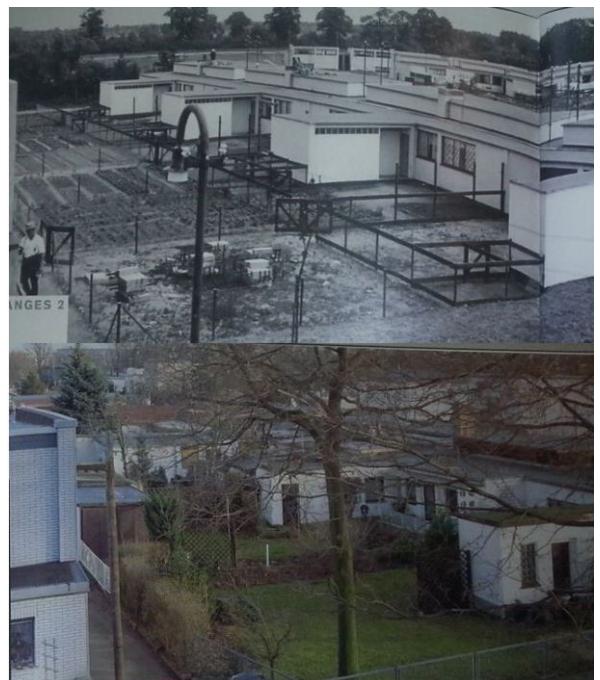
Source: Author

Figure 15. Pedestrian of Törten housing is the 'meet and greet' space for its elder population.



Source: Author

Figure 16. Corner shop in the housing area is a later addition.



Source: Bauhaus archive, Dessau.

Figure 17. Row housing of Törten estate during 1928 and in 2015. A photographic comparison from the same location.

peripheral blocks should be interconnected by pavements in short block intervals. (Figure 15)

c) Corner shops were preferable for income generating places in each neighborhood and gathering places for coffee and cake in 1920's. But these shops are located centrally of the road length. Along a road side land is a better practice to locate such shops in today's housing practice. (Figure 16)

d) The approved new windows to be grouped and the façade color should be near to the color of white and anthracite colors for all the frames. Structural systems and fenestrations, of course; for the design consideration with particular climate has shaped the front edge of this housing and those beautiful 'small, cozy spaces.' These spaces should be adobe for some communal functions.

e) Biennial characters of a day have great impact over those micro-climate spaces, both in lateral and frontal elevations of each block.

f) Developing a hub and including a proper museum section just at the entry point of this housing is must now to enhance tourism.

g) Latest and sustainable solutions should be followed for hiding modern installation to avoid any harm to the original aesthetics of the building. Different eco-technologies in the experiment could also be proposed which might include practices like solar panels, wind turbines, geothermal energy, ecological building materials, rain water reuse, etc.

h) In fact, a participatory involvement of inhabitants for preparing an action plan is needed to convert this housing from mono-disciplinary character to an income generating site without causing any trouble to its community. Some multi use functions could be merged with this. For that, integration of wider management framework is also needed.

i) Small portion of roof could become an additional third floor to negotiate today's need with the question of heritage conservation.

6.4 Threats

a) The percentage of green in landscape is decreasing day by day for rapid informal development in this housing. If the gardens are lost then the concept of green Belt will disappear and the estate will lose its identity. (Figure 17)

b) The lack of young population in the settlement will be a great problem for the upcoming future.

c) The parking area for the inhabitants was far from Gropius's thought at its initial time. Now, somehow they have managed their parking lots in front of their houses or by erecting garages at the end of the gardens, or even wherever any place they found. As it is a World Heritage Site, why will be the views from road get obstructed?

d) Continuous pedestrian is absent and this problem was induced by small gardening in front yards, unnecessary according to original plan of Gropius.

e) Corner shop concept is now an out worn idea, as it failed due to being on the crossings of vehicular access and public gathering; could be lethal sometimes.

f) Bad heat insulation, too much glass area with steel frames, cracks in wall; interior rain pipes don't have any repair options. These are also damaging the buildings from deep to their foundation. Such problem was evolved just to compromise with the cost.



Source: Author

Figure 18. Parking in roads and deviant from Bauhaus color scheme threatened its authenticity and integrity as World Heritage Site.



