

Tuğba Şen\*

Gülşen Dişli\*\*

## A Model Proposal for the Analysis of New Exterior Additions to Historic Buildings

### Propozycja modelowa analizy elementów dobudowywanych do budynków zabytkowych

**Keywords:** new additions, historic buildings, Turkish bath, historic context, model proposal, historic preservation

**Słowa kluczowe:** nowe dobudowy, budynki zabytkowe, łaźnie tureckie, kontekst historyczny, propozycja modelowa, konserwacja zabytków

#### Introduction

Historic buildings are important components of the social, cultural, and economic life of the region in which they are located. Therefore, it is important “to protect them as well as to develop, manage, and pass them on appropriately to future generations” [Kozień 2020, p. 7]. Nevertheless, technological developments, changing comfort conditions, lifestyles, and new needs may lead to the adaptive reuse of historic buildings [Węclawowicz-Gyurkovich 2020]. Accordingly, the new function may result in the need for a new interior or exterior space. Natural disasters, social, economic, cultural, and even political changes can lead to different types of new additions [Al-Jameel and Saffo 2011; Dibner and Dibner-Dunlap 1985]. According to Tanaç Zeren [2010], two main reasons for new additions are “the new space formations required by the new functions as a result of the repair work, and the need for functional and structural integration in damaged historic buildings.” She summarized six different types of additions as: Roof additions, facade additions, transitional elements between two

structures, fire escapes, eave additions, and facade renovations including additions and integrations. Guzmán Torres [2009] studied the relationship between historic buildings and their new additions in terms of mass/volume, material, and surface characteristics. Similarly, Yüceer and İpekoğlu [2012] analyzed the new exterior additions and developed an evaluation method based on the basic material aspects of the building, including context and environment, site, mass, facade, and value analysis. Yavuz and Yıldırım [2020] studied new additions to old buildings based on international regulations and basic design criteria.

In contrast to the existing literature, this study develops more comprehensive, holistic evaluation criteria based on a numerical evaluation system that helps the owner, contractor, regulatory bodies, or architects to determine the compatibility of a new addition with the characteristic features of preexisting building fabric before and during the renovation process. Verbal and abstract statements about new additions can be made concrete by evaluating results, which is important for the decision-making process.

\* M.Sc. Arch., Faculty of Fine Arts and Architecture, Necmettin Erbakan University, Konya

\*\* Assoc. Prof. Ph.D., Faculty of Fine Arts and Architecture, Necmettin Erbakan University, Konya

\* mgr arch., Wydział Sztuk Pięknych i Architektury Uniwersytetu im. Necmettina Erbakana w Konyi

\*\* dr, prof. uczelni, Wydział Sztuk Pięknych i Architektury Uniwersytetu im. Necmettina Erbakana w Konyi

## Methods

In this study, the design criteria for new additions identified by different researchers [Al-Jameel and Saffo 2011; Dibner and Dibner-Dunlap 1985; Dişli 2018] were brought together and some basic criteria were established by reviewing the literature and national/international standards on conservation principles. The developed analysis method consists of six-level evaluation measures with different scores, totaling 100 points, which were tested on a group of selected historic baths in the Marmara region, Turkey. These include; Location of the new addition (score: 20), Theoretical approaches (score: 10), Relationship between the new addition and the historic context, (score: 20), Formal criteria for the design of the new addition (score: 20), Relationship between the new addition and function (score: 10), Compatibility of the new addition with national and international standards (score: 20). The new exterior additions with a score of 50 or more were rated as acceptable. A score of 50–60 was rated as fair/adequate, 60–70 was rated as moderate, a score of 70–80 was rated as ideal/good, and a score of 80 and above was rated as very compatible new additions. A score below 50 was rated as an unacceptable design. As Mikulski [2019] noted, “source materials provide information about the subsequent fate of a building.” Therefore, old drawings and photographs of example buildings

obtained from government agencies were carefully examined. Two preservation architects first developed the method for use by preservation experts. To ensure the objectivity of the study, two other architects, who are very knowledgeable about new exterior additions, reviewed the developed method and the resulting assessments for their suitability. After mutual discussions among these four researchers, the study took on its final form. This proposed method is based on scientific evidence and contains many technical terms, sub-criteria that allow for a largely objective assessment, and graphical explanations so that the results may not vary greatly from person to person.

### Analysis of the location of new additions

There are five different design options for the placement of new additions to historic buildings: rear, front, side, roof additions, and preventive roofing for archaeological sites. If the new addition is less obtrusive and different in size and scale from the existing structure, it is accepted as a respectful approach [Technical Preservation Services n.d.]. Therefore, the rear addition, which is the least noticeable compared to the historic building, received the highest score, while the front addition, which is more prominent and obscures the historic building, received the lowest score. The basic

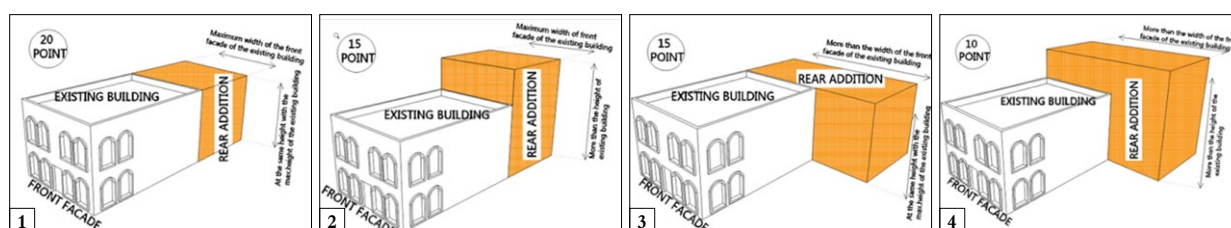


Fig. 1. Assessment of rear additions and their various scores; by the authors 2021.

Ryc. 1. Ocena dobudów tylnych i ich punktacja; oprac. autorzy 2021.

architectural design parameters used in the study to evaluate the location of new additions are:

- $h_{\text{new addition}}$  – Height of the new addition
- $h_{\text{existing building}}$  – Height of the existing building
- $w_{\text{fina}}$  – Width of the front facade of the new addition
- $ff_{\text{na}}$  – Front facade of the new addition
- $w_{\text{fifcb}}$  – Width of the front facade of the existing building
- $W_{\text{eb}}$  – The width of the existing building that the new addition is attached to
- $Sb_{\text{eb}}$  – Site borders of the front facade of the existing building

- $N_{\text{fcb}}$  – Number of floors in the existing building
- $N_{\text{fss}}$  – Number of floors of surrounding structures
- $V_{\text{na}}$  – Volume of the new addition
- $V_{\text{ss}}$  – Volume of the surrounding structures
- $S_{\text{na}}$  – Sitting of the new addition
- $O_{\text{sep}}$  – Open space in the existing parcel

The evaluation manuals for different design alternatives depending on the location of the new additions are shown in Figures 1–4 and Tables 1–4.

|   |
|---|
| 1. $h_{\text{new addition}} \leq h_{\text{existing building}}$ and $W_{\text{ffna addition}} \leq W_{\text{ffeb existing building}} = 20 \text{ points}$  |
| 2. $h_{\text{new addition}} > h_{\text{existing building}}$ and $W_{\text{ffna new addition}} \leq W_{\text{ffeb existing building}} = 15 \text{ points}$ |
| 3. $W_{\text{ffna new addition}} > W_{\text{ffeb existing building}}$ and $h_{\text{new addition}} \leq h_{\text{existing building}} = 15 \text{ points}$ |
| 4. $h_{\text{new addition}} > h_{\text{existing building}}$ and $W_{\text{ffna new addition}} > W_{\text{ffeb existing building}} = 10 \text{ points}$    |
| 5. If there exists more than one new addition attached to the rear facade of the existing building = 0 points   |

Table 1. Explanation of various scores of rear additions in Figure 1.

Tabela 1. Objaśnienie punktacji dobudów tylnych z ryciny 1.

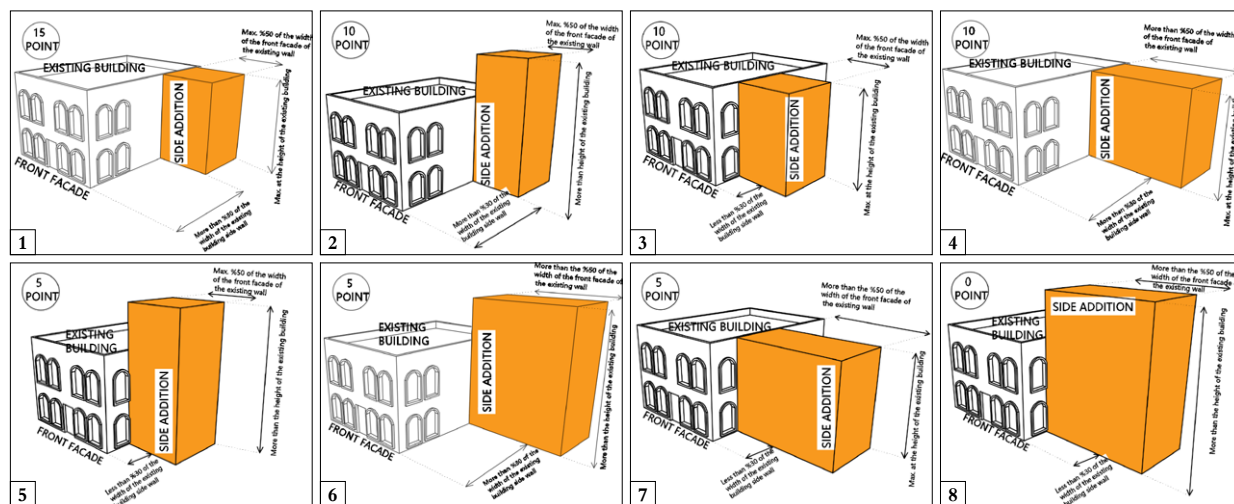


Fig. 2. Assessment of side additions and their various scores; by the authors 2021.

