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# Restoration and refuction problems of Diyarbakır traditional houses

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## ABSTRACT

The traditional urban texture of Diyarbakır is founded in the city walls. The traditional Diyarbakır houses have their own architectural properties, which are shaped with the effect of family structure, economical structure, cultural interaction, city walls, climate, geological structure and building materials. They also take an important place in the cultural heritage context due to their distinctive architectural characteristics. These independent houses that are isolated from the outside are located in a court. The traditional Diyarbakır houses, which are designed as summer, winter and spring places regarding to the effect of climatic factors, are generally formed of a basement, ground floor and the first floor. The basement is the area where the fuel (wood and coal) and foods for winter are stored. The service and living spaces are found at the ground and first floors. The wide entrances (ivans) and the rooms with their sliced, flat arched, quadrangular windows with columns are the building elements, which give movement and richness to the courtyard. While the walls built by basalt stones, the authentic flat roofs of the houses are covered by earthen materials. During the recent years, restoration works are conducted on monumental buildings and traditional houses in Diyarbakır by some state institutions and organizations, and, private enterprises, which enable them to be utilized in today's needs assessment. The most of the traditional houses offer a wide range of usage possibilities take an important place among them. The authentic textures of many of those houses have been destroyed due to the renovation works since 1960s. In these works, mostly additional floor and space constructions conducted by the owners. Deterioration and degeneration of the structures of the houses have increased because of the lack of proper control mechanism and incompetence of the technical staffs, working in this field. A few traditional houses have been restored to reuse with a new public functions by the Ministry of Culture and Tourism, governorship, municipality, non-governmental organizations and individuals. While restoring these houses, some of the wrong implementations have been damaged the authentic texture. As a result of the inspections that have been performed, it has been seen that the new function is directly related with the destruction that may occur. It is understood that the authentic values and cultural persistence are preserved when the functions not forced the original design, comfort level and construction techniques of the houses. Annexes, renovation and modifications destroy the authentic plan of the houses are limited in restoration works conducted by the Ministry and governorship; whereas, needs were taken into consideration during works performed by individuals and non-governmental organizations. Besides, the architectural building elements were also had renovation rather than conservation.

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## 1. Research aims

In this study, the restoration and the refuction problems of the traditional Diyarbakır houses were evaluated. The faults in selecting the functions and the materials, as well as the spatial

arrangements were discussed with given examples and general solutions were proposed.

## 2. Traditional construction and design characteristics of Diyarbakır houses

The traditional urban texture of Diyarbakır is founded in the city walls. As an important building group of the Walled City, the traditional Diyarbakır houses have their own architectural properties which are shaped with the effect of family structure, economical structure, cultural interaction, city walls, climate, geological

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structure and building materials. They also take an important place in the cultural heritage context due to their distinctive architectural characteristics.

### 2.1. Planning

These independent houses that are isolated from the outside are located in a courtyard. The courtyard that is surrounded by rooms, iwan, kitchen, toilet, cellar, barn, etc. usually has a decorative pool. In summer, major part of daily life is spent in the courtyard that serves as a connection between various spaces of the house. Its floor is generally covered with porous basalt (locally called as female stone) and some part of it is organized as a garden as well.

Summer wings in the north have high ceilings and large windows due to long and hot summers. This wing is enlivened with high and splendid iwans and it is the richest courtyard façade of the house. Windows located on winter and spring wings are fewer and flat. To enlarge the space, rooms on the first floor have oriel windows that extend towards the street. The basement is accessed through a few steps down from the courtyard and the household uses it as a service area for storing winter foods and fuels. In some of the houses there are rooms with decorative pool that are arranged for summer time.

Houses of wealthy and extended families are organized in two sections as harem and a part reserved for men. These sections have separate entrances and they are connected inside with a rotating cabinet. In the part reserved for men, there are barns and corners for the horses to be tied in the courtyard.

