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The Effects of Conservation Policies on New Buildings Designed in Historical Cities – A Case Study in Göynük, Bolu, Turkey

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Abstract

Sustainability today is an indispensable element that goes into the design and building of any new construction in historic cities. One of the methods to ensure sustainability in historical cities is related with their functions as well as their designs to maintain their identity without damage or destruction – in other words, protecting the relationship between old and new. All related policies and legal regulations developed for this purpose affect the design approaches of new buildings. Also affecting the local policies are the recommendations developed by ICOMOS and UNESCO regarding the characteristics of new buildings to be designed in historical cities. The main purpose of this study is to research how conservation policies affect the design approaches of the new buildings designed in these locations, identify the relationship between the decisions developed by ICOMOS/UNESCO and the local policies, and provide suggestions for developing new guidelines accordingly. In order to test the hypotheses developed in line with the purpose, a field study was carried out in Göynük/Bolu/Turkey. With findings, suggestions provided for developing new guidelines in Göynük/Bolu/Turkey in terms of new building design approaches.

1. INTRODUCTION

Historical cities are special places where society, culture, and history coexist to represent a civilization's past, its development, and the sense of belonging to that society in accordance to different values, such as environmentalism, utilitarianism, functionality, economy and sustainability. For this reason, it is important to conserve and sustain historical cities. Conservation is not only about transferring the past to the present, it also concerns learning and enhancing knowledge about social structure, traditions, culture, construction systems, technologies, materials and building typologies. For these reasons, new buildings to be designed in historical cities should not damage this heritage that will be transferred to the future along with design methods, approaches, and technologies of the era.

The qualitative characteristics of new building designs are mostly identified by the conservation policies developed by the governments and the relevant legal regulations. In most countries, these regulations are based on laws, recommendations, and international agreements created by ICOMOS and UNESCO. Accordingly, these qualitative characteristics based on international charters, agreements, decisions, communiqués, and international agreements are as follows. In detail, they:

- are related to the context;
- correctly identify and interpret the properties of the place;
- do not harm the historical environment;
- include and contribute to the whole of physical and semantic data;
- reflect all kinds of cultural, technological, and vital activities belonging to their own period by making use of this knowledge in the design process and not imitating the existing ones; and

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- create designs with an original value.

For new building designs developed in accordance to a given context to correctly identify and interpret the properties of the place, the followings should be done:

- inventory studies of the historical city;
- determining the relationship between culture and life by identifying their known characteristics;
- revealing the factors behind the physical structuring of the city; and
- identifying and interpreting the features that directly affect the city silhouette, such as height and volume.
-

Additionally, for the new buildings that are expected to contribute to the historical city, the followings are expected:

- increasing the use and the touristic value of the historical city;
- providing capital;
- encouraging design competitions for the new buildings;
- increasing the use-value in different fields, such as education and leisure activities for locals; and
- developing structures that offer alternative uses [1], [2], [11]–[20], [3], [21], [4]–[10].

New designs that do not harm the historical environment have the following qualitative characteristics; they do not:

- harm any part of the heritage concerning the structures to be transferred to the future, such as human history, social, cultural, ideological, and other aspects of information within the city, either as a whole or in part;
- have a misleading effect;
- cause the destruction of existing historical monuments, buildings, urban landscapes, roads, or other elements;
- interfere with the perception of structures located in urban and street silhouettes;
- obstruct the physical features of the buildings, such as the entrances for light and air currents;
- cause the deterioration of information or prevention of its transfer to future regarding the historical urban whole and the features of the structure of that period;
- prevent the land-use of existing structures;
- overflow to other blocks or plots in the vicinity; or
- come into prominence by dominating the qualitative and/or quantitative, physical properties of the buildings in the environment.

Furthermore, they:

- offer new proposals that do not hinder the pedestrian and/or vehicle movement routes throughout the city and allow for the continuation of a smooth traffic flow as before; and
- respect the integrity of the city as a whole along with the rights of its residents [15].

The legal frameworks issued by ICOMOS and UNESCO are binding for all member countries.

2. REGULATIONS AFFECTING NEW BUILDING DESIGNS IN HISTORICAL CITIES IN TURKEY

When various research is analyzed in Turkey related to conservation policies, laws, regulations, and authorization, a relative state of disorder often draws the attention [22], [23]. The negative impact of this chaos can be seen to prevent the studies on new building designs in historical cities. On the other hand, however, certain strict legal measures were taken to protect the existing historical sites. For example, Article 63 of the Turkish Constitution (1982) addresses the issue of conservation of buildings located in urban sites by protecting property and necessitating other regulations to be stipulated for this purpose.

The precise law concerning this matter is the Law on the Conservation of Cultural and Natural Property with the following aims: to provide definitions related to the movable and immovable cultural and natural properties that need to be protected; to regulate the required activities; and to designate the respective duties and authorities in this regard. The authority to determine the conservation areas of cultural and natural properties to be protected, and to decide whether construction can be made in these areas is given to the Regional Council for the Conservation of Cultural Property [24].

It is stated that a conservation-oriented zoning plan should be prepared in the regions declared as protected areas by this law. All forms of intervention in the region are planned in accordance with this plan, which is also prepared to set the boundaries of protected areas based on field research. Such researches include archaeological, historical, natural, architectural, demographic, cultural, socio-economic, property and housing studies to protect cultural and natural assets in line with the principle of sustainability. It includes strategies to improve the social and economic structures of households and work phases in the protected areas; protection principles and conditions of use and construction restrictions; rehabilitation, renovation areas and projects, application phases and programs. All these initiatives are also in accordance with the design principles of the open-space system, pedestrian circulation and vehicle transportation, infrastructure facilities, densities and parcel designs, local ownership models, and participatory area management models; the latter should be considered while preparing the plan in accordance to the Bylaw:14/7/2004 - article 5226/1. Conservation, implementation, and audit offices are established within municipalities and governorships permitted by the Ministry to carry out the procedures and implementations related to cultural assets (Additional paragraph:14/7/2004 – article 5226/4). All kinds of construction and physical intervention in the protected areas are carried out with the permission and inspection of the administrations having conservation, implementation, and inspection offices (Additional paragraph: 14/7/2004 – article 5226/11)[24].

The Conservation-Oriented Zoning Plan and Plan Notes are prepared in accordance with the "Technical Specification", which entered into force as sub-legislation in 2009 [25].

The phases for preparing the Conservation-Oriented Zoning Plan listed in the specification are summarized in Table 1.