Sources: Plan collected from the Bauhaus archive of Dessau and photos labeled by Author

Figure 19. The original functions of the row housing and its changed interiors at the present.

g) The fenestration treatment of Bauhaus is no longer effective, even change caused by simplest installation may do harms to the initial aesthetics of these “Rational and smallest” possible cubage. The modernist impression was strengthened by revealing light colors: grey black and white, which started to fade away and replaced by pink, blue, yellow and so on. This is totally a breach of basic principles from Venice charter’s. (ICOMOS, 2011) (Figure 18)

h) The overall pattern of interior and its function is also changed. (Figure 19)

7. Discussions

There were some effective notions for the solution of problems that the survey questionnaire results can provide. The burning question is, what kind of collective memory may work for the social life of Gropius Törten housing? Our survey questionnaire gave some astonishing outcomes. Inhabitants said, due to lack of space and inspiration, events of sports, religious and cultural programs are

not being held here. School and adjacent backyard gardens are their only recreational space that they have for community gathering. Respondents demanded some additional services like theatre and youth club. The Anhalter Theater in Dessau is so far for the senior citizens and they would like to have one here. The housing lacks youth generation as all of them moved to Berlin for work and study. They are here only on their vacations and they like to have some recreations. All inhabitants have eagerness to bring some positive changes at the initial design. But everybody also wants to preserve the community sense, the rural character of the estate, the silent nature of its surroundings, tranquility and peace; all these factors are proved important and that’s why nobody wants to move. In fact, this is only one adoption that they have and it is cheap. They are also really proud of its World Heritage status. They suggested that an additional pedestrian could be developed at Doppelriehe. Most of them are not conscious about the garden belt concept of Gropius and its an emblem of Mendelssohn’s enlightening

movement from this soil. Conversion of green recreational spaces into car parking garages had been alarming, which disturbed the authenticity and integrity as well. The green space is on continuous decay over the years. In an urban fabric of the city, important elements like shopping facilities, social gathering places, and churches are not conveniently located near its adjacent neighborhoods. (Figure 20) Additionally, row houses here are admittedly too narrow to allow good interior spaces. Living rooms are consequently restricted and furnishing is difficult, according to contemporary lifestyle. All the interview participants said that open space and Public Park is absent here. Front yards are useless, and backyards in some cases are too long and narrow to serve any purpose of todays need which turned those as left over spaces. A contradiction is also found, some like backyards for party and others think it's only an unused space which should be developed for any sort of functional built form. It is found that collective memory of this housing was mainly depended over nature and culture. The trees are main catalyst of this housing, according to Peirce's taxonomy system, smells from flowers and branches are most effective collective tool for the inhabitants. Besides, According

to Schulz, the meaning is developed by experience of place. Marzipan, the smell of it during the Christmas was identified by its dwellers as common binding cultural event, which they will miss if relocated in other parts of Germany. Otherwise, people here are introverted and lack of communication was obliged and tolerated.

8. Conclusion

The case study of Gropius Törten housing estate was to analyze the possibility of sustainable conservation practicing in the redesign and renovation of the housing. The study tried to formulate the proposals for further development, whatever options are left by now. What we found in our field survey and literature review, it is clear that the main obstacle is to educate inhabitants and restrict them to do any further harm. Despite being a modern World Heritage Site declared by UNESCO, Gropius Törten is facing the 'destructive' wave of today's technological advances as change is always obvious in this lifestyle. The study demonstrates the possibilities to integrate the dimension of sustainability for such modern monument conservation through collective memory.



Source: Map collected from Bauhaus archive Dessau, labeled by author

Figure 20. Amenities around the housing site in 2015.

It suggests adaptive reuse with concealed installation of contemporary utility equipment. Any sort of informal growth should be prevented to preserve its value and identity. As it is known that concept of sustainability depends on three E's: Economic, Equity (social) and Environment; this should be followed in every step with proper public consents, as our field survey revealed. The findings of this research focused the understanding of social psychic and emotions of Gropius Törten housing. This site has a great opportunity for area conservation experiments by including clues like collective memory, layers of human senses associated with space making sense and community cohesion. The survey results inscribed and suggested not to diminish any artistic significance in order to continue its integrity and authenticity that is known as Bauhaus movement. It is cradle of Modernism, an outstanding universal value for the site. Otherwise, shameful exclusion from the World

Heritage list would be the penalty for this site also which will be unpleasant for Germany again, as the country already faced such embarrassment for its Elbe Valley site of Dresden in 2009 (ICOMOS, 2009).

Acknowledgement

I am really indebted to my classmates of Masters of Monumental Heritage of Anhalt University of Applied Sciences at Dessau, Germany; who shared their information and helped me during the group study and survey. Such outcome was possible because a very interesting course under the title of 'Urban Collective memory' was offered by my favorite Lecturers, Mr. Moghaddam and Mrs. Ghalam (also my co-authors here) during the 1st semester of Masters course, from October, 2015 to February, 2016.

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