Ryc. 2. Ocena dobudów bocznych i ich punktacja; oprac. autorzy 2021.

|   |
|---|
| 1. $h_{\text{new addition}} \leq h_{\text{existing building}}$ and distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} \geq 30\%$ of $W_{\text{eb}}$ and $W_{\text{ffna new addition}} \leq 50\%$ of $W_{\text{ffeb existing building}} = 15 \text{ points}$   |
| 2. $h_{\text{new addition}} > h_{\text{existing building}}$ and distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} \geq 30\%$ of $W_{\text{eb}}$ and $W_{\text{ffna new addition}} \leq 50\%$ of $W_{\text{ffeb existing building}} = 10 \text{ points}$  |
| 3. Distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} < 30\%$ of $W_{\text{eb}}$ and $W_{\text{ffna new addition}} \leq 50\%$ of $W_{\text{ffeb existing building}} = 10 \text{ points}$  |
| 4. $W_{\text{ffna new addition}} > 50\%$ of $W_{\text{ffeb existing building}}$ , $h_{\text{new addition}} \leq h_{\text{existing building}}$ and distance between the $ffna_{\text{new addition}}$ and $ffeb_{\text{existing building}} \geq 30\%$ of $W_{\text{eb}} = 10 \text{ points}$  |
| 5. $h_{\text{new addition}} > h_{\text{existing building}}$ , the distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} < 30\%$ of $W_{\text{eb}}$ and $W_{\text{ffna new addition}} \leq 50\%$ of $W_{\text{ffeb existing building}} = 5 \text{ points}$  |
| 6. $h_{\text{new addition}} > h_{\text{existing building}}$ , $W_{\text{ffna new addition}} < 50\%$ of $W_{\text{ffeb existing building}}$ , distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} \geq 30\%$ of $W_{\text{eb}} = 5 \text{ points}$  |
| 7. Distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} < 30\%$ of $W_{\text{eb}}$ , $W_{\text{ffna new addition}} \leq 50\%$ of $W_{\text{ffeb existing building}}$ , $h_{\text{new addition}} > h_{\text{existing building}} = 5 \text{ points}$  |
| 8. $h_{\text{new addition}} > h_{\text{existing building}}$ , the distance between the $ffna_{\text{new addition}}$ and $W_{\text{ffeb existing building}} < 30\%$ of $W_{\text{eb}}$ and $W_{\text{ffna new addition}} > 50\%$ of $W_{\text{ffeb existing building}}$ and if there exists more than one new addition attached to the side facade of the existing building = 0 points |

Table 2. Explanation of various scores of side additions in Figure 2.

Tabela 2. Objaśnienie punktacji dobudów bocznych z ryciny 2.

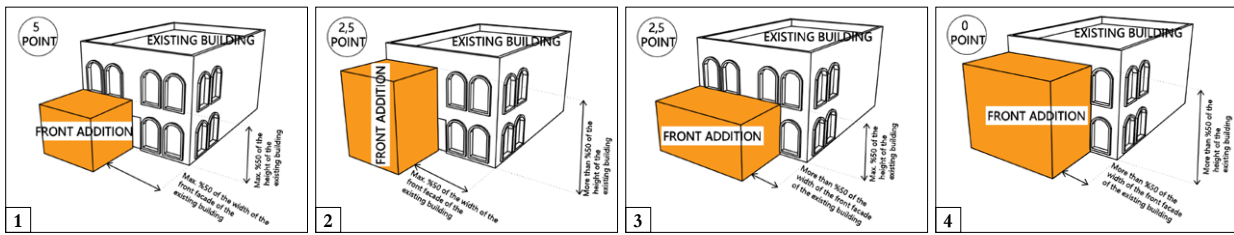


Fig. 3. Assessment of front additions and their various scores; by the authors 2021.

Ryc. 3. Ocena dobudów frontowych i ich punktacja; oprac. autorzy 2021.

|  |
|--|
| 1. h new addition $\leq$ 50% h existing building and Wffna new addition $\leq$ 50% Wffeb existing building = <b>5 points</b>   |
| 2. h new addition $>$ 50% h existing building and Wffna new addition $\leq$ 50% Wffeb existing building = <b>2.5 points</b>  |
| 3. Wffna new addition $>$ 50% Wffeb existing building, h new addition $\leq$ 50% h existing building = <b>2.5 points</b>   |
| 4. h new addition $>$ 50% h existing building and Wffna new addition $>$ 50% Wffeb existing building/ and if there exists more than one new addition attached to the front facade of the existing building = <b>0 points</b> |

Table 3. Explanation of various scores of front additions in Figure 3.

Tabela 3. Objasnienie punktacji dobudów frontowych z ryciny 3.

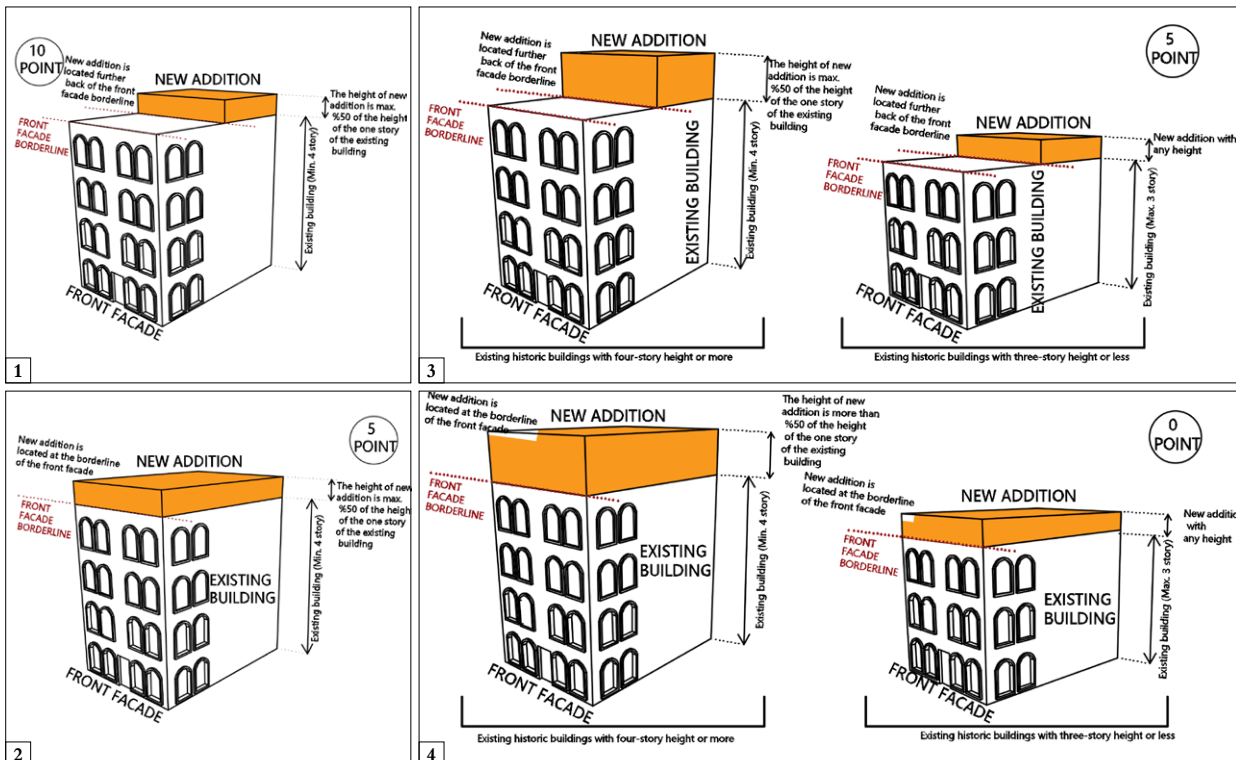


Fig. 4. Assessment of rooftop additions and their various scores; by the authors 2021.

Ryc. 4. Ocena nadbudów i ich punktacji; oprac. autorzy 2021.

|  |
|--|
| 1. In buildings with a minimum of four-story; if h new addition $\leq$ 50% of Nfeb existing building and the new rooftop addition is located further back of the Sbeb existing building = <b>10 points</b>   |
| 2. If the new rooftop addition is located at Sbeb existing building and if h new addition $\leq$ 50% of Nfeb existing building in buildings with a minimum of four-story = <b>5 points</b>   |
| 3. If there is a rooftop addition of any height in buildings with a maximum three-story and in buildings with a minimum of four-story; the new rooftop addition is located further back of the Sbeb existing building and h new addition $>$ 50% of Nfeb existing building = <b>5 points</b> |
| 4. If there is a rooftop addition of any height in buildings with a maximum three-story and in buildings with a minimum of four-story; h new addition $>$ 50% Nfeb existing building, If the new rooftop addition is located at Sbeb existing building = <b>0 points</b>                     |

Table 4. Explanation of various scores of rooftop additions in Figure 4.  
Tabela 4. Objasnienie ocen nadbudów z ryciny 4.