Table 1: *Preparation of Conservation-Oriented Zoning Plan*

PREPARATION of CONSERVATION ORIENTED ZONING PLAN	**Research/Data Collection/Identification**	**General Survey**	Administrative Structure
			General Environment Characteristics of Geographical and Physical Structure
			Economic Structures
			Demographic Structure
			Historical Research
			Development Trends/Problems/Possibilities
			The Impact of Previous and Current Plans
		Research Related to the Field of Planning	Administrative Structure
			Historical Research

			Physical and Natural Information
			Information about Conservation
			Research on Past and Current Plans
			Demographic Structure
			Economic Structures
			Physical Space Research
			Ownership Status-Urban Land Values
			Development Trends / Financing Analysis / Top Plan Decisions and Legal Framework
		Research into Buildings/Parcels in the Planning Area and Immovable Cultural and Natural Assets	Research into all Parcels and Structures
			Research into Immovable Cultural Property to be Protected
			Research into Immovable Natural Property to be Protected
		Identification of Opportunities	Problem Formulation
			Identification of Opportunities
			Method
	Research Results and Settings Goals	Synthesis and Analysis	General Environment Characteristics
			Conservation-Consideration on the Planning Process
			Analyze the Buildings
			Analyze the Demographic and Social Structure
			Analyze the Economic Structure
		Aims and Objectives	Socio-economic/Demographic Goals
			Economic Goals
			Physical Space Targets
			Managerial Goals
			Other Goals
	Decisions and Model Production for Implementation of Conservation-Oriented Zoning Plan, Administrative Plan		General Environment Characteristics
			Conservation-Consideration on the Planning Process
			Decisions Regarding Texture, Parcels, Open Space and Streets
			1/1000 Conservation Development Plan
			Managerial Plan

There is no article that affect the new building design approaches, but the decisions taken by the Constitution and Development of High Council of Real Estate Antiquities and Monuments (The Constitution and Development of High Council of Real Estate Antiquities and Monuments fulfills the duties of the High Council for the Conservation of Cultural Property before 1983.) are also valid. In this sense, the decision numbered A-4323 passed in 1983 and 1986 for the city of İzmir Buca can be given as an example. In this decision, detailed rules were established such as parcel size, building depths, building heights, levelling the buildings on sloping land, protrusions and protrusions in the buildings, in what color the window frames and shutters will be painted, and what material the facade coverings will be made of.

In this context, the present study attempts to examine the conservation-oriented zoning plan and plan notes in Göynük in Turkey. The followings include the tasks and intermediary outcomes to be obtained:

- The municipality objectives are set as conservation of the traditional texture that has survived until today; transferring the living conditions to the future by improving them; transforming the conditions into a healthier urban environment; and making decisions that will ensure harmonious structural and spatial development in accordance with texture; preventing uncontrolled changes and transformations, and illegal construction. The Conservation-Oriented Zoning Plans will consider the administrative, economic, socio-cultural objectives in accordance with the future vision of the city.
- Parcels allowed for new construction are defined in the conservation-oriented zoning plans. The rules regarding the new building designs will be set within the plan notes.
- Although it is stated that buildings can be designed with modern techniques and materials, especially in the facade, the characteristics of elements such as size, material, color, texture, building height, interior heights, facade cladding, occupancy space ratios, windows, medallions, openings such as courtyard entrance doors, and cantilever are described in detail within the plan notes. The final result of such an approach to conservation is a replicative design model.

3. NEW BUILDING DESIGN APPROACHES IN HISTORICAL CITIES

The conservation policies of governments and relevant legal regulations affect the design approaches of new buildings in historical cities. For this reason, it is necessary to research the studies on these designs. In this sense, similar results have been obtained in three different studies as follows.

In the research made by Sellers[26] in three different regions of Boston (Back Bay, North End, and South End), it is stated that less restrictive and very restrictive legal regulations give the same results. Moderate restrictions are likely to reveal original designs in the historical environment. However, in such areas, the designers turn to the result-historicist approach for the quick and easy progress of the design.

In another study by Alderson, it has been stated: “Preservation standards supported by a regulatory-enforcement process can protect historic buildings, encourage sensitivity to historic contexts, and allow for new contributions but cannot make less-creative architect more creative or be counted on to bring about outstanding design solutions[27].”

Lastly, in the research by Emre Madran, it can be observed that regardless of whether the regulations are strict or flexible, the renovated buildings appear to preserve their original and historical characteristics [28].

According to studies, there are two different relationships between legal regulations and design approaches, as detailed in Table 2.

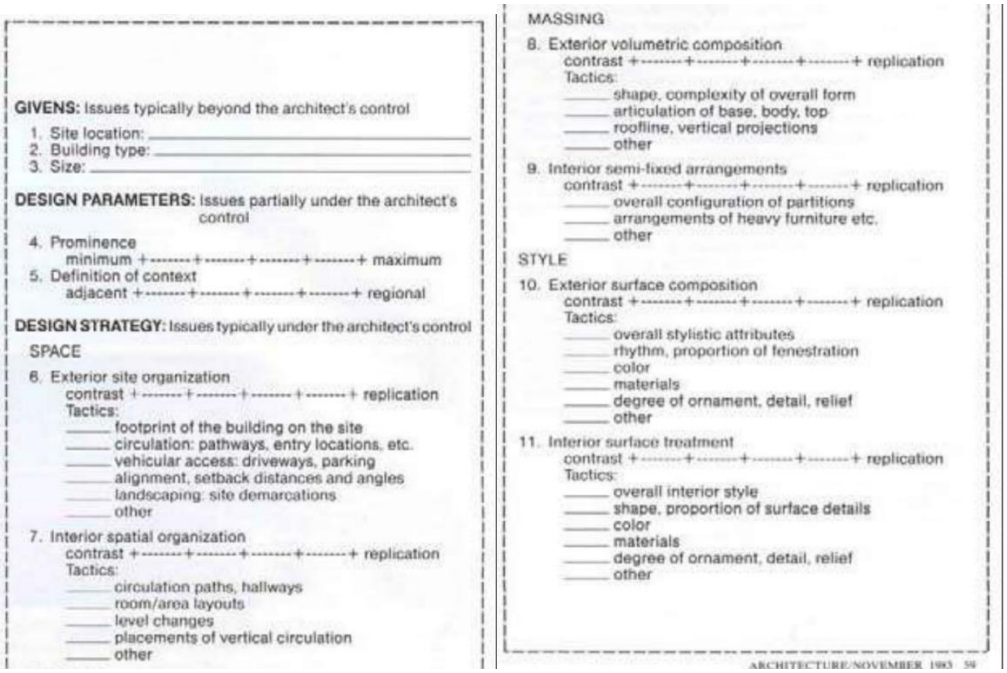
Table 2: *Design approaches and Restrictions of Legal Regulations.*

Design approaches and Restrictions of Legal Regulations	**Restrictions of Legal Regulations**	**Design Approaches**
	Minimally restrictive	Replication
	Moderately restrictive	Replication or Contextual
	Very restrictive	Replication

In other research, different approaches have been defined to classify the buildings designed in historical cities, excluding any legal regulations. For example, four different design approaches were identified for new buildings by the Preservation Alliance for Greater Philadelphia[29]:

- Literal Replication: Replication prioritizes compatibility and minimizes differentiation. This strategy will likely sustain the character of an existing setting so long as the historical elements to be replicated are well-understood, the technical means to effect replication are available, and the scale of replication is modest relative to the original building.
- Invention within a style: This strategy, while not replicating the original design, adds new elements in either the same or a closely related style, sustaining a sense of continuity in architectural terms. The intention is to achieve a balance between differentiation and compatibility and, yet, remain close to the latter.
- Abstract Reference: The third strategy seeks to make reference to the historical settings while consciously avoiding literal resemblance or working in a historical style. This approach seeks to balance differentiation and compatibility, but with the balance tipped toward the former. This is a difficult strategy to execute because it requires artistry and skill that are not often available.
- Intentional Opposition: The fourth strategy is one of conscious opposition to the context and the determination to change its character through conspicuous contrast, prioritizing differentiation at the expense of compatibility.

