

**ARCHITECTURAL SOLUTIONS FOR ORGANIZING INFORMATION AND
NAVIGATION SYSTEMS AT ANCIENT ARCHITECTURAL SITES**

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Abstract. *This article analyzes architectural solutions for organizing information and navigation systems within the territories of ancient architectural heritage sites. Today, the integration of historical and cultural heritage sites into the modern tourism environment, the regulation of visitor movement, and the clear communication of the historical and architectural significance of these sites are among the most relevant issues. From this perspective, information boards, directional signs, maps, QR codes, universal pictograms, observation points, and pedestrian route systems play an important role in transforming ancient sites from merely observable monuments into active educational and tourist spaces. The article substantiates the principles of minimal intervention, compatibility with the historical environment, visual simplicity, functional zoning, harmony with the landscape, and visitor safety in the design of information and navigation systems. It also highlights the possibilities of increasing the tourist attractiveness of ancient architectural sites, reducing the risk of vandalism, and properly interpreting cultural heritage for the general public through the introduction of modern navigation tools.*

Keywords: *ancient architecture, cultural heritage, information and navigation system, architectural solution, tourism infrastructure, pictogram, QR code, route, visitor, zoning, architectural monument, educational tourism.*

Introduction

Ancient architectural sites are important expressions of a nation’s historical memory, cultural development, and architectural thought. Many historical and cultural heritage sites located in Uzbekistan are of great scientific, educational, and tourism significance due to their architectural form, location, structural solutions, and relationship with the landscape. However, at many of these sites, systems that provide visitors with sufficient information, direction, and movement regulation have not yet been fully developed.

When a tourist or local visitor arrives at an ancient site, they should not only see the monument itself, but also gain an understanding of its historical function, architectural structure, territorial composition, construction materials, relationship with the surrounding environment, and state of preservation. In this regard, information and navigation systems serve as an important tool. A properly organized navigation system guides visitors purposefully through the site, enables them to observe the monument without causing damage, and helps interpret historical heritage on a scientific basis.

The purpose of this article is to develop architectural solutions for organizing information and navigation systems within the territories of ancient architectural sites and to highlight the principles for adapting these systems to the historical environment.

Main Part

1. The importance of information and navigation systems at ancient architectural sites

An information and navigation system is a set of architectural and design tools that manages visitor movement within the territory of a historical site, provides necessary information, and helps visitors perceive the site in a clear and meaningful way. Such a system should not be limited to ordinary signs. It should be closely connected with the overall architectural and landscape organization of the site, pedestrian routes, observation platforms, visitor centers, rest areas, and safety requirements.

The main functions of information and navigation systems at ancient sites include the following:

- guiding visitors correctly throughout the site territory;
- communicating the historical and architectural meaning of the monument in a concise, clear, and understandable form;
- preventing uncontrolled access to protected areas;
- regulating tourist flows;
- increasing the tourist attractiveness of the site;
- reducing damage to the monument and its surrounding environment.

Thus, an information and navigation system is not only a means of creating convenience, but also an important architectural element for preserving a cultural heritage site and ensuring its correct interpretation.

2. Architectural approach to the organization of information and navigation systems

Designing a navigation system for ancient architectural sites differs from designing ordinary urban signage systems. This is because any new element placed in a historical area must harmonize with the monument's original appearance, scale, color palette, and landscape. Therefore, information boards, signs, maps, and directional indicators should not look foreign to the historical environment; on the contrary, they should contribute to understanding the site.

In this process, it is advisable to follow the following architectural principles:

The principle of minimal intervention. Navigation elements should be installed without damaging the structural parts of the monument, ancient walls, or archaeological layers. Information boards should be designed as independent, lightweight structures and, if necessary, should be removable.

The principle of compatibility with the historical environment. The material, color, form, and placement of signs and boards should not conflict with the overall

appearance of the site. For example, natural stone, wood, simplified metal forms, and colors close to earth tones are suitable for a historical environment.

The principle of visual simplicity. Information tools should be free from excessive decoration, easy to read, and based on a simple graphic language. Texts should be brief, scientifically grounded, and understandable to the general public.

The principle of universality. Universal pictograms, maps, and signs that are understandable to visitors of different ages, languages, and cultural backgrounds should be used in the navigation system.

The principle of harmony with the landscape. Information and navigation elements should be placed not only in relation to the monument itself, but also in connection with the surrounding relief, vegetation, paths, observation points, and natural views.

3. Territorial zoning and the navigation system

For the effective organization of an information and navigation system at ancient architectural sites, it is important to divide the territory into functional zones. Generally, three main zones may be distinguished within such sites:

Protected historical and archaeological zone. This zone contains the main structural parts of the monument, ancient walls, archaeological remains, and layers of scientific importance. Access to this zone should be restricted. Navigation tools in this area should be organized through warning signs, protective boundaries, and observation points located at a safe distance.