### Theoretical approaches to the design of new additions

Theoretically, new additions to historic buildings are designed in three different ways and scored in this study as follows: Imitation of Forms: 0 points; Interpretation of Forms: 10 points, and Contrasting Approaches: 10 points [Tanaç Kiray and Yilmaz Karaman 2010]. Semes [n.d.] identified four strategies for new additions in historic settings; “literal replication, invention, abstract reference, and intentional opposition.” When there is more than one new addition to the same historic building and when different theoretical approaches are used, this is considered a „variable” in the study. New additions designed as imitations of forms make it difficult for the user to distinguish the original from the new. In contrast, both the historic building and additions should reflect the cultural, social, and construction technology of their period [Tanaç Zeren 2010]. The Secretary of the Interior’s Standards for Rehabilitation [Technical Preservation Services n.d.] also clearly states that new

additions/alterations to the exterior should be easily distinguishable from the old building and compatible with the existing building in terms of “mass, size, scale, and architectural features” to protect its integrity. If they duplicate the “form, materials, details” of the original building, the exterior additions will not meet the Standards [Grimmer et al. 2011]. Therefore, in this study, the imitation of forms is rated 0 points.

### Relationship between new addition and context

Here, the relationships of the new addition to the surrounding structures and site are the most important parameters.

Rate on a scale of 10–0 if there is open space on the site where the existing building is located, and on a scale of 20–0 if there is not, suggesting a total of fifteen different categories (Table 5). The key evaluation parameters were the harmony of the new addition with the historic context, the relationship of its height/volume with the silhouette and existing texture, and the visibility of the new addition from Main Street.

| Score | Criteria   |
|-------|--|
| 10/20 | If the new addition has a design compatible with the existing historic texture, h new addition $\leq$ h existing texture, V new addition $\leq$ V existing texture, and if the new addition is not visible from the main street where the existing historic building is located  |
| 8/16  | If the new addition has a design in contrast to the existing historic texture, h new addition $\leq$ h existing texture, V new addition $\leq$ V existing texture, and if the new addition is not visible from the main street where the existing historic building is located   |
| 7/14  | h new addition $>$ h existing texture, If the new addition has a design compatible with the existing historic texture, V new addition $\leq$ V existing texture if the new addition is not visible from the main street where the existing historic building is located  |
| 7/14  | V new addition $>$ V existing texture, If the new addition has a design compatible with the existing historic texture, h new addition $\leq$ h existing texture, V new addition $>$ V existing texture, and if the new addition has a design compatible with the existing historic texture, h new addition $\leq$ h existing texture |

| Score | Criteria  |
|-------|---|
| 8/16  | If the new addition is visible from the main street where the existing historic building is located, and if the new addition has a design compatible with the existing historic texture and $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $V_{\text{new addition}} \leq V_{\text{existing texture}}$ |
| 6/12  | If the new addition has a design in contrast to the existing historic texture, and if the V is visible from the main street, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $V_{\text{new addition}} \leq V_{\text{existing texture}}$  |
| 5/10  | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $V_{\text{new addition}} \leq V_{\text{existing texture}}$ , and if the new addition is not visible from the main street where the existing historic building is located   |
| 5/10  | If the new addition has a design in contrast to the existing historic texture, $V_{\text{new addition}} > V_{\text{existing texture}}$ , $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , and if the new addition is not visible from the main street where the existing historic building is located   |
| 5/10  | $h_{\text{new addition}} > h_{\text{existing texture}}$ , if the new addition is visible from the main street where the existing historic building is located, and if the new addition has a design compatible with the existing historic texture, $V_{\text{new addition}} \leq V_{\text{existing texture}}$       |
| 5/10  | $V_{\text{new addition}} > V_{\text{existing texture}}$ , if the new addition is not visible from the main street where the existing historic building is located, and if the new addition has a design compatible with the existing historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$   |
| 4/8   | $h_{\text{new addition}} > h_{\text{existing texture}}$ , $V_{\text{new addition}} > V_{\text{existing texture}}$ , If the new addition has a design compatible with the existing historic texture, and if the new addition is not visible from the main street where the existing historic building is located     |
| 3/6   | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , if the new addition is visible from the main street where the historic building is located, $V_{\text{new addition}} \leq V_{\text{existing texture}}$                     |
| 2/4   | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $V_{\text{new addition}} > V_{\text{existing texture}}$ if the new addition is not visible from the main street where the existing historic building is located            |
| 2/4   | $h_{\text{new addition}} > h_{\text{existing texture}}$ , $V_{\text{new addition}} > V_{\text{existing texture}}$ , If the new addition is visible from the main street where the existing historic building is located, If the new addition has a design compatible with the existing historic texture             |
| 0/0   | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $V_{\text{new addition}} > V_{\text{existing texture}}$ , If the new addition is visible from the main street where the existing historic building is located              |

Table 5. Evaluation criteria and rating according to the relationship of the new addition with the surrounding structures.  
Tabela 5. Kryteria oceny i punktowania w zakresie relacji dobudowy z otaczającymi obiektami.

The new addition and site/lot relationships were scored in the range of a 10–0 in eight different categories.

The details of the scoring system can be found in Figure 6 and Table 6.

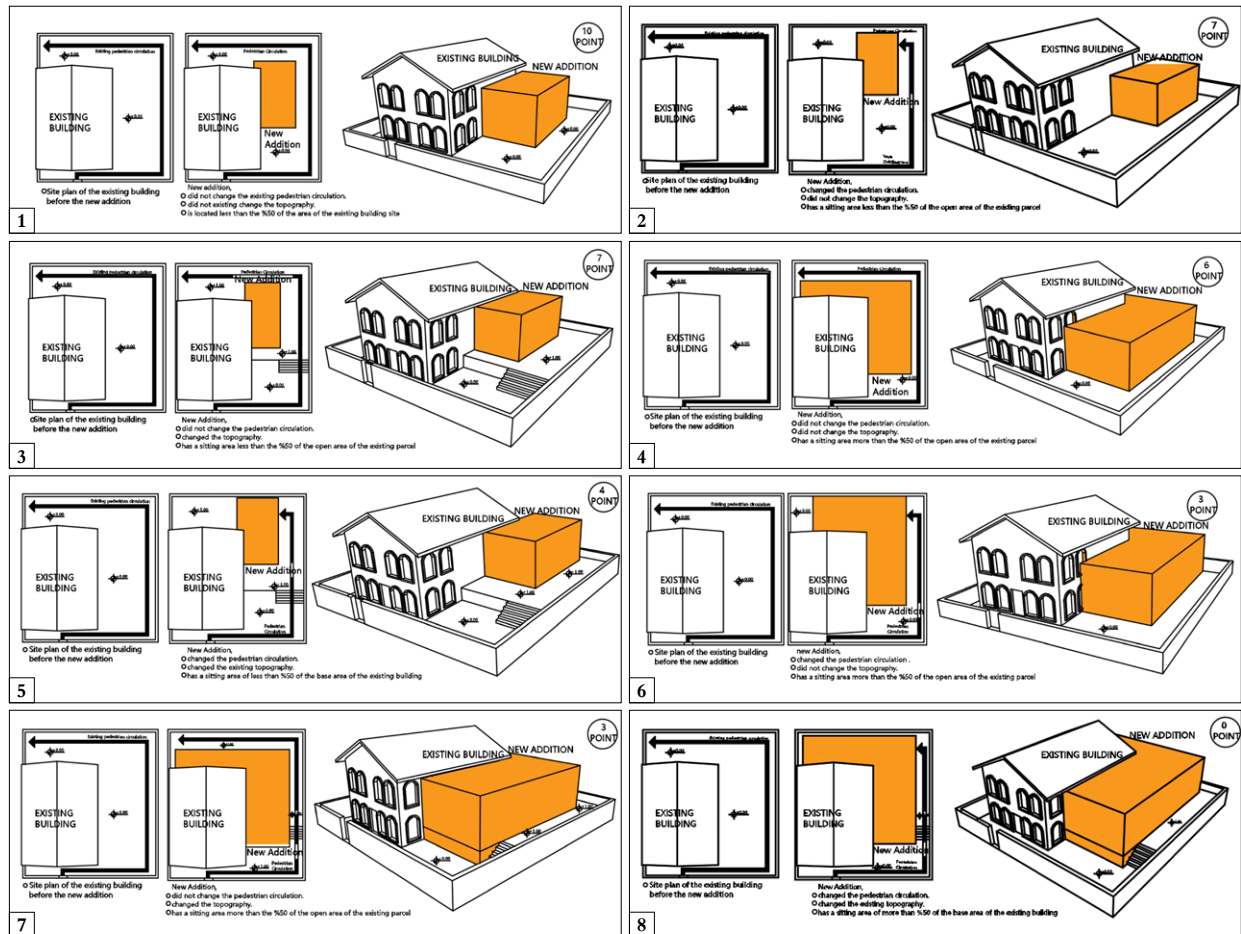


Fig. 6. Schematic drawings showing the assessment and scoring criteria of the new addition – site/lot relationship; by the authors 2021.  
Ryc. 6. Rysunki schematyczne przedstawiające ocenę i kryteria punktowania dobudów – relacje z działką; oprac. autorzy 2021.