In the research by Groat, a series of approaches that can be listed for replication and contrast can be rated[30].



GIVENS: Issues typically beyond the architect's control

1. Site location: _____
2. Building type: _____
3. Size: _____

DESIGN PARAMETERS: Issues partially under the architect's control

4. Prominence
   minimum +-------+-------+-------+-------+ maximum
5. Definition of context
   adjacent +-------+-------+-------+-------+ regional

DESIGN STRATEGY: Issues typically under the architect's control

SPACE

6. Exterior site organization
   contrast +-------+-------+-------+-------+ replication
   Tactics:
   _____ footprint of the building on the site
   _____ circulation: pathways, entry locations, etc.
   _____ vehicular access: driveways, parking
   _____ alignment, setback distances and angles
   _____ landscaping: site demarcations
   _____ other
7. Interior spatial organization
   contrast +-------+-------+-------+-------+ replication
   Tactics:
   _____ circulation paths, hallways
   _____ room/area layouts
   _____ level changes
   _____ placements of vertical circulation
   _____ other

MASSING

8. Exterior volumetric composition
   contrast +-------+-------+-------+-------+ replication
   Tactics:
   _____ shape, complexity of overall form
   _____ articulation of base, body, top
   _____ roofline, vertical projections
   _____ other
9. Interior semi-fixed arrangements
   contrast +-------+-------+-------+-------+ replication
   _____ overall configuration of partitions
   _____ arrangements of heavy furniture etc.
   _____ other

STYLE

10. Exterior surface composition
    contrast +-------+-------+-------+-------+ replication
    Tactics:
    _____ overall stylistic attributes
    _____ rhythm, proportion of fenestration
    _____ color
    _____ materials
    _____ degree of ornament, detail, relief
    _____ other
11. Interior surface treatment
    contrast +-------+-------+-------+-------+ replication
    Tactics:
    _____ overall interior style
    _____ shape, proportion of surface details
    _____ color
    _____ materials
    _____ degree of ornament, detail, relief
    _____ other

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***Figure 1**. Study to determine the design approach proposed by Groat[30].*

Other approaches have also been defined in the research by Aydın [31], Baydarlıoğlu [32]**,** Velioğlu [33], and Yıldırım [34], as brought together in one scheme in Figure 2.

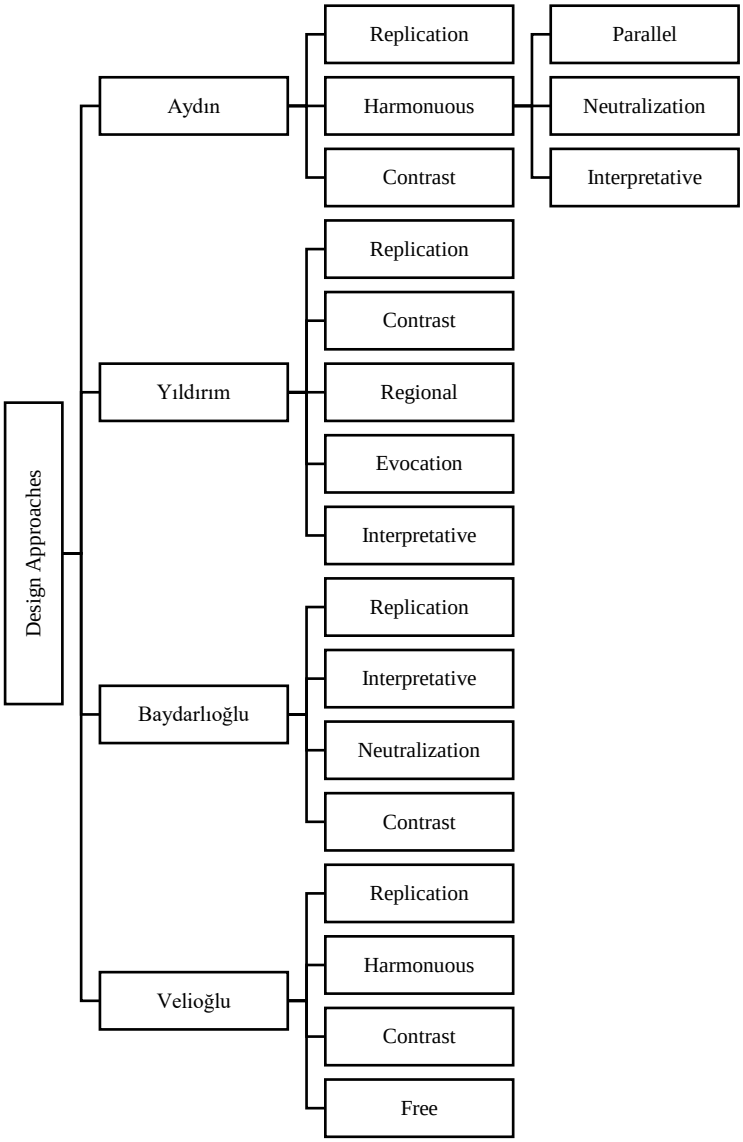


Figure 2: *Different studies on design approaches proposed by Aydın [31], Baydarlıoğlu [32], Velioğlu [33], and Yıldırım [34].*

4. METHODOLOGY

This research is based on the general hypothesis that legal regulations provide the framework for replication designs in Turkey, the case in point being the buildings in Göynük historical city. Based on this hypothesis, the following sub-hypotheses have been developed. In detail, policies developed with conservation priority in Turkey take precedence over the new building designs; do not prevent illegal construction; and cause the newly designed structures to become either a replication of, or very similar to, the original structures. In the latter case, however, the regulations and the general practice contradict the principles set forth by ICOMOS and UNESCO.

For this research, as stated earlier, the Bolu/Göynük urban protected area was selected because the latest legal regulations regarding the area were prepared in 2016, and that various other studies have already been carried out regarding this location.

Figure 3 represents the field study phases. In addition, a method was developed to define the design approaches for the new buildings designed in Bolu/Göynük, as introduced in Table 3, based on Groat's method which appears in Figure 1. In table 3; the replication shows that the new building has the same

features with the historical buildings on the street silhouette. The free-design approach shows that the new building is completely unrelated to the historical buildings on the street silhouette.

In the preliminary studies, it was determined that residential buildings are dominant in the region. For this reason, the method was applied on residential buildings. The residential architectural elements in the region are listed. The total score was obtained by evaluating the items one by one. The score obtained shows which design approach the new building is related to.
Some of the elements in Table 3 may not be in the building. For example, if a garden wall is not mandatory in accordance with the Conservation Zoning Plan and the examined building does not have a garden wall, it is excluded from the evaluation.

