

Renovation of Old Industrial Buildings for Contemporary Uses, Case Study: Tenten Factory, North Cyprus

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Abstract— for different reasons, there are many old and historic buildings exist that they are in danger of demolishing .one type of them is industrial buildings, one way of preservation of these buildings is renovation, by renovation in addition to preservation of building the economic demands can be solved. the renovation is very helpful for sustainability goals, old buildings .it can enhance the social awareness and sensitivity old buildings and encourage other owners to choose renovation instead of new constructions. In this project, the definitions, problem, and the importance of this issue were explained and the items that are necessary to consider in these renovations are mentioned. At the end, the renovation and interpretation of an old factory is presented that done with attention to literature and ICOMOS charters.

Keywords: *renovation, reuse, industrial buildings, conservation Introduction*

Introduction

I. Introduction

in *The Death and Life of Great American Cities*, Jane Jacobs wrote the following praise for ordinary historic buildings:

“Cities need old buildings so badly it is probably impossible for vigorous streets and districts to grow without them. By old buildings I mean not museum-piece old buildings, not old buildings in an excellent and expensive state of rehabilitation—although these make fine ingredients—but also a good lot of plain, ordinary, low-value old buildings, including some rundown old buildings” (Cantell, 2005).

For nearly a half century, the adaptive-reuse of historical industrial buildings has been receiving more and more attention in developed countries in Europe and US, even in the whole world. In fact, these abandoned industrial buildings have not only precious historical value that needs to be studied, but also remarkable realistic value for adaptive reuse. Historic industrial buildings and sites witness the development of industrial civilization of

human society. (Wang & Nan, 2007) the reuse of these buildings is so important for sustainable development. As European commission(2017) declared It accounts for approximately 25% - 30% of all waste generated in the EU and consists of numerous materials, including concrete, bricks, gypsum, wood, glass, metals, plastic, solvents, asbestos and excavated soil .

II. problem

there are many industrial buildings are existing that due to the development of cities and change of policies are now located in the urban districts or they are near to cities. normally they are big buildings and need lots of investments to demolish and construct new buildings. they are different approaches for these buildings, from demolishing to conservation.

it is obvious that demolish and building new one has many negative points.in addition to energy consumption for demolish and build new buildings, these buildings are history and have different types of values.

III. Industrial heritage

The industrial heritage consists of sites, structures, complexes, areas and landscapes as well as the related machinery, objects or documents that provide evidence of past or ongoing industrial processes of production, the extraction of raw materials, their transformation into goods, and the related energy and transport infrastructures (TICCIH Principles for the Conservation of Industrial Heritage Sites, Structures, Areas and Landscapes)

IV. Importance of industrial heritages

The definition of historic industrial building and site can be explained in both general and specific senses. The historic industrial heritage in a broad sense and relevant “industrial landscape” that are related to Architecture, Industrial Archaeology and the cultural landscape and landscape of production in human geography, includes landscape planning, archaeology and conservation,

manufacturing technology, social change, economic development, evaluation and protection of architectural heritages, and so on. The “Historic Industrial Building and Site” defined in this paper refers to the buildings and sites built for the application of industry, warehousing and transportation after industrial revolution, and has generally recognized significance in history, culture and adaptive reuse, namely the specific sense, not all the remaining industrial buildings. These buildings and areas are connected by waterways, railways and roads in the city, forming a distinctive urban cultural landscape: industrial landscape. (Wang & Nan, 2007)

Industrial complexes and buildings are impressive architecturally, both in their size and muted decorations.

They were built with practicality in mind – production, efficiency, and sometimes safety of employees (Cantell, 2005)

Historic industrial buildings have certainly made great contribution to urban development. They once were an important part of cities, and many of which are the typical representatives of development of architectural technique in certain periods. Today, industrial buildings and sites have become the focus of renewal and reconstruction of old towns, (Wang & Nan, 2007)

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why we need to conserve, renovate and reuse of this buildings?

- -some of them has architecture and aesthetic values, they are showing the architecture type and style of the age that they build
- Some of them has values for their production process
- Many of them showing the way of development of city and peoples can feel the development of their cities
- They are nostalgic for some generations

- Beside these values, these buildings contain high amount of materials, destroy and building in this big areas need too many material and will consume a lot of energy for both destruction and reconstruction

V. Renovation, reuse, and sustainability

Sustainable development is firmly on the building and construction agenda. Within that, the industrial built environment with its wide range of building qualities, ages and potentials is an important element (Ball, 1999)

If one of the aims of sustainability is continual improvement, improvement and reuse of old buildings is one of the means to achieve this. Adaptive reuse of buildings has a major role to play in the sustainable development of communities, circumventing the wasteful processes of demolition and reconstruction. This alone sells the benefits of adaptive reuse can create valuable community resources from unproductive property, substantially reduce land acquisition and construction costs, revitalize existing neighborhoods, and help control sprawl. Also, it is not difficult to see conservation as being consistent with the concerns of sustainable development.