|   |
|---|
| <p>1. S<sub>na</sub> new addition &lt; 50% O<sub>sepv</sub> existing parcel and if the pedestrian circulation of the open area of the existing parcel does not change with the location of the new addition on the existing parcel and the new addition does not change the existing topography = <b>10 points</b></p>    |
| <p>2. If the pedestrian circulation of the open area of the existing parcel changes with the location of the new addition on the existing parcel, S<sub>na</sub> new addition &lt; 50% O<sub>sepv</sub> existing parcel, and the new addition does not change the existing topography = <b>7 points</b></p>               |
| <p>3. If the topography changes with the location of the new addition, S<sub>na</sub> new addition &lt; 50% O<sub>sepv</sub> existing parcel and if the pedestrian circulation of the open area of the existing parcel does not change with the location of the new addition on the existing parcel = <b>7 points</b></p> |
| <p>4. S<sub>na</sub> new addition ≥ 50% O<sub>sepv</sub> existing parcel and if the pedestrian circulation of the open area of the existing parcel does not change with the location of the new addition on the existing parcel and the new addition does not change the existing topography = <b>6 points</b></p>        |
| <p>5. If the pedestrian circulation of the open area of the existing parcel changes with the location of the new addition on the existing parcel and if the topography changes with the location of the new addition and S<sub>na</sub> new addition &lt; 50% O<sub>sepv</sub> existing parcel = <b>4 points</b></p>      |

|  |
|--|
| <p><b>6.</b> Sna new addition <math>\geq 50\%</math> Osep existing parcel, if the pedestrian circulation of the open area of the existing parcel changes with the location of the new addition on the existing parcel and the new addition does not change the existing topography = <b>3 points</b></p>             |
| <p><b>7.</b> Sna new addition <math>\geq 50\%</math> Osep existing parcel, if the topography changes with the location of the new addition if the pedestrian circulation of the open area of the existing parcel do not change with the location of the new addition on the existing parcel = <b>3 points</b></p>    |
| <p><b>8.</b> Sna new addition <math>\geq 50\%</math> Osep existing parcel and if the pedestrian circulation of the open area of the existing parcel changes with the location of the new addition on the existing parcel &amp; if the topography changes with the location of the new addition = <b>0 points</b></p> |

Table 6. Explanation of various scores of the new addition – site/lot relationship in Figure 6.  
Tabela 6. Objasnienie ocen dobudów – relacje z działką z ryciny 6.

### Formal criteria for the design of new additions

Ten formal criteria (material, color, height, detail, material texture, visual density, rhythm, form/shape, proportion, and volume) were established for the design of new additions and 2 points were awarded for each, for a total of 20 points (Fig. 7).

### New addition and functional relationships

The relationship between the new addition and its function and the original function of the existing building was evaluated separately under seven different variables (see Table 7–8).

### Compatibility of the new addition with national and international standards

Thanks to a detailed study of national/international standards for new additions to historic buildings, 10 basic criteria for new additions have been established, each worth 2 points (see Table 8–9).

### Evaluation of building cases under study

The nine buildings selected for this study are located in Istanbul, Kocaeli, and Bursa. They were built either as twin or single baths in the fourteenth to nineteenth centuries and had new additions as a requirement for the new function, as a supplementary to the original function, or as a completion to the demolished part of the original building.

### Assessment of the sample building: Kocaeli Süleyman Pasha Hammam

In order to better analyze the proposed model in this study, only one of the example buildings, namely Kocaeli Süleyman Pasha Hammam, is explained in more detail and a comparative analysis with the other

hammams studied is presented. It is a double bath that has the same floor plan for both men's and women's sections and was built in the early Ottoman period (fourteenth cc.). The bath consists of a dressing room, a warm room, and a hot room. In 1999, the building was damaged by the Marmara earthquake and then served as a museum. However, today, it has been put back into operation and serves as a restaurant. The bath was analyzed based on the six criteria of the proposed model, and received an overall score of 70 out of 100. Therefore, since the score is above 50, it is considered a "successful" new addition (Table 7–9). A detailed explanation of each analysis is provided below.

Scoring based on the orientation of the new addition: The front addition to the hammam is on the south side but is slightly separated from the original south wall by recessed glass panels. The newly added portion has a rectangular shape and is smaller than the original building. It has a flat roof that accounts for more than 50% of the height and width of the hammam. Due to its location on the front facade, the new addition is not hidden and does not obscure the original building. Therefore, neither its location nor its scale is appropriate and it receives 0 points for its orientation.

Evaluation according to the theoretical design approaches:

The new addition bears the architectural characteristics of its period of construction. Its plain glass surfaces, steel structural system, and simple rectangular prisms contrast with the flat roof and traditional masonry structure and dome design of the original building. Theoretically, therefore, the addition is built in a contrasting approach and is rated 10 points.

Site/lot Assessment:

The new addition was constructed to replace the damaged dressing room of the original building. Therefore, it does not affect the open space of the existing property. Although the addition is visible from the main



street, it does not exhibit an exaggerated form, scale, or proportion. It is built parallel to and attached to the original building. It has a rectangular shape that almost follows the boundaries of the destroyed part, and does not increase the density of the used space, so it is compatible with the existing historic property/site/lot and receives 16 points.

Evaluation of the new function:

The original building is currently used as a restaurant. However, before that, it was renovated to be used as a museum. In both cases, the new addition was used as a cafeteria for the museum or restaurant. Because it was the functional necessity of the renovations and was actively used with the original building, the addition was scored as eligible/ideal in terms of functional relationship with the original building. Thus, it receives 6 points.

Evaluation according to the formal criteria

The new addition to the sample building received a total of 19 points in this section. Each parameter is explained below;

**Material:** Glass surfaces with steel construction are preferred, and a contemporary choice of materials allows the addition to be distinguished from the traditional stone masonry construction of the building. For this, 2 points are given.

**Material texture:** The new addition has a completely different material texture than the original building, whose surface is made of rough stone masonry. However, the glass surface material of the addition creates a smooth, reflective texture, which is thus slightly different from the old part and receives 2 points.

**Color:** The glass surface material of the addition is black with reflective surfaces. However, it can be easily distinguished from the existing building and receives 2 points.

**Surface articulation:** The main volume of the addition has no surface articulation, ornamentation, or decoration. It is simple/plain. Therefore, it remained in the secondary view compared to the original building and received 2 points.

**Height:** The height of the new addition is less than the height of the existing building. Therefore, it received 2 points.

**Visual density:** The contrasting design approach can be observed in the new addition, which creates a visual density effect. However, since it consists of transparent, reflective surfaces with a single color dominating the facades, and since there is no surface articulation, the visual intensity is rated as medium and receives 1 point.

**Rhythm:** There is a patterned repetition of the glass panels of the new addition that resembles the stonework of the original facade. This creates a rhythmic effect and visual integration between the old and the new, which was rated 2 points.

**Form/shape:** The mass of the original building is rectangular and articulated with domes. The new addition is designed as a rectangular prism, which is a simple form and received 2 points.

**Proportion:** The new addition was designed to be compatible with the existing historic building in terms of the relationship of mass, scale, and form, and received 2 points.

**Volume:** The volume of the new addition is less than 50% of the volume of the existing building. Since this is a compatible condition, it received 2 points.

Evaluation for compatibility with national and international standards:

Since the sample building has an addition on the front, its location on the facade is not appropriate. Therefore, it received 0 points for this parameter, and 2 points for each of the other parameters, because it fully complies with the other parameters. The total score for this section is 18 (Figure 7, Table 7–8).

## Findings and discussion

This study examined nine buildings that were originally constructed as single or twin baths. Today, they mostly continue to serve as public buildings with or without their original functions. Among them, Kılıç Ali Pasha, Selimiye, Çemberlitaş, Cağaloğlu, and Çekirge Hammams retain their original functions as public baths, Yeşil Direkli Hammam was converted into a shopping market, Ortaköy Hammam serves as a design studio and workplace. Kayıhan Hammam was converted into a restaurant but is currently closed due to the pandemic. The construction of a new addition to the sample baths became necessary when their functions changed or to create an easy connection with the neighboring spaces (i.e. Çekirge Hammam). They were also built when the original function did not require it (e.g. Cağaloğlu and Çemberlitaş Hammam) or when the function required it (e.g., Selimiye Hammam—addition of a firewood storage room—and Kılıç Ali Pasha Hammam). The new additions of Kılıç Ali Pasha, Hüsrev Kethüda, Selimiye Hammam (firewood storage room addition), Kayıhan, and Çekirge Hammam were designed with a respectful approach to the characteristic features of the original building by interpreting the forms. Çemberlitaş and Cağaloğlu Hammam have more than one addition with different approaches obscuring the original building, and the new addition of Yeşil Direkli Hammam imitates the forms of the original building. Yeşil Direkli and