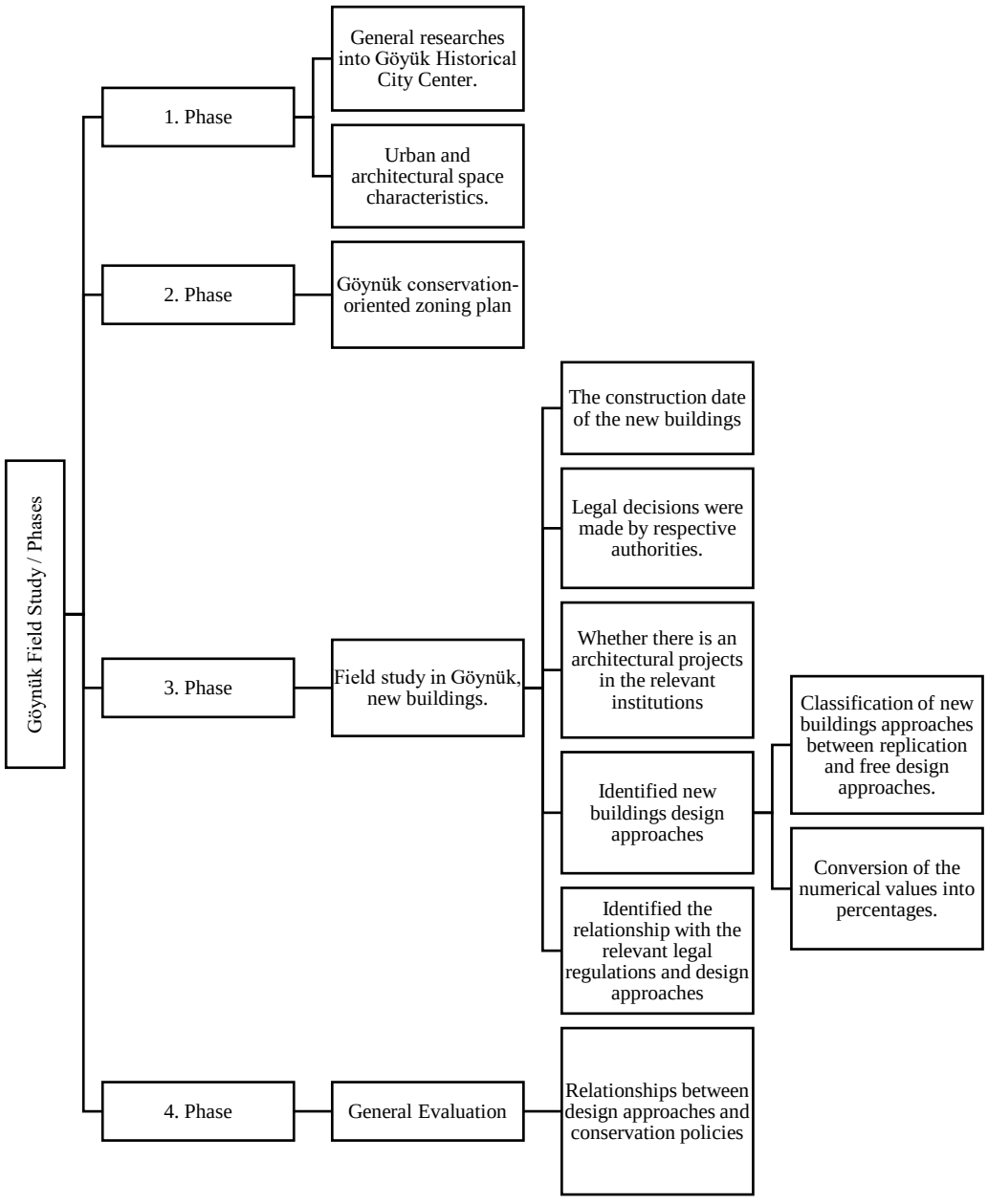


Figure 3: *Göynük Field Study/Phases*

Table 3: *Defining the new building design approaches in the protected area.*

Defining Design Approaches	
Design Characteristics	**Design Approaches**

		Replication					**Free**
		5	4	3	2	1	0
The Mass	Shape/Form						
	Shape direction (horizontal, vertical, angular)						
	Rhythm						
	Height						
	Volume						
	Location						
Roof Design	Shape/Form						
	Angle of gradient						
	Dip direction						
	Colour						
	Shade						
	Texture						
	Material						
Openings (windows, doors, others)	Shape/Form						
	Shape direction (horizontal, vertical, angular)						
	Rhythm						
	Dimension						
	Colour						
	Shade						
	Texture						
	Material						
Facade	Colour						
	Shade						
	Texture						
	Material						
	Ornamental elemts						
Garden Wall	Height						
	Colour						
	Shade						
	Texture						
	Material						

5. RESEARCH INTO THE EFFECTS OF CONSERVATION POLICIES ON NEW BUILDINGS IN GÖYNÜK

5.1 Göynük Protected Area and New Building Policies

Göynük has been an active location throughout history, particularly during the Hittites, Phrygians, Bithynia Kingdom, and Byzantium. During the military expeditions to the east and southeast by the Ottomans, it served as a supply and accommodation center [35], [36]. The city has been continuously renovated since the beginning of the Turkish Republic in 1923, and has been one of the historical cities that has survived to the present day [37]. For this reason, most of the Ottoman and Republic-era buildings in the city have survived until today.

The city, which was established in a mountainous area rising from the valleys to the hills, was shaped by the effects of topography.