Adaptive reuse enhances the longer-term usefulness of a building and is therefore a more sustainable option than demolition and rebuilding. The positive benefits for adaptive reuse identified during the research also support the tenets of sustainability and include:

- . reducing resource consumption, energy use and emissions;
- . extending the useful life of buildings;
- . being more cost effective than demolition and rebuilding;
- . reclaiming embodied energy over a greater time frame;
- . creating valuable community resources from unproductive property;
- . revitalizing existing neighborhoods;
- . reducing land consumption and urban sprawl;
- . enhancing the aesthetic appeal of the built environment;
- . increasing the demand for retained existing buildings;

- . retaining streetscapes that maintain sense of place; and
- . retaining visual amenity and cultural heritage. (Bullen, 2007)

VI. Aims

- Renovation and reuse of TenTen factory with minimum destruction and changes
- Change the space to an alive and useful building for people
- Choosing a new function that is interesting and its useful for city
- Showing people that it is possible to use from old buildings and these buildings can be very efficient and can use for new demands
- Preserve the sense of industrial building in new function to every user can feel the real function □ Choosing sustainable and efficient method and materials

History of building base on interview with current employees, the former function was orange juice factory (?) New owner bought the building from Greek owner. Current function is producing potato crisps as well as corn chips since 1975, also importing nuts and roast and pack them and marketing them on the whole North Cyprus as the brand of Ten Ten Food Products Ltd.

VII. Documentation

Situated in the west part of Famagusta, and near to Tuzla area- a residential area. the distance of building from Tuzla is about 1KM and from Famagusta center is about 3 Km(Figure1).

The accessibility to the building is by cars, and pedestrian access is not possible yet.

It is located in roadside.one of the main roads and has a good view from cars



Fig.1. location of factory, source: google earth

A. Dimensions and area and current situation

The dimensions are shown in figure 2:

- Building: 3700 m²
- Land: 1000 m²

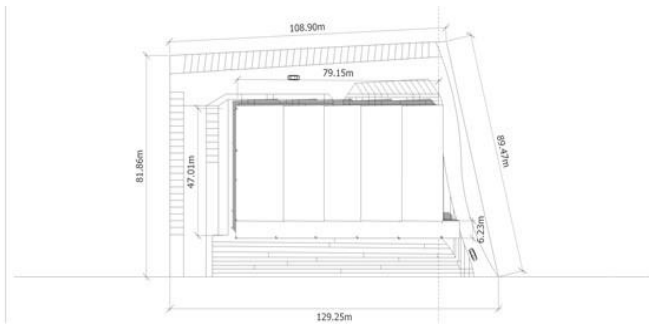


Fig.2. building dimensions by:Hesam Mosharraf

B. Exterior of building

In general, the exterior is in good condition and need just remove additions and some minor repairs as shown in Figure 3.

Some windows were closed and should be open again.

The roof material seems changed, for intervention proposal the material was changed.



Fig.3. current situation of building taken by: Hesam Mosharraf

There are 2 additions to the original buildings that aren't in good condition and need to be demolished as you can see in Figure 4.



Fig. 4. current situation, taken by : Hesam Mosharraf

C. Interior

The interior of building contains 2 part:

One very big rectangle that is the main part of factory with some walls that just have partition function.

One smaller rectangle includes main entrances, stairs and small spaces (figure 5).

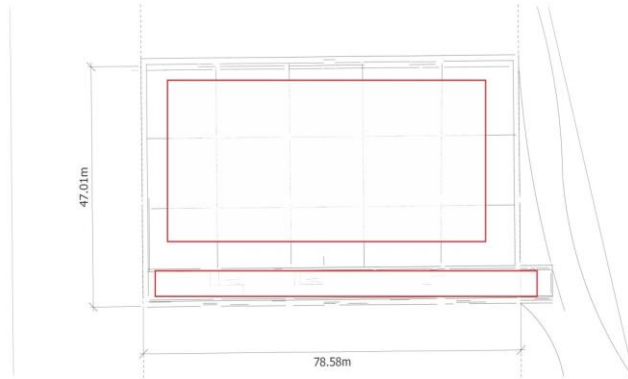


Fig.5. Dimensions, by Hesam Mosharraf



Fig. 6. Current status, taken by : HesamMosharraf

D. structural system

- Concrete reinforcement beams and columns

- Walls are just having separation function and they don't have structure, the structure of the building is shown in figure 7.