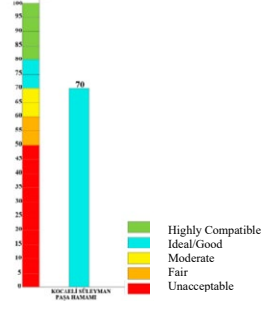
| KOCAELI SULEYMAN PASHA HAMMAM  |                    |                                     |                                     |                           |                      |               |   |   |   |                             |           |                                     |
|--|--------------------|-------------------------------------|-------------------------------------|---------------------------|----------------------|---------------|---|---|---|-----------------------------|-----------|-------------------------------------|
| Architect:   | Unknown            | Construction Period:                | fourteenth c.                       | Location/City:            | Kocaeli              | New Function: | Restaurant  |   |   |                             |           |                                     |
| Type of the new exterior addition attached to the existing building                |                    |                                     | New Addition/Contemporary Addition  |                           |                      |               | <input checked="" type="checkbox"/>   | New Addition to Archaeological Sites            |   | <input type="checkbox"/>    |           |                                     |
|  |                    |                                     | Previous Period Addition            |                           |                      |               | <input type="checkbox"/>  | Graphical Chart of Analysis Results             |   |                             |           |                                     |
|  |                    |                                     |                                     |                           |                      |               |  |   |   |                             |           |                                     |
| <b>Formal Criteria For New Addition Design: 20 Point</b>                           |                    |                                     |                                     |                           |                      |               | <b>Theoretical Approaches To Design Of New Additions: 10 Points</b>                 |   |   |                             |           |                                     |
| Material   | Identical/Variable | 0 Points                            | <input type="checkbox"/>            | Highly decorated/Variable | Surface articulation | Rhythm        | No  | 1 Point   | <input type="checkbox"/>                        | Imitation of forms/variable | 0 Points  | <input type="checkbox"/>            |
|  |                    | 2 Points                            | <input type="checkbox"/>            | Partially decorated       |                      | Yes           | 2 Points  | <input checked="" type="checkbox"/>             |   |                             |           |                                     |
|  | Similar            | 1 Point                             | <input type="checkbox"/>            | Simple                    |                      | Form          | Exaggerated/Variable  | 1/0 Point                                       | <input type="checkbox"/>                        |                             |           |                                     |
|  |                    | 2 Points                            | <input checked="" type="checkbox"/> |                           |                      |               | Simple  | 2 Points  | <input checked="" type="checkbox"/>             |                             |           |                                     |
| The texture of the finishing material  | Identical/Variable | 0 Point                             | <input type="checkbox"/>            | Tall                      | Height               | Ratio         | No  | 0 Points  | <input type="checkbox"/>                        | Interpretation of forms     | 10 Points | <input type="checkbox"/>            |
|  |                    | 1 Point                             | <input type="checkbox"/>            | Identical                 |                      |               | Yes   | 2 Points  | <input checked="" type="checkbox"/>             |                             |           |                                     |
|  |                    | 2 Points                            | <input checked="" type="checkbox"/> | Short                     |                      |               |   |   |   |                             |           |                                     |
| Color  | Identical/Variable | 0 Points                            | <input type="checkbox"/>            | High                      | Visual Density       | Volume        | 0 Points  | More than 50% of the existing building's volume | <input type="checkbox"/>                        | Contrasting approach        | 10 Points | <input checked="" type="checkbox"/> |
|  |                    | 2 Points                            | <input type="checkbox"/>            | Medium                    |                      |               |   | 2 Points  | Less than 50% of the existing building's volume |                             |           |                                     |
|  | Similar            | 1 Point                             | <input type="checkbox"/>            | Little                    |                      |               |   |   |   |                             |           |                                     |
| Different  | 2 Points           | <input checked="" type="checkbox"/> |                                     |                           |                      |               |   |   |   |                             |           |                                     |
| Total Score:   | 20 Points          |                                     |                                     |                           |                      |               | Total Score:  |   | 10 Points                                       |                             |           |                                     |

Fig. 7. Kocaeli Suleyman Pasha Hammam evaluation chart, part 1; by the authors 2021.

Ryc. 7. Karta oceny Łaźni Sulejmana Paszy w Kocaeli, część 1; oprac. autorzy 2021.

| <b>ANALYSES OF LOCATION OF NEW ADDITIONS: 20 POINTS</b> |   |
|---|---|
| <b>Rear Addition: max. 20 Points</b>                    |   |
| <b>20 point</b>   | $h$ new addition $\leq$ $h$ existing building and $W_{ffna}$ new addition $\leq$ $W_{ffeb}$ existing building   |
| <b>15 point</b>   | $h$ new addition $>$ $h$ existing building and $W_{ffna}$ new addition $\leq$ $W_{ffeb}$ existing building  |
| <b>10 point</b>   | $W_{ffna}$ new addition $>$ $W_{ffeb}$ existing building and $h$ new addition $\leq$ $h$ existing building  |
| <b>10 point</b>   | $h$ new addition $>$ $h$ existing building and $W_{ffna}$ new addition $>$ $W_{ffeb}$ existing building   |
| <b>0 point</b>  | If there exists more than one new addition attached to the rear facade of the existing building   |
| <b>Side Addition: max. 15 Point</b>                     |   |
| <b>15 point</b>   | $h$ new addition $\leq$ $h$ existing building and distance between the $ffna$ new addition and $W_{ffeb}$ existing building $\geq$ 30% of $W_{eb}$ existing building and $W_{ffna}$ new addition $\leq$ 50% of $W_{ffeb}$ existing building.  |
| <b>10 point</b>   | $h$ new addition $>$ $h$ existing building and distance between the $ffna$ new addition and $W_{ffeb}$ existing building $\geq$ 30% of $W_{eb}$ existing building and $W_{ffna}$ new addition $\leq$ 50% of $W_{ffeb}$ existing building.   |
| <b>10 point</b>   | Distance between the $ffna$ new addition and $W_{ffeb}$ existing building $<$ 30% of $W_{eb}$ existing building, $W_{ffna}$ new addition $\leq$ 50% of $W_{ffeb}$ existing building.  |
| <b>10 point</b>   | $W_{ffna}$ new addition $>$ 50% $W_{ffeb}$ existing building, $h$ new addition $\leq$ $h$ existing building and distance between the $ffna$ new addition and $ffeb$ existing building $\geq$ 30% of $W_{eb}$ .  |
| <b>5 point</b>  | $h$ new addition $>$ $h$ existing building, the distance between the $ffna$ new addition and $ffeb$ existing building $<$ 30% of $W_{eb}$ existing building and $W_{ffna}$ new addition $\leq$ 50% of $W_{ffeb}$ existing building.   |
| <b>5 point</b>  | $h$ new addition $>$ $h$ existing building, $W_{ffna}$ new addition $<$ 50% $W_{ffeb}$ existing building, distance between the $ffna$ new addition and $ffeb$ existing building $\geq$ 30% of $W_{ffeb}$  |
| <b>5 point</b>  | Distance between the $ffna$ new addition and $ffeb$ existing building $<$ 30% of $W_{eb}$ existing building, $W_{ffna}$ new addition $\leq$ 50% $W_{ffeb}$ existing building, $h$ new addition $>$ $h$ existing building  |
| <b>0 point</b>  | $h$ new addition $>$ $h$ existing building, the distance between the $ffna$ new addition and $W_{ffeb}$ existing building $<$ 30% of $W_{eb}$ existing building and $W_{ffna}$ new addition $>$ 50% $W_{ffeb}$ existing building / and if there exists more than one new side addition attached to the side facade of the existing building |
| <b>Front Addition: max. 5 points</b>                    |   |
| <b>5 point</b>  | $h$ new addition $\leq$ 50% $h$ existing building and $W_{ffna}$ new addition $\leq$ 50% $W_{ffeb}$ existing building   |
| <b>2,5point</b>   | $h$ new addition $>$ 50% $h$ existing building ve $W_{ffna}$ new addition $\leq$ 50% $W_{ffeb}$ existing building   |
| <b>2,5point</b>   | $W_{ffna}$ new addition $>$ 50% $W_{ffeb}$ existing building, $h$ new addition $\leq$ 50% $h$ existing building   |
| <b>0 point</b>  | $h$ new addition $>$ 50% $h$ existing building and $W_{ffna}$ new addition $>$ 50% $W_{ffeb}$ existing building /2 or more front addition   |
| <b>Rooftop Additions: max. 10 points</b>                |   |
| <b>10 point</b>   | In buildings with a minimum of four-story; if $h$ new addition $\leq$ 50% of $N_{feb}$ existing building, and the new rooftop addition is located further back of $S_{beb}$ existing building.  |
| <b>5 point</b>  | If there is a rooftop addition of any height in buildings with a max. three-story and in buildings with a min. of four-story the rooftop addition is located back of the $S_{beb}$ existing building and $h$ new addition $>$ 50% of $N_{feb}$ existing building.   |