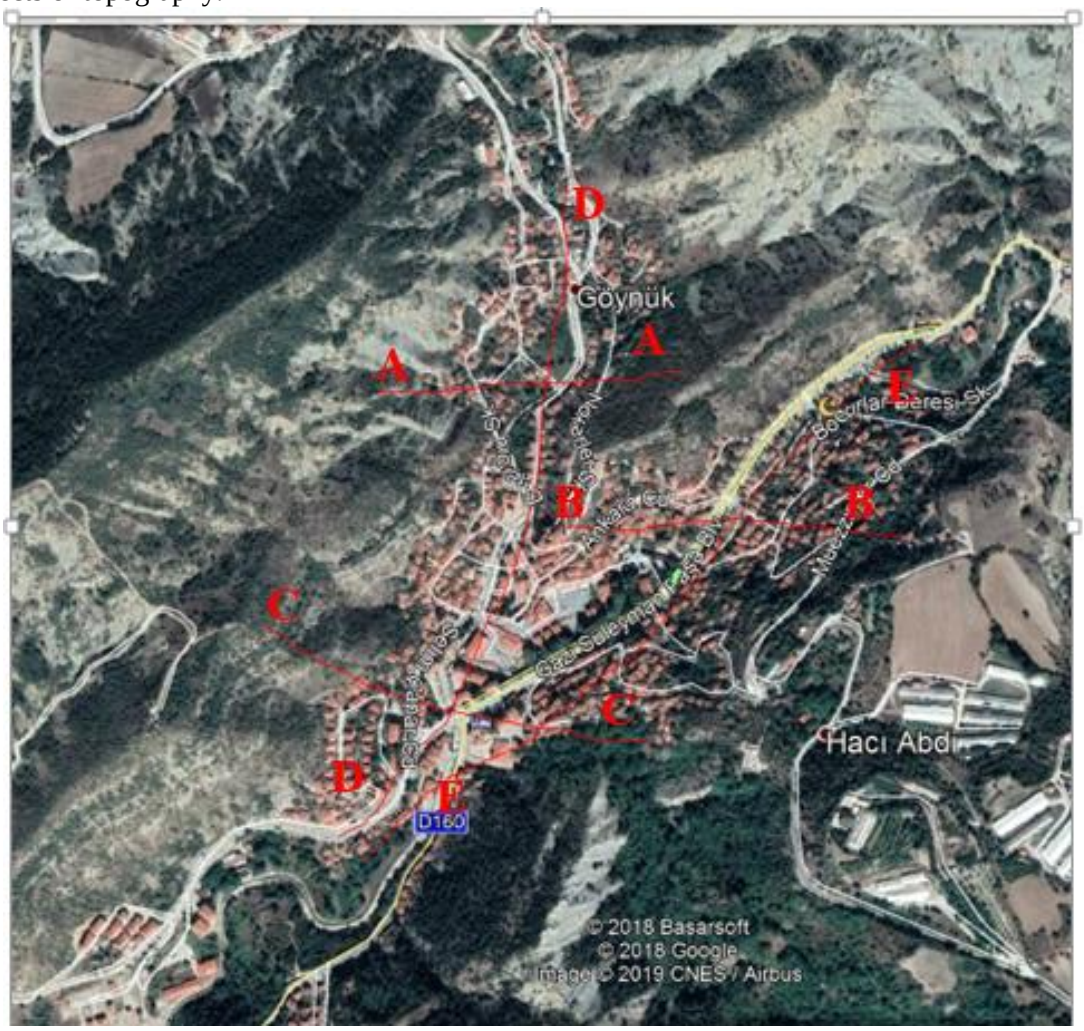


Figure 4. *Göynük/Google Earth (Aerial view was taken on 28.10.2019 on Google Earth).*

The five sections of the city, as seen in Figure 4, are detailed in Figure 5. The city has an average height difference of 80 meters in the east-west direction and 30 meters in the north-south direction. There is an 80-meter height difference in the east-west direction and 30 meters difference in the north-south direction. For this reason, the city is more suitable to be built in the north-south direction.

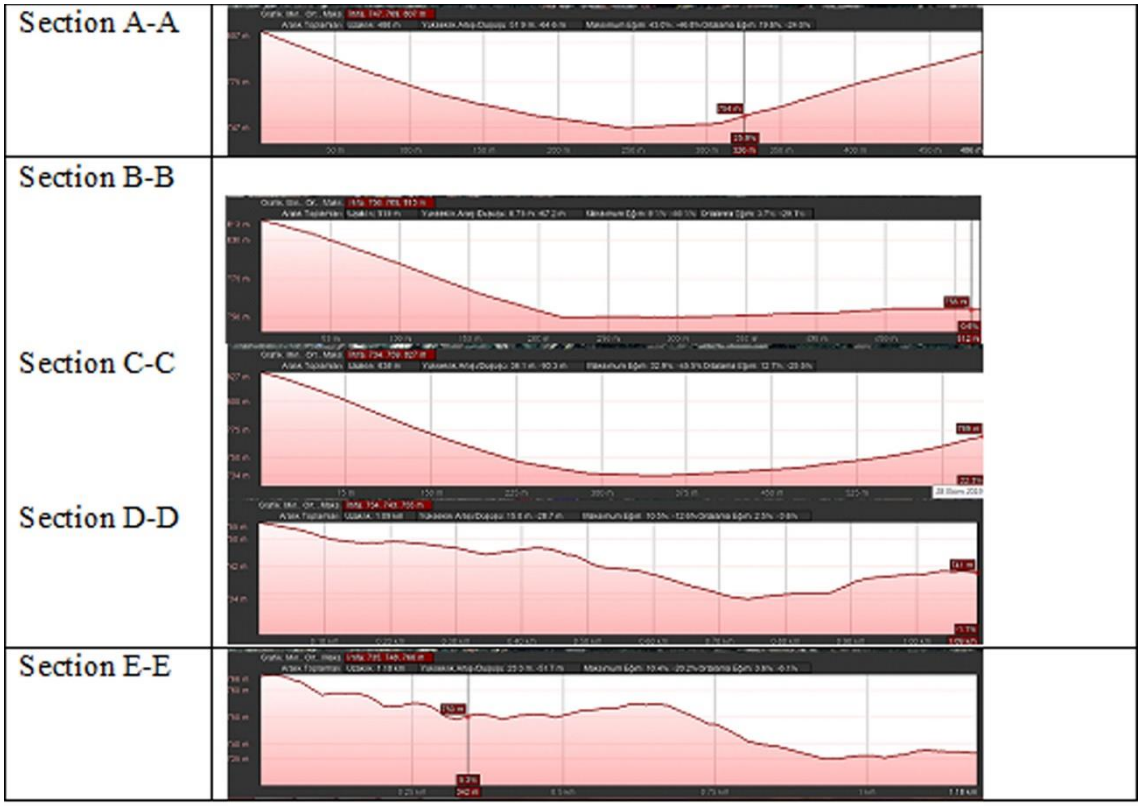


Figure 5: *Göynük City Sections (A-A, B-B, C-C, D-D, E-E) (Sections were taken on 28.10.2019 on Google Earth).*

5.2 Urban And Architectural Characteristics Of Göynük

The protected area is in the valley at the intersection of the surrounding mountains, and it is divided in two by a river that passes through the settlement center on a north-south axis. While the city is shaped like a "V", most of the buildings do not block each other due to the topography.

Figure 6*. West of the Beşir Bayraktar Street, Göynük (The photo was taken by the author.).*

Figure 7. *Panoramic view of Selim Çapar, Beşir Bayraktar and Istanbul Street intersection, Göynük (The photo was taken by the author).*

Mosques, baths, educational centers, and administrative buildings that are open to public are located at the intersection point of the "V" form, where the valleys meet. Houses move from the riverside towards

the hills. The housing areas mostly appear on the slopes of the hills, at the bottom of which public buildings appear. Mosques are scattered throughout the housing areas, whereas commercial functions are mostly at the city center.

Although Göynük has been active throughout different periods, the buildings post the Ottoman and the Republic eras are dominant in the architecture. In the research conducted by Erdem (2016), the houses are listed as belonging to three different periods:

- Traditional houses that can be considered as Ottoman houses built in the 19th and early 20th centuries during the transition to an industrial society;
- Houses made of stone and wood in traditional style and similar plan schemes between 1930 and 1970; and
- Reinforced concrete houses which are mostly against the urban scale and traditional architecture [38].