As a semi-closed space, the iwan, which is generally double centered and has high arches is opened to the courtyard. Providing passage to rooms from the courtyard and cooling in summer time, this is the place where the daily life takes place. It could either have a single span or two or three spans.

### 2.2. Materials

Basalt which is a local material in Diyarbakır is the main construction material of the traditional Diyarbakır houses. This material has different areas of use due to has two types as porous (female) and nonporous (male). Structural component such as floors, walls, or arches are built with porous basalt whereas non-porous basalt is preferred in units such as columns, column heads, or pools. Wooden materials were used in doors, windows, cabinets and partition wall. Metal materials were used in windows and stair rails. In addition to this, local limestone is rarely used in some parts of the houses. Courtyard façades are enriched with decorations made of a special mortar called “Cas”.

## 3. Restoration problems of traditional Diyarbakır houses

There are approximately 450 traditional houses in the Walled City that have survived until today. After 1960s, many traditional houses were destroyed with demolitions and replaced with jerrybuilt, multistory buildings. Original street texture is also disfigured by these buildings that interrupt the integrity of urban texture. These single or group of jerrybuilt buildings that rise among traditional houses disturb not only civil architecture but also monumental architecture.

Awareness of and efforts for conservation of urban texture and cultural properties that make up this texture have been improving. Recently, some public institutions and organizations as well as private entrepreneurs have been funding restoration works on monumental buildings and traditional houses and these structures are reused for fulfilling today's needs. Among these buildings, traditional houses are more predominant with their higher numbers and larger usable spaces [1].

Ministry of Culture and Tourism, Directorate General of Foundations, Governorship, Municipality, Non-governmental Organizations and private individuals restored a few traditional houses and offered to the society for using with new public functions. The houses were conserved but also some wrong applications and assessments have deformed the original structure and this situation caused irreversible consequences.

The problems encountered in restoration of these houses are grouped under the following titles.

### 3.1. Problems of research, assessment and project preparation

Often the building surveys which are basically drawings of the current status of the building could not be fully determined the details of the structure and this problem affect restitution and restoration projects negatively. A project team with non-expert members and their failure to sufficiently recognize Diyarbakır houses, together with the effort of completing the project in relatively short periods preclude production of correct projects. In addition to these problems, comparative analyses are not carried out with other houses in which many original details are conserved. Inadequate literature review makes it more difficult to correctly assess building organization and technique; hence it leads to projects that fall far from the original structure.

### 3.2. Material problem

Material deteriorations occur in traditional houses depending on the duration and type of use. The intervention can be major in houses without regular periodic maintenance and repair. In those applications started based on projects approved by Cultural and Natural Heritage Conservation Regional Board, often personal decisions are made for many details that have been undetected or missed in the project stage and material selection is not paid adequate attention. For example, sufficient care is not taken on the type and section of wood or dimensions and color of woodworks. Instead of recreating the traditional roof even visually, concrete roof or covering with aluminum sheets are preferred. Besides the visually discordant façade, original stone cornices and the stone pendentives on which they stand are removed or destroyed in concrete roof and metal sheet applications.

The inability to determine correct building materials in the project stage and in application works, introduction of non-original solutions for connections such as wood-stone or stone-metal in building elements such as doors, windows, cabinets, parapets, cornices, etc. lead to repugnant material-structure relations.

The most frequently encountered material problems in completion of stone surfaces or repair of a collapsed section are failure to follow the original material type, dimension, and building technique while constructing the new stonewall. Artificial surface image generated by stones prepared in stone factories disaccords with the original texture. Moreover, stone and mortar materials not concocted according to the internal texture also fails to unite with current material.

Most often, original mortar, plaster filling, and pointing materials used on surface and in internal texture walls are not analyzed. The use of cement based or much different mortar materials in restoration works lead to discordance with original materials. Such type of physico-mechanically incongruous renovation materials at same time cause efflorescence (recrystallization of salts on the surface) in original materials due to the salts they contain and consequently lead to damages such as erosion, chipping, or cracking.

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