|  |   |   |
|--|---|---|
| 5 point  |   | Located at Sbeb existing building and h new addition $\leq$ 50% of Nfeb existing building in buildings with a min. of 4story.   |
| 0 point  |   | If there is a rooftop addition of any height in buildings with a maximum three-story and in buildings with a minimum of four-story,h new addition $>$ 50% Nfeb existing building, If the new rooftop addition is located at Sbeb existing building. |
| <b>Archaeological Site Protective Rooftop Cover and Exhibition Platform: 10 points</b>     |   |   |
| 1 point  |   | The new addition was designed with a respectful approach to the historic texture and architectural features of the site.  |
| 1 point  |   | Design of overwhelming new additions that will be more interesting and in the foreground than the existing historical area should be avoided and it should be located in the background of the archaeological site.                                 |
| 1 point  |   | It should be ensured that the vertical structural elements of the new addition interfere with the ground minimally. It can easily pass wide openings & the number of vertical elements in contact with the ground should be minimized.              |
| 1 point  |   | New additions should be designed to minimize the harmful effects of climate and weathering conditions.  |
| 1 point  |   | In terms of size and scale, it should not exceed the archaeological site.   |
| 1 point  |   | It should not be more remarkable in form than the archaeological site.  |
| 1 point  |   | The new addition should be as plain and simple as possible in terms of workmanship and color.   |
| 1 point  |   | The new addition should be designed in accordance with the local legal framework and regulations.   |
| 1 point  |   | In the archaeological site, the new additions should easily be distinguished from the original and designed to carry the architectural features of the period in which they were made.  |
| 1 point  |   | Considering the possibility that the excavation area will expand in the future or that the new addition will no longer be needed the addition should be built in a reversible way that can be easily enlarged/removed without damaging remains.     |
| <b>Total Score: 0/20 points</b>  |   |   |
| <b>NEW ADDITION – FUNCTION RELATION: max. 10 points</b>                                    |   |   |
| <b>First Part: Evaluation According to the Function of the Existing Building: 6 points</b> |   |   |
| 6 point  |   | If the existing historic building is actively used in its original function   |
| 4 point  | ■ | If the existing historic building is actively used with its ideal new function  |
| 2 point  |   | If the existing historic building is not actively used in its original function   |
| 0 point  |   | If the existing historic building cannot be actively used with its non-ideal new function   |
| <b>Second Part: Evaluation According to the Function of the New Addition: 4 points</b>     |   |   |
| 4 point  |   | If the new addition is a requirement of the original function   |
| 2 point  | ■ | If the new addition is a requirement of the new function  |
| 0 point  |   | If the new addition is not a requirement of the new/original function   |
| <b>Total Score: 4+2=6/10 points</b>  |   |   |

Table 7. Evaluation chart, part 2.  
Tabela 7. Karta oceny, część 2.

| <b>NEW ADDITION &amp; CONTEXT RELATION: max. 20 points</b>                                 |  | 70 |
|--|--|----|
| <b>The Relationship of New Addition with the Surrounding Structures: max. 10/20 points</b> |  |    |
| <b>10/20 point</b>   | If the new addition has a design compatible with the existing historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $v_{\text{new addition}} \leq v_{\text{existing texture}}$ if new addition is not visible from main street where the historic building is located   | 70 |
| <b>8/16 point</b>  | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $v_{\text{new addition}} \leq v_{\text{existing texture}}$ , if new addition is not visible from main street where the historic building is located  |    |
| <b>8/16 point</b>  | If the new addition is visible from the main street where the historic building is located, if the new addition has a design compatible with the historic texture and $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $v_{\text{new addition}} \leq v_{\text{existing texture}}$  | 18 |
| <b>7/14 point</b>  | $h_{\text{new addition}} > h_{\text{existing texture}}$ , If the new addition has a design compatible with the historic texture, $v_{\text{new addition}} \leq v_{\text{existing texture}}$ if the new addition is not visible from main street where the historic building is located   |    |
| <b>7/14 point</b>  | $v_{\text{new addition}} > v_{\text{existing texture}}$ , If the new addition has a design compatible with the historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $v_{\text{new addition}} > v_{\text{existing texture}}$<br>If the new addition has a design compatible with the historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ | +  |
| <b>6/12 point</b>  | If the new addition has a design in contrast to the existing historic texture, If the new addition is visible from the main street, $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , $v_{\text{new addition}} \leq v_{\text{existing texture}}$  | 16 |
| <b>5/10 point</b>  | If the new addition has a design in contrast to the historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $v_{\text{new addition}} \leq v_{\text{existing texture}}$ , if the new addition is not visible from main street where the historic building is located  |    |
| <b>5/10 point</b>  | If the new addition has a design in contrast to the existing historic texture, $v_{\text{new addition}} > v_{\text{existing texture}}$ , $h_{\text{new addition}} \leq h_{\text{existing texture}}$ , if the new addition is not visible from main street where the historic building is located   | +  |
| <b>5/10 point</b>  | $h_{\text{new addition}} > h_{\text{existing texture}}$ , if the new addition is visible from the main street where the historic building is located, if the new addition has a design compatible with the historic texture, $v_{\text{new addition}} \leq v_{\text{existing texture}}$  | 6  |
| <b>5/10 point</b>  | $v_{\text{new addition}} > v_{\text{existing texture}}$ , if the new addition is not visible from the main street where the historic building is located If the new addition has a design compatible with the historic texture, $h_{\text{new addition}} \leq h_{\text{existing texture}}$   |    |
| <b>4/8 point</b>   | $h_{\text{new addition}} > h_{\text{existing texture}}$ , $v_{\text{new addition}} > v_{\text{existing texture}}$ If the new addition has a design compatible with the historic texture if the new addition is not visible from the main street where the historic building is located   | +  |
| <b>3/6 point</b>   | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , if the new addition is visible from the main street where the historic building is located, $v_{\text{new addition}} \leq v_{\text{existing texture}}$  | 0  |
| <b>2/4 point</b>   | If the new addition has a design in contrast to the historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $v_{\text{new addition}} > v_{\text{existing texture}}$ if the new addition is not visible from the main street where the historic building is located   |    |
| <b>2/4 point</b>   | $h_{\text{new addition}} > h_{\text{existing texture}}$ , $v_{\text{new addition}} > v_{\text{existing texture}}$ , If the new addition is visible from the main street where the historic building is located If the new addition has a design compatible with the historic texture   | +  |
| <b>0/0 point</b>   | If the new addition has a design in contrast to the existing historic texture, $h_{\text{new addition}} > h_{\text{existing texture}}$ , $v_{\text{new addition}} > v_{\text{existing texture}}$ , If the new addition is visible from the main street where the historic building is located  |    |
| <b>New Addition Site/Lot Relation: max. 10 points</b>                                      |  |    |
| <b>10 point</b>  | $S_{\text{nav new addition}} < 50\% O_{\text{sepv existing parcel}}$ and if the pedestrian circulation of the open area of the parcel does not change with the location of the new addition on the parcel and the new addition does not change the topography  | 10 |

|  |  |  |                    |
|--|--|--|--------------------|
| <b>7 point</b>   |  | If the pedestrian circulation of the open area of the existing parcel changes with the location of the new addition on the existing parcel, Sna new addition < 50% Osep existing parcel, and the new addition does not change the topography |                    |
| <b>7 point</b>   |  | If the topography changes with the location of new addition, Sna new addition < 50% Osep parcel and if pedestrian circulation of the open area of the parcel does not change with the location of the new addition on the parcel             |                    |
| <b>6 point</b>   |  | Sna new addition ≥ 50% Osep parcel and if the pedestrian circulation of the open area of the parcel does not change with the location of the new addition on the parcel and the new addition does not change the topography                  | <b>+</b>           |
| <b>4 point</b>   |  | If the pedestrian circulation of the open area of the parcel changes with the location of the new addition on the parcel and if the topography changes with the location of the new addition and Sna new addition < 50% Osep parcel          | <b>20</b>          |
| <b>3 point</b>   |  | Sna new addition ≥ 50% Osep parcel, if the pedestrian circulation of the open area of the parcel changes with the location of the new addition on the parcel and the new addition does not change the topography                             |                    |
| <b>3 point</b>   |  | Sna new addition ≥ 50% Osep parcel, if the topography changes with the location of the new addition if the pedestrian circulation of the open area of the parcel do not change with the location of the new addition on the parcel           |                    |
| <b>0 point</b>   |  | Sna new addition ≥ 50% Osep parcel and if the pedestrian circulation of the open area of the parcel changes with the location of the new addition on the parcel and if the topography changes with the location of the new addition          | <b>II</b>          |
| <b>Total Score: 16/20 points</b>   |  |  |                    |
| <b>NATIONAL AND INTERNATIONAL STANDARDS AND CRITERIA: max. 20 points</b> |  |  |                    |
| <b>2 point</b>   |  | The new addition should be compatible with original building in terms of form, scale, mass, color, texture, material   | <b>TOTAL SCORE</b> |
| <b>2 point</b>   |  | The structural, architectural, material features of the new addition must be clearly distinguishable from the original   |                    |
| <b>2 point</b>   |  | The new addition should reflect contemporary technologies/materials/characteristics of the time it has been designed   |                    |
| <b>2 point</b>   |  | In designing new addition, the original architectural style, material properties, and form should be taken into account  |                    |
| <b>2 point</b>   |  | The new addition should not obscure and hide the existing building, its cultural and historical values, and original character-defining features, but it should be respectful to the existing fabric and the building                        |                    |
| <b>2 point</b>   |  | The new addition should not be designed in such a way as to depreciate the traditional, cultural and architectural value   |                    |
| <b>2 point</b>   |  | The new addition should not damage the historical building structurally and should have minimal material, surface articulation, and space arrangement. It should not obscure the original features of the existing building.                 |                    |
| <b>2 point</b>   |  | The new addition should be located on the most suitable facade with a less conspicuous way compared to the original  |                    |
| <b>2 point</b>   |  | The form of the addition should be determined in a respectful and proportionate manner with the existing building/site   |                    |
| <b>2 point</b>   |  | The new addition should contribute to the socio-cultural interaction of the settlement and the active use of the building  |                    |
| <b>Total Score: 18/20 points</b>   |  |  |                    |

Table 8. Evaluation chart, part 3.  
Tabela 8. Karta oceny, część 3.