Traditional houses in Göynük are shaped in accordance to the topography. For this reason, entrances are mostly provided at two different elevations, with the one at the lower level serving as the main entrance.

Figure 8. *An example of a house with two entrances at two elevations in Göynük (The photo was taken by the author.).*

The houses are mostly shaped in an attached order in line with the topography and across the hill slopes, providing privacy as well as sufficient sunlight and air currents. There are also fully detached parcels with independent gardens and layouts.

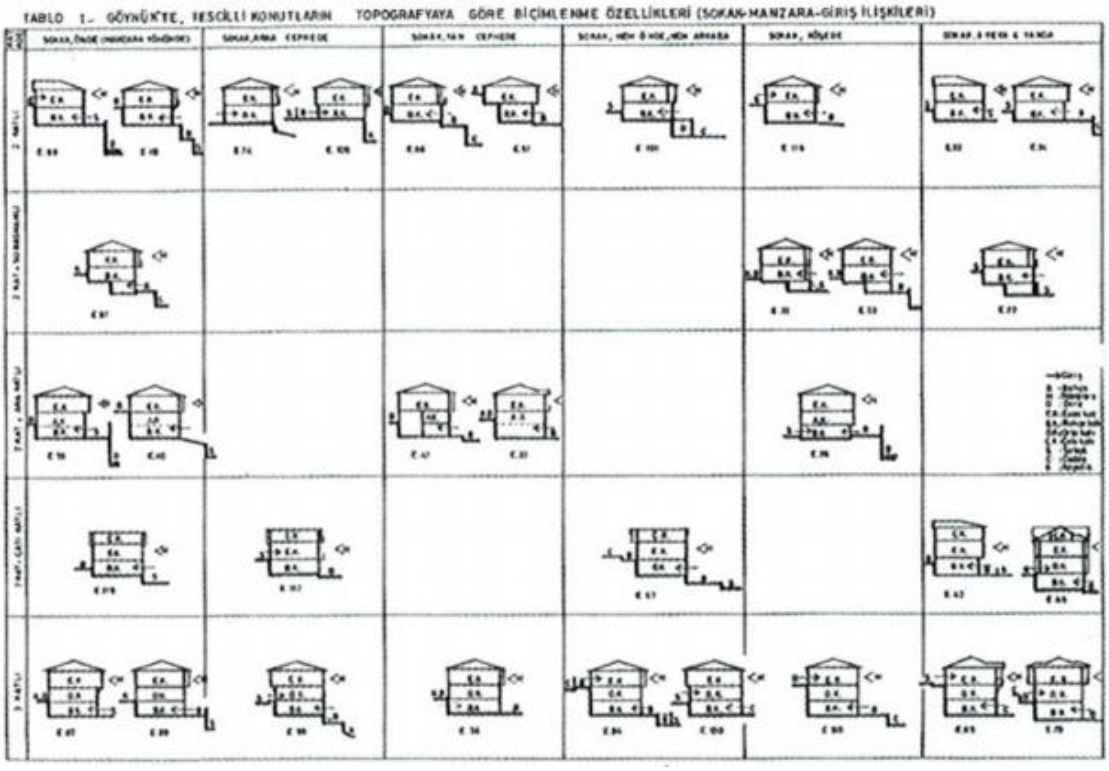


Figure 9. *Different shapings according to topography in Göynük [38].*

In addition, the plan typology of most historical houses in Göynük are buildings that have developed in relation to climatic factors. Housing types with interior and exterior sofas, which are shaped according to whether the hall is open to the outside or closed, draw the attention more. In such houses with wide facades, the sofa is placed in the background between the room cantilevers. In the examples with interior halls where the hall is located perpendicular to the street, it is seen that there is cantilever on both the street and the backyard facades [37].

Figure 10. *Traditional Göynük Houses facades (The photo was taken by the author.).*

Figure 11. *Traditional Göynük Houses facades (The photo was taken by the author.).*

5.3. Conservation Policies And Conservation Operating Zoning Plan In Göynük

Bolu and its surroundings have been among the most important cities in Turkey since the Ottoman era. However, the development of conservation policies and plans started rather late. In the research by Yanaşık [39], the first zoning plan prepared by the Municipality of Bolu dates back to 1951, and the second zoning plan took place in 1963. A new zoning plan was prepared in 1985 which underwent revisions until 2016, at which point a new and final plan was ratified.

In all, three thorough development plans were prepared for the city and three conservation decisions were made which are not very different from each other in terms of content. With the 1951 zoning plan, the Istanbul-Ankara Highway (Gazi Süleyman Pasha Boulevard) was passed through the city. As a result, the traditional city structure was heavily damaged. Because of the objections of the local people of Göynük who reacted to the demolition of their houses, the plan was eventually re-arranged and the highway diverted as a beltway. The second development plan was prepared in 1976 but was not implemented for the same reasons. In 1983, 1987 and 1990, inventory registrations were carried out in Göynük by the Constitution and Development of High Council of Real Estate Antiquities and Monuments, High Council for the Conservation of Cultural Property and the Ankara Cultural Heritage Preservation Board, respectively.

In the announcement by the Ministry of Culture and Tourism, Real Estate Antiquities and Monuments High Council, dated 14.05.1983 and numbered 4373, the existing buildings in Göynük were surveyed and the district center was declared an urban protected area [40]. The boundaries of the site were marked, and the decision was made to prepare a conservation plan. The third development plan prepared for the city, "Göynük Zoning Plan Including Göynük Conservation Oriented Zoning Plan" entered into force in 1991[38].

The main focus of development in Göynük has been tourism-oriented, and the city applied for Cittaslow candidacy in 2015 which has secured a place for Göynük on that list.

In her research in 2015, Dikmen draws attention to the fact that the historical texture of Göynük has been damaged by reinforced concrete structures. The study also emphasizes that especially new buildings should not be built against the urban fabric and, instead, they need to be constructed away and outside such areas [37]. Additional and Revision Conservation-Oriented Zoning Plan and plan notes were prepared in 2016 to take various new decisions and policies, the latter identified under the following headings in the Göynük Conservation-Oriented Zoning Plan (2016).

Suggestions should be offered to ensure the conservation and use of the uniqueness, architectural and environmental values of the traditional trade zone, traditional residential areas, street textures, squares, etc. (monumental building, road, residence, garden, square, garden wall, original inn, arasta, shop, landmarks….) which are located in the planning area, constituting the urban complex from the Ottoman period to the present day;

- It is necessary to ensure the continuity of the existing local social fabric in the area;
- The traditional center and its surroundings should be re-functionalized in accordance with the structuring conditions in the regions specified in the plan;

- The traditional way of life in the city should be maintained and preserved as a tool to further boost the economic prosperity of the people, to raise their living standards, and to protect the urban texture;
- To ensure that the traditional housing area is not abandoned, it is necessary to make suggestions to increase its usage with functions;
- Handicraft products, agricultural production and local traditions in Göynük should be organized into an economic activity area for the development of Göynük; and
- It should be ensured that different stakeholders are brought together in line with participatory planning in order to direct the conservation initiatives in the city.