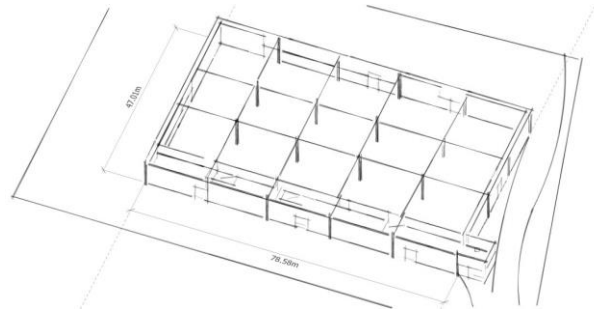


Fig.7. structure of the building, by: Hesam Mosharraf

E. Values of the building

- Building facades are in good condition
- Big interior space
- Age of the building is more than 40 years
- Good view from road and to the surrounding environment
- easy access to roads and city
- large open spaces around the building

VIII. Intervention proposals

Try to consider Reversibility Minimal Intervention

- keep the whole structure system and exterior material
- change the roof metal plate with glass and solar panels to using green energy and sunlight for interior
- Cleaning the whole building and landscape
- Repairing facades and change windows to original shape



Fig. 8. proposed plan for facades, by : Hesam Mosharraf

A. Proposal for reuse

Famagusta Art and Culture center

The reason for this choice is that There aren't such buildings in Famagusta and lack of a place for this activities is obvious. many of meetings and seminars are holding in Eastern Mediterranean University and it's not very inevitable for locals and interest people to participate in these events.

In future, more universities will build in the city and many meetings can hold in public spaces for all students and other interest persons.

Second, there isn't organized space for study and learn arts and cultural activities in the city Although a high percentage of the population is young.

Third, there isn't any central and equipped library in city (except university)

By gathering this cultural and artistic functions together, this place can be a good and suitable place for spending time for locals and students and can cause many benefits for society and so city and country.

These places can also increase social interactions in society and help to increase social awareness.

Main spaces are:

- Holding workshops and classes
- Temporary and permanent galleries
- Theater and concert hall and cinema
- Library
- Meeting rooms and seminars
- Coffee and restaurant
- Shopping (book, video,)

Google sketch Up has been used For the drawings of the proposed plan.

B. Proposals for Management

- Give information about former functions and form of building and changes to users.
- Try to make rules for not changing the building in future.
- Monitoring on open plan spaces and decoration of partition walls.
- holding seminars for architecture students about reuse of the building.



Fig. 9. New design for interior, by: Hesam Mosharraf

C. Proposals for Interpretation

As shown in the Figures 9 to 12

- Design new spaces in existing structure system
- Destruction of extensions to the building and interior separation walls
- Change metal plates on facade
- Keep the current form of roof and use for piping, mechanical and electrical systems
- Reconstruction and new design for landscape by attention to remains in the site
- Use from solar panels for reduce energy consumption in roof of building
- Design flexible places for different functions
- Try to transfer the sense of factory and its big space to users by:
 - Flexible partitions in temporary galleries
 - Using transparent materials for better lighting
- Unconnected walls to the roof
- Using bridges in wide space of building to not disconnect the spaces
- Provide maximum view and Wide viewing angle



Fig.11. Interior design ,by Hesam Mosharraf

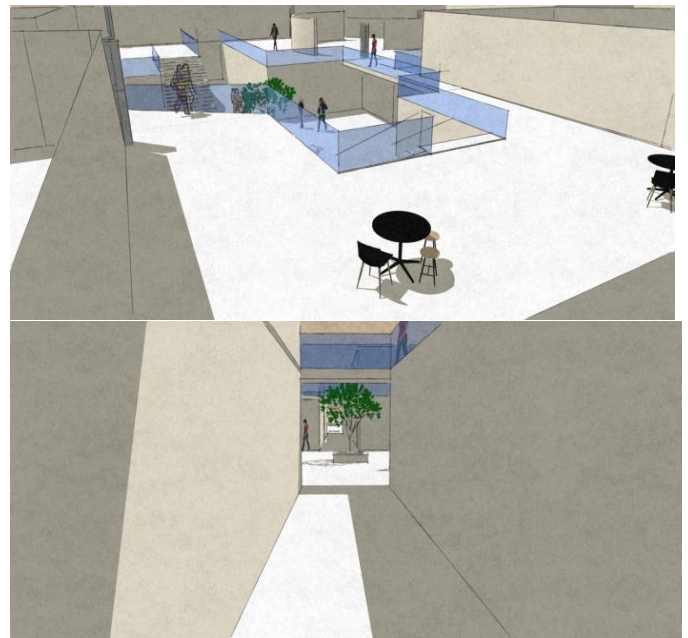


Fig. 12. Interior design for new function, design and drawings: Hesam Mosharraf



Figure 10 interior, by Hesam Mosharraf

IX. Conclusion

In protecting historic and old buildings, less attention is paid to industrial buildings, which are usually outside the city's historical centers. These buildings, which often have large spaces, offer high potential for reuse with new uses in mind.

Renovation of these buildings with new functions has several different benefits. For example, in terms of sustainability, it reduces the consumption of construction materials and the generation of construction waste and, consequently, consumes less energy. In terms of culture and heritage, it helps us to preserve these buildings for future generations, in addition to the genius loci of that

district it preserves the history and identity of the city. Therefore, this kind of renovation has cultural, environmental, and economical benefits. Similar projects can encourage owners and city's decision-makers to preserve these buildings.

To show the potential of these valuable buildings (chips factory), in this project, an attempt was made to maintain and restore the original form of the building, define and design a new function according to its current location and potentials.

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