|   | New Additions to the Existing Baths  | Formal Criteria | Theoretical Approaches | Location of New Additions | New Addition-Function Relation | New Addition-Context Relation | National and International Standards | Total Score             |
|---|--|-----------------|------------------------|---------------------------|--------------------------------|-------------------------------|--------------------------------------|-------------------------|
| Süleyman Pasha Bath                                     | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ   | 20              | 10                     | 0                         | 6                              | 16                            | 18                                   | 70<br>Good/ideal        |
| Çekirge Bath  | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ   | 18              | 10                     | 10                        | 6                              | 20                            | 12                                   | 76<br>Good/ideal        |
| Kayhan Bath   | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ   | 18              | 10                     | 15                        | 0                              | 16                            | 14                                   | 73<br>good/ideal        |
| Kılıç, Ali Pasha Bath                                   | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ   | 20              | 10                     | 5                         | 10                             | 20                            | 18                                   | 83<br>Highly Compatible |
| Büyük Yeşil Direkli Bath                                | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ  | 12              | 0                      | 20                        | 6                              | 15                            | 8                                    | 61<br>Moderate          |
| Çemberlitaş Bath  | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ | 9               | 0                      | 0                         | 6                              | 12                            | 6                                    | 33<br>Unacceptable      |
| Hüsrev Kethüda Bath                                     | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ | 15              | 10                     | 10                        | 4                              | 12                            | 6                                    | 57<br>Fair              |
| Cağaloğlu Bath  | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ | 3               | 0                      | 0                         | 6                              | 9                             | 4                                    | 22<br>Unacceptable      |
| Selimiye Bath (New addition to the frigidarium section) | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ | 9               | 10                     | 0                         | 10                             | 12                            | 8                                    | 49<br>Unacceptable      |
| Selimiye Bath (New addition on the firewood section)    | <br>YARHI YAPIVA EKLEMLENEN EK BÖLÜMÜ | 15              | 10                     | 20                        | 10                             | 13                            | 6                                    | 74<br>Good/ideal        |

Table 10. Comparison of sample bath buildings in terms of their new additions; by the authors 2021.  
Tabela 10. Zestawienie przykładowych budynków łaźni pod względem dobudów; opr. autorzy 2021.

Selimiye Hammams (firewood storage room addition) have rear additions, Kayıhan Hammam, Ortaköy, and Çekirge Hammam have side additions, Kılıç Ali Pasha, Cağaloğlu and Çemberlitaş Hammams have front additions. Regarding the orientation of the addition, Yeşil Direkli and Selimiye Hammam (addition for storing firewood) have the highest scores. As for the formal criteria, the additions of Kocaeli Süleyman Pasha, Kılıç Ali Pasha, Kayıhan, and Çekirge Hammams meet most of the parameters and are designed to be compatible with the original building in terms of material, texture, color, surface articulation, height, density, rhythm, form/shape, proportion, and volume. In the case of example buildings, the new additions either use additional space on the existing site/lot or are built in place of the destroyed part of the original building. In the case of the buildings Kılıç Ali Pasha, Çekirge, Kocaeli Süleyman Pasha, Kayıhan, and Büyük Yeşil Direkli Hammams, the new additions have no negative impact on the location and the surroundings of the original building. In Çemberlitaş Hammam, on the other hand, the addition greatly affects the original features of the site. Regarding the compatibility of the new addition with the original building in terms of national and international standards, Kocaeli Süleyman Pasha, Kılıç Ali Pasha, Kayıhan, Çekirge, and Selimiye Hammams (addition of firewood storage) meet half and more than half of the established criteria, respectively, and the others do not meet most of them.

Among the studied example buildings, Kılıç Ali Pasha Hammam has the most compatible new addition according to the six-stage model proposal with the highest score of 83 out of 100. It is followed by the addition of Çekirge Hammam with 76 points, the addition of Selimiye Hammam (firewood storage addition) with 74 points, and the addition of Kocaeli Süleyman Pasha Hammam with a score of 70. The new additions of these example buildings fall into category of ideal new additions according to their scores. The addition of Yeşil Direkli Hammam was rated as moderate with a score of 61, and that of Hüsrev Kethüda Hammam was rated as fair with a score of 57. The new additions of Selimiye Hammam (addition of the dressing room to the front facade) with 49 points, Çemberlitaş Hammam with 33 points, and Cağaloğlu Hammam with 22 points were considered as unacceptable new additions, as they were below 50 points (Table 10).

## Conclusions

Designing new additions to historic buildings is an important issue that requires detailed investigations. Its relationship with the existing building, historical site/lot/context, and region are to be well evaluated so that it should be respectful and compatible with them. Hence, the evaluation method developed with this research is aimed to be useful for both the assessment of existing

additions and the design of new ideal additions. In this research, historic conservation and architectural design principles, national and international standards, as well as related literature on new additions were used together to develop a holistic evaluation method. Although the historic baths were used extensively in the past both for cleaning and social activities, at present, most of them are out of use and have lost their original function. As a result, some have been adapted to new uses and new additions have been constructed to adapt both the new function and the original function to the changing conditions. In total, nine sample bath buildings were evaluated in terms of their new additions by using the model proposal based on a certain rating system.

This six-step assessment method consists of 20 (four steps) or 10 (two steps) points and sub-scores, each taking into account the importance, immediate impact on the historic buildings, and relevance of variants. For instance, the location of the new addition substantially affects the general appearance of the historic building. Therefore, this variant received 20 points, which has been divided into five different sub-categories as rear, side, rooftop, front additions, and archaeological site rooftop coverings, with 20, 15, 10, 5, 10 scores, respectively. Of these, 20 points are given to the rear, as this is the practice with the most respect for historic buildings. Correspondingly, the formal characteristics of the new additions are the ones that are first noticed by the users, and the new addition-context relationship is of great importance since it highlights the distinguishability of the new addition from the historic context. In the same way, while assigning, deciding, and assessing the scores of new additions regarding theoretical approaches (score: 10), function relationship (score: 10), and compatibility to the standards (score: 20) their importance, as well as the relation with the historic building/site has been given priority.

Thus, it became possible to assess the verbal and abstract expressions concretely. As for the national conservation legislation in Turkey, it is observable that there are insufficient and limited data on new additions to historic buildings. For instance, the decision on the construction of new additions is left to the subjective judgments of the authorities in the conservation committee. However, as in the USA, the National Parks Service has specialized decisions and standards (ITS 3, ITS 10, ITS 18, ITS 37, ITS 53) developed exclusively for new additions. In Turkey, on the other hand, the lack of specialized decisions regarding new additions to historic buildings is a serious deficiency at the national level. Hence, it is evaluated that the model proposal developed in this study can be used as a base for the creation of comprehensive and detailed policy decisions, standards, guidelines, and similar regulations on the articulation of new additions to historic buildings at the national level in the future.