When the Conservation-Oriented Zoning Plan is analyzed, three main axes can be seen used for transportation from the city to Istanbul, Ankara and Bolu. These axes intersect at the city center, with the main one being Gazi Süleyman Paşa Boulevard. The holistic structure of the city has been preserved in the plan. In the center, there are mainly public spaces such as bazaars, mosques, baths, squares, accommodation areas, commercial areas, and administrative buildings. The commercial areas and accommodation areas continue along the Gazi Süleyman Paşa Boulevard. Figure 11, and Figure 12 are views from the Göynük city center.

Figure 12. *Göynük City Center (The photo was taken by the author.).*

While the number of registered buildings was 127 in the survey dated 11.05.1990 and numbered 1222, the 2016 Conservation-Oriented Zoning Plan[41] registered a total of 158 buildings (7 mosques, 3 tombs, 2 graves, 1 bathhouse, 1 clock tower, 3 administrative, 3 fountains, 1 cemetery, 7 workplaces, 1 inn, 2 trees and 127 houses)[41]. In the Plan, the buildings are divided into different groups to indicate the conservation status of the buildings and the possible interventions[41], as follows:

- Building density and building properties are to be preserved; and
- The building features and densities will also be regulated.

In the plan notes, it is allowed to protect registered buildings with a restoration project, suggesting that the ruins should be re-built first, followed by surveying, restitution and restoration projects or to follow the foundation traces and adjust to the traditional appearance of the whole street [41].

The new construction principles for new buildings are identified in the Conservation-Oriented Zoning Plan and Plan Notes, as follows:

- It is possible to build more than one building in a parcel, provided that the total allowed building area does not exceed the limits set for that parcel. The distance between the two buildings should be at least 6m;
- Building in parcels that do not have a road front is subject to obtaining the required permit;
- In case of demolition and renewal of the existing parcels or new parcels in the commercial zones, these activities can be carried out within the limits of the parcel itself without a minimum size. For new allotments in housing areas, however, the smallest parcel size should be at least 180 square meters.

- In the housing areas recommended as free layouts, the allowed building area ratio is 0.75. Outbuildings are not included in the total building area. However, the allowed building area is not applicable if new buildings with the same floor area are built instead of old buildings. The allowed building area ratio in the trade zone is 1.40;
- The eaves elevation on each facade of any building to be built on flat or inclined land cannot be more than 9.50 meters from the lowest point of the building on the ground. The sub-basement height is included in the eave's elevation. The maximum number of floors in buildings is three;
- Hipped or gable roof covers are allowed with a maximum slope of 33%. The eaves width should be at least 30 cm. The floor cannot be designed using the roof slope. Turkish- or Marseille-type tiles must be used for roof cover;
- The window types of houses must be of the narrow type as 1/2 in terms of the width-to-height ratio and wide type by 1/1. The duty cycle is 1/3 in houses with both types of windows. Only one of these two types of windows can be used in each building. The narrow side of the narrow windows must be between 60-80 cm, and the width and height should be between 100-130 cm in wide-type windows. The window parapets must be 60-70 cm distance from the top of the floor, and the windowsills must be 8-12 cm wide;
- The width of the cantilever starting from the ground floor must be maximum 110 cm, and the cantilever length must be maximum 2/3 of the facade length. The cantilever can be made throughout the entire facade;
- It is preferable to make a recessed balcony. The depth of these balconies cannot exceed 150 centimeters and the width cannot exceed 1/3 of the facade length. Narrow-type windows (1/2 ratio) must be used on the inner surface of the balcony; and
- It is mandatory to apply wood coating or plaster on the facade cladding. The facades must be painted with white or any other color in light hue.

5.4 The Effects Of Conservation Policies On New Buildings In Göynük

One-hundred-and-four brand new buildings were identified in the Göynük Protected Area. These buildings are marked with purple in the Conservation-Oriented Zoning Plan in Figure 13.

Figure 13. *Brand new buildings identified in Göynük [41].*

The field study was carried out in two phases. In Phase One, general information about the buildings, date of constructions and related administrative decisions were researched. Date of construction, whether it was designed before or after the conservation-oriented zoning plan; whether there is a legal decision about it; whether an architectural project has been prepared for the building; whether there is a illegal. In Phase Two, the new building design approaches were defined, as reflected in Table 5, to see their conformity with the respective decisions and regulations.

In Phase One, the following results were obtained:

- The construction dates of 25 of the new buildings are unknown;
- Of the total 104 buildings, 76 were built prior to the Conservation-Oriented Zoning Plan prepared in 2016;
- The buildings with unknown construction dates are illegal structures;
- According to the information obtained from the Ankara 1st Regional Council for the Conservation of Cultural Property, only 18 buildings have been registered out of 104, for which there is no record whatsoever except for their municipality registration; and
- Most of the 104 buildings (19%) were built between 1960-1970. Thirty buildings were constructed between the 1963 and the 1991 zoning plans, and 21 between the 1991 and the 2016

zoning plans. After the Conservation-Oriented Zoning Plan prepared in 2016, 3 buildings were built.

The design approaches adopted for the new structures are given in Table 4 and Table 5.
In table 4 X shows the construction dates of new structures. Y shows the design approach. "100" represents the similar and "0" represents free design approaches. The dots represent the new structures being researched. In table 5 X shows design approaches. "100" represents the similar and "0" represents free design approaches.

***Table 4**. Design approaches of new buildings with a construction date.*

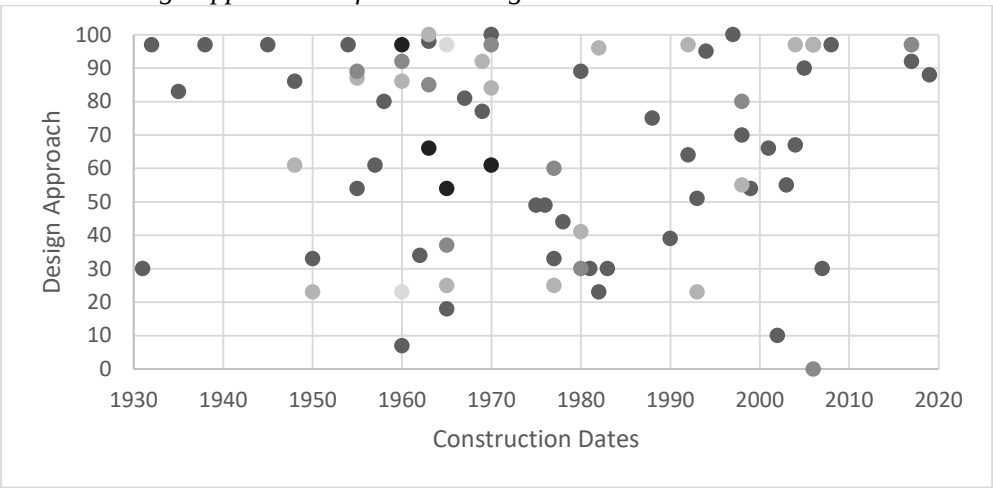
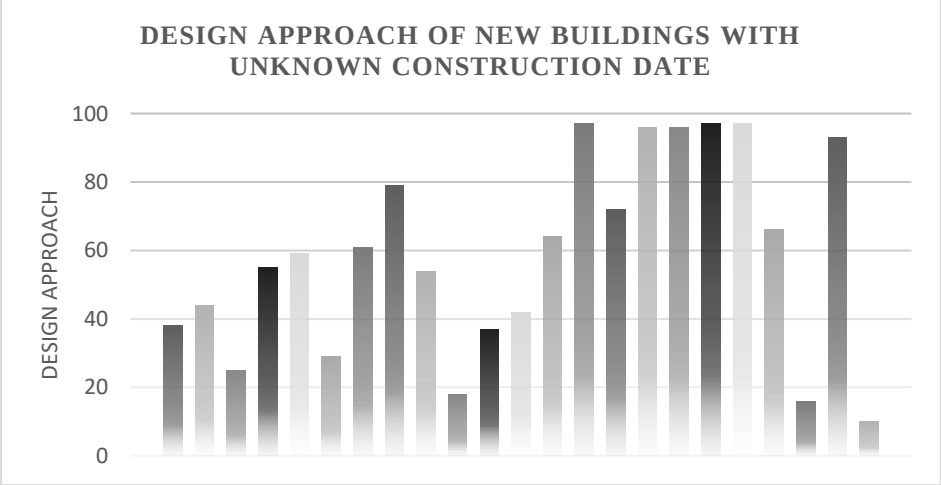


***Table 5.** Design approaches of new buildings with no construction date*



The following observations can be made upon the examination of Tables 4 and 5:

- The new buildings constructed after the last Conservation-Oriented Zoning Plan (2016) were designed with the replication approach;
- There is a variety between the replication and free-design approaches of the new buildings built between the first Conservation-Oriented Zoning Plan (1991) and the last one (2016);
- Between 1970-1991, most buildings were constructed rather based on a free-design approach;
- Between 1950 and 1970, buildings rather based on the replication-design approach, at the midpoints of free and replication design approach, and close to free-design approaches were built in approximately similar quantities;
- Buildings close to the replication design approach were built between 1930-1950; and
- There is an uncertainty in the design approach of the buildings whose construction date is unknown.

Table 6*. Examples of new structures analyzed in Table 4 and Table 5.*

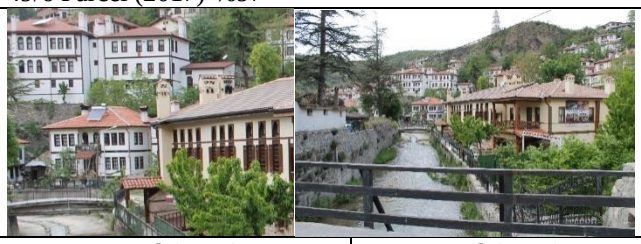
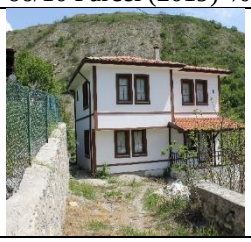
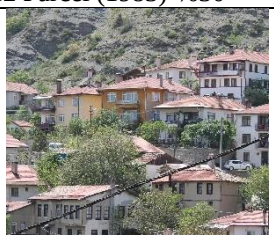
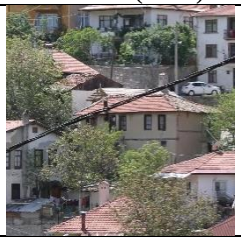
Examples of new structures analyzed in Table 4 and Table 5.			
2016 onward	49/6 Parcel (2017)-%97		66/10 Parcel (2019)-%88
			
1991-2016	128/1-2 Parcel (1998)-%70	60/4 Parcel (2002)-%10	27/9 Parcel (1980)-%98 – 27/11 Parcel (1993)-%51
			
1991-1970	27/7 Parcel (1975)-%49	69/12 Parcel (1983)-%30	99/2 Parcel (1970)-%61
			
1970-1950	96/8 Parcel (1960)-%23	49/13-12 Parcel (1957)-%61	47/2 Parcel (1969)-%92-
			
	65/4 Parcel (1948)-%61	58/8 Parcel (1938)-%97	2/34 Parcel (1932)-%97
1950-1930			
	12/68 Parcel-%25	24/2 Parcel-%18	65/2 Parcel-%96
Unknown-construction-date building			

Table 7. *A comparison of the conservation policies affecting new constructions with the field study results.*

Conservation policies (2016)	**Field study results**	
Develop conservation-priority suggestions.	+	The recommendations provided address the policies in full and are kept to a minimum.
Functionalize the traditional center and its surroundings.	+	The square has been opened to new functions.
Prevent the construction of illegal new buildings.	+	The number of buildings with unknown construction date and built illegally is 23.
Ensure that new building designs follow those of historical buildings.	+	The majority of new buildings are designed in the similar design approach or close to that.

6.CONCLUSION AND RECOMMENDATIONS

The hypothesis proposed by the present work concerning regulations directing the overall replication designs in Göynük, Turkey, is evaluated with the following headings. The policies developed with conservation priority take precedence over the new building designs; do not prevent illegal construction; cause new structures designed to be replicative or very similar; and, in this context, contradict with the principles set out by ICOMOS and UNESCO.

In line with the results of the research, the hypothesis is analyzed in the Table 8 with explanations.

Table 8. *Analysis of the research hypothesis*

Analysis of the research hypothesis		
Regulations govern the replicative designs in Göynük.	**Supported**	**Explanation:** All the new buildings designed after the Conservation-Oriented Zoning Plan prepared in 2016 were designed with the replicative design approach. The design approaches of the new buildings built before this year or illegally are varied.
Policies developed with conservation priority in Göynük take precedence over the new building designs.	**Supported**	**Explanation:** The number of new buildings designed after the Conservation-Oriented Zoning Plan prepared in 2016 is less than in other periods.
Policies do not prevent illegal construction	**Not supported**	**Explanation:** There is no illegal building constructed after 2016.
Policies and consequences conflict with the principles set out by ICOMOS and UNESCO	**Supported**	**Explanation:** It has been observed that the policies developed in order not to damage the historical city affect the designs of the new buildings and cause their designs to be similar with the historical buildings. This conservation policy developed in Turkey conflicts with UNESCO and ICOMOS regulations.

In general, it can be stated that the policies developed with the Conservation-Oriented Zoning Plan prepared in Göynük in 2016 have been effective in preventing illegal buildings and protecting the city. Additionally, the design processes and approaches adopted for the new buildings are directly defined by articles; in particular, the facade designs are defined in detail.

On the other hand, the policies, laws, regulations and arrangements in this respect should be adjusted in a way that the new buildings reflect the historical characteristics of the intended era while being recognizable as a new construction. For this purpose, and as a method, the characteristics of the city that need to be protected should be defined by respective authorities. Rules need to be rearranged in line with these principles to allow the new buildings to reflect the design approaches and technologies of the period. In this context, it is recommended that new regulations are set in line with ICOMOS and UNESCO on this matter.

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