## References

- Electronic Sources / Źródła elektroniczne**
- Baghasing Kalpa, *Sensitive Additions to Historic Buildings: A Primer*, Heritage Ohio, <https://www.heritageohio.org/2015/05/18/sensitive-additions-to-historic-buildings-a-primer/> (accessed: 11 X 2021).
- City of New Orleans Historic District Landmarks Commission, Guidelines for New Construction, Additions and Demolition, <https://www.nola.gov/nola/media/HDL/CD/Guidelines/12-New-Construction-Additions-Demolition.pdf> (accessed: 12 VII 2021).
- Creveling Liz, *Rooftop Additions on Mid-Size Historic Buildings*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2007, No. 45, <https://www.nps.gov/tps/standards/applying-rehabilitation/itsbulletins/ITS47-RooftopAdditions-MidSizeBuildings.pdf> (accessed: 12 VII 2021).
- Grimmer Anne, *New Additions to Mid-size Historic Buildings*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 1999, No. 3, <https://www.nps.gov/tps/standards/applyingrehabilitation/its-bulletins/ITS03-Additions-MidSizeBuildings.pdf> (accessed: 12 VII 2021).
- Grimmer Anne E., Hensley Jo Ellen, Petrella Liz, Tepper Audrey T., *The Secretary of the Interior's Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings*, Washington D.C. 2011, <https://www.nps.gov/tps/standards/rehabilitation/sustainability-guidelines.pdf> (accessed: 12 VII 2021).
- Grimmer Anne E., Weeks Kay D., *New Exterior Additions to Historic Buildings, Preservation Concerns*, <https://www.nps.gov/tps/how-to-preserve/briefs/14-exterior-additions.htm> (accessed: 12 VII 2021).
- ICOMOS, The Burra Charter, The Australia ICOMOS Charter for Places of Cultural Significance, 2013, <https://australia.icomos.org/wp-content/uploads/TheBurra-Charter-2013-Adopted-31.10.2013.pdf> (accessed: 12 VII 2021).
- ICOMOS, ICOMOS Charter – Principles for the Analysis, Conservation and Structural Restoration of Architectural Heritage (2003), [https://www.icomos.org/charters/structures\\_e.pdf](https://www.icomos.org/charters/structures_e.pdf) (accessed: 12 VII 2021).
- ICOMOS, International Charter for the Conservation and Restoration of Monuments and Sites (The Venice Charter 1964), [https://www.icomos.org/charters/venice\\_e.pdf](https://www.icomos.org/charters/venice_e.pdf) (accessed: 12 VII 2021).
- ICOMOS, The Declaration of Amsterdam, 1975, <https://www.icomos.org/en/and/169-the-declaration-of-amsterdam> (accessed: 12 VII 2021).
- ICOMOS, The ICOMOS New Zealand Charter 2010, [https://www.icomos.org/images/DOCUMENTS/Charters/ICOMOS\\_NZ\\_Charter\\_2010\\_FINAL\\_11\\_Oct\\_2010.pdf](https://www.icomos.org/images/DOCUMENTS/Charters/ICOMOS_NZ_Charter_2010_FINAL_11_Oct_2010.pdf) (accessed: 12 VII 2021).
- ICOMOS, Resolutions of the Symposium on the Introduction of Contemporary Architecture into Ancient Groups of Buildings, <https://www.icomos.org/publications/93towns7e.pdf> (accessed: 12 VII 2021).
- İlke Kararı- Karar No: 660 / Karar Tarihi: 05.11.1999, <https://kvmgm.ktb.gov.tr/TR-44311/ilke-karari--karar-no-660--karar-tarihi-05111999.html> (accessed: 12 VII 2021).
- İlke Kararı- Karar No: 720 / Karar Tarihi: 04.10.2006, <https://kvmgm.ktb.gov.tr/TR-44332/ilke-karari--karar-no-720--karar-tarihi-04102006.html> (accessed: 12 VII 2021).
- Köşklük Kaya Nezihat, *İtalya'da Tarihi Yapılarda Yeni Ek Uygulamalarında Çağdaş Çatı ve Cephe Sistemleri ile Tasarım İlkeleri, Konu Başlık No: 3 Çatı ve Cephe Sistemlerinde Süreçler*, 6. Ulusal Çatı & Cephe Sempozyumu 12–13 Nisan 2012, Uludağ Üniversitesi Mühendislik ve Mimarlık Fakültesi, Görükle Kampüsü, Bursa, <http://catider.org.tr/pdf/sempozyum6/8.pdf> (accessed: 10 X 2021).
- Kültür Ve Tabiat Varlıklarını Koruma Yüksek Kurulunun, <http://teftis.kulturuzm.gov.tr/yazdir?549C7059D7FF142A3CF3B98AB092CB66> (accessed: 12 VII 2021).
- Petrella Liz, *Designing New Additions to Provide Accessibility*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2009, No. 53, <https://www.nps.gov/tps/standards/applying-rehabilitation/its-bulletins/ITS53-Additions-Accessibility.pdf> (accessed: 12 VII 2021).
- Randl Chad, *Rear Additions to Historic Houses*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2006, No. 37, <https://www.nps.gov/tps/standards/applyingrehabilitation/its-bulletins/ITS37-Houses-RearAdditions.pdf> (accessed: 12 VII 2021).
- Sullivan Aleca, *Exterior Stair/Elevator Tower Additions*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 1999, No. 10, <https://www.nps.gov/tps/standards/applyingrehabilitation/its-bulletins/ITS10-StairTowers.pdf> (accessed: 12 VII 2021).
- Sandor John, *New Additions to Mid-size Historic Buildings*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2011, No. 18, <https://www.nps.gov/tps/standards/applyingrehabilitation/its-bulletins/ITS18-Additions-MidSizeBuildings.pdf> (accessed: 12 VII 2021).
- <https://forum.savingplaces.org/viewdocument/differentiated-andcompatible> (accessed: 17 X 2021).
- Tanaç Kiray Mine, Yılmaz Karaman Özgül, *Tarihi Yapılara Çağdaş Ekler, "Çatıvecephe"* 2006, No. 5, [http://www.cativecephe.com/yayin/631/tarihi-yapilara-cagdas-ekler\\_18599.html](http://www.cativecephe.com/yayin/631/tarihi-yapilara-cagdas-ekler_18599.html) (accessed: 15 X 2021).
- Technical Preservation Services, *The Secretary of the Interior's Standards for Rehabilitation: Introduction to the Standards*, <https://www.nps.gov/tps/standards/rehabilitation/rehab/stand.htm> (accessed: 12 VII 2021).
- Technical Preservation Services, *Rooftop Additions*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2006, No. 36, <https://www.nps.gov/tps/standards/applying-rehabilitation/itsbulletins/ITS36-Rooftop-Additions.pdf> (accessed: 12 VII 2021).
- Tepper Audrey, *Adding or Modifying Fly Lofts on Historic Theaters*, "Interpreting The Secretary of the Interior's Standards for Rehabilitation" 2007, No. 45, <https://www.nps.gov/tps/standards/applying-rehabilitation/its-bulletins/ITS45-Theaters-Lofts.pdf> (accessed: 12 VII 2021).

UNESCO, Vienna Memorandum on World Heritage and Contemporary Architecture – Managing the Historic Urban Landscape, [whc.unesco.org/document/6814.f](http://whc.unesco.org/document/6814.f) (accessed: 12 VII 2021).  
<https://yapidergisi.com/tarihi-yapive-ek-yapi-iliskisinde-cagdas-yaklasimlar-alman-tarih-muze-si-ve-cagdas-ek-yapisi/> (accessed: 11 X 2021).

### Secondary sources / Opracowania

- Al-Jameel H. Ali, Saffo Bayda, *Patterns of Additions to Old Buildings*, “The Second International Conference on Conservation of Architecture, Urban Areas, Nature, and Landscape: Towards a Sustainable Survival of Cultural Landscape” Heritage 2011, Amman, Jordan 2011.
- Dibner R. David, Dibner-Dunlap Amy, *Building Additions Design*, New York 1985.
- Dişli Gülşen, *New Additions to Existing Built Heritage and Their Contributions to Sustainable Development: Cases from Ankara, Turkey*, [in:] *Urban and Architectural Heritage Conservation within Sustainability*, ed. Farisi Hmood Kabila, London 2018.
- Guzmán-Torres Zasha Natiana, “Historic Buildings, and Contemporary Additions: The Elements of a Cohesive Design Relationship,” Master’s project prepared at the University of Maryland School of Architecture Planning Preservation, 2009.
- Kozieć Adam, *Efficient Management of Cultural Heritage by Local Government Bodies*, “Wiadomości Konserwatorskie – Journal of Heritage Conservation” 2020, No. 64, p. 7–16.
- Mikulski Daniel, *New Seats of Landed Gentry – Remodeling or A New Construction? Studies on the Identification and Dating of Manors and Palaces in Greater Poland*, “Wiadomości Konserwatorskie – Journal of Heritage Conservation” 2019, No. 59, p. 49–60.
- Tanaç-Zeren Mine, *Tarihi Çevrede Yeni Ek ve Yeni Yapı Olgusu, Çağdaş Yaklaşım Örnekleri*, İstanbul 2010.
- Węclawowicz-Gyurkovich Ewa, *To Demolish or Preserve for Posterity*, “Wiadomości Konserwatorskie – Journal of Heritage Conservation” 2020, No. 62, p. 85–96.
- White M. Armon, “Defining Appropriateness: An Analysis of the Secretary of the Interior’s Standards on Additions to Historic Structures and Its Impact on the Practice of Architecture, Development, and Preservation,” Master’s thesis project prepared at Columbia University, Graduate School of Architecture Planning and Preservation, 2018.
- Yalaz Elif Tuğba, Dişli Gülşen, Şen Tuğba, *New Additions to Historic Buildings: A Contemporary Roof Addition Proposal for Gaziantep Tutun Han*, “Social Sciences Studies Journal” 2018, vol. 80, No. 81, p. 1635–1648.
- Yavuz Zeynep, Yıldırım Tayfun, *Analyses of Contemporary Architectural Designs Attached to Historical Buildings*, “Gazi University Journal of Science, Part B, Arts Humanities Design and Planning” 2020, vol. 8, No. 4, p.747–760.
- Yüceer Hülya, “An Evaluation of Interventions in Architectural Conservation: New Exterior Additions to Historic Buildings,” doctoral project prepared at the İzmir Institute of Technology, 2005.
- Yüceer Hülya, İpekoğlu Başak, *An Architectural Assessment Method for New Exterior Additions to Historic Buildings*, “Journal of Cultural Heritage” 2012, vol. 13, No. 4, p. 419–425.

---

## Abstract

New additions in a historical context can take many forms, such as additions to existing buildings and new subsidiary additions like garages, sheds, and outbuildings. There are two main reasons for introducing new additions to historic buildings. These are the loss of original functions, the resultant need for new spaces to serve the given secondary function, and the need to integrate the physically damaged parts of historic buildings with new designs. Therefore, in this study, a model proposal based on a rating system developed with international standards as the main guiding principle is proposed to analyze and evaluate the compatibility of new additions with historic buildings. It was then tested in nine historic baths, where different facilities were added, in Turkey. The study provides an important contribution to determining the suitability of new additions to existing buildings before and during the design phase and can serve as a guiding model for the supervisory authority responsible for the necessary permits.

## Streszczenie

Dobudowy mogą przybierać różne formy w historycznym kontekście, przykładowo jako rozbudowy istniejących budynków oraz dobudówek, takich jak garaże, szopy czy oficyny. Istnieją dwa główne powody dobudowywania nowych części do obiektów historycznych. Są to utrata funkcji pierwotnej i wynikająca z niej potrzeba nowej przestrzeni do korzystania z nowej funkcji oraz konieczności integrowania fizycznie uszkodzonych części budynków zabytkowych z nowymi. Proponowany model oparty na systemie ocen, stworzony na podstawie międzynarodowych standardów jako głównej zasady, może zostać użyty do analizowania i oceny kompatybilności dobudów do budynków historycznych. Model przetestowano na dziewięciu zabytkowych łaźniach w Turcji, do których dobudowano różne lokale. Badanie to stanowi ważny przyczynek do ustalania poprawności dobudów do budynków istniejących zarówno przed, jak i w trakcie fazy projektowej, i może być wzornikiem dla urzędów.