Buffer zone. This area is intended for visitor movement. Pedestrian paths, brief information boards, directional signs, maps, and observation platforms may be placed here. The buffer zone serves as the main space for viewing the site and receiving information about it.

Recreational and infrastructure zone. A visitor center, rest areas, sanitary facilities, souvenir sales points, and service elements may be organized in this zone. It is also advisable to locate the main information center in this area.

Such zoning helps ensure that the navigation system functions clearly and in an orderly manner. Visitors can easily understand where to enter, which route to follow, where to stop for information, and which areas they are not allowed to access.

4. Architectural and design solutions for information boards and signs

Information boards are among the main tools for revealing the meaning of an ancient site. They may be placed at the entrance to the site, at key observation points, and along the route. Boards should not repeat one another; instead, each point should provide visitors with new information.

It is advisable for information boards to include the following information:

- the name and brief history of the site;
- the construction period and architectural features;
- a plan or schematic layout of the site;
- the state of preservation;

- the relationship with the landscape;
- rules for visiting the site;
- a QR code linking to extended information.

The form and material of the boards should be compatible with the environment of the monument. For example, tall and large advertising-type structures should be avoided. They should be low, compact, noticeable, yet not visually dominant over the monument.

Directional signs, in turn, guide visitors along the main routes. They should indicate the entrance point, visitor center, observation platform, exit route, rest area, sanitary point, and safe pedestrian routes. If such signs are developed in a unified graphic style, the entire site will acquire a coherent architectural and design system.

5. The use of digital technologies and QR codes

Digital technologies play an important role in modern information and navigation systems. At ancient architectural sites, QR codes can be used to provide visitors with additional information, audio guides, 3D reconstructions, historical maps, photo archives, and scholarly explanations.

The advantage of QR codes is that they reduce the need to place large volumes of text on physical boards. As a result, the boards remain visually simple and compact. In addition, it becomes possible to provide information in several languages, which creates convenience for international tourists.

However, digital technologies should not completely replace traditional information tools. Not all visitors may have internet access or smartphones. Therefore, the main information should be provided on the board, while extended information should be made available through QR codes.

6. Organization of visitor movement

Visitor movement within the territory of an ancient site should be planned in advance. Unregulated movement may lead to the deterioration of the monument, damage to archaeological layers, and safety problems. Therefore, pedestrian routes should be marked in a way that enables visitors to see, understand, and safely observe the site from the most appropriate points.

Routes should meet the following requirements:

- they should not damage the historical site;
- they should adapt to the natural relief and existing paths;
- they should include the main observation points;
- they should be as convenient as possible for people with disabilities and elderly visitors;
- they should be supplemented with rest and information points;
- entrance and exit directions should be clearly indicated.

Visitors should not get lost within the site, make unnecessary movements, or miss the most important features of the monument. This approach allows a historical site to be perceived as a “living textbook.”

7. Tourism and educational significance of the information and navigation system

A properly organized information and navigation system significantly increases the tourism potential of ancient architectural sites. For tourists, not only the site itself but also its story, meaning, and interpretation are important. If sufficient information about a monument is not available, it may be perceived merely as a ruin or an incomprehensible structure. Conversely, a high-quality information system reveals the historical layers, architectural composition, and cultural significance of the site.

An information and navigation system also contributes to the development of educational tourism. For school pupils, students, researchers, and local residents, such sites can become open scientific and educational spaces. Through information boards and routes, knowledge can be formed in the fields of architecture, history, ecology, urban planning, and cultural heritage protection.

8. Possibilities for application in Uzbekistan

Uzbekistan is a country rich in ancient civilizations, historical cities, and architectural heritage sites. Ancient sites located in Samarkand, Bukhara, Khiva, Termez, Kashkadarya, Surkhandarya, Khorezm, and other regions are important destinations that have been or may be included in tourist routes.

When introducing information and navigation systems at such sites, it is advisable to develop a unified design concept. While preserving the historical specificity of each site, the overall graphic symbol, color, pictogram, and information-board style should function as a single system. This will help form a modern, orderly, and internationally compliant tourism infrastructure for Uzbekistan’s cultural heritage sites.

Information and navigation systems should also be useful for local residents. Monuments should not be only places visited by tourists; they should become spaces of cultural memory, walking, recreation, and learning for local communities.

Conclusion

The organization of information and navigation systems at ancient architectural sites is one of the important architectural solutions for preserving, explaining, and integrating cultural heritage into the modern tourism environment. Such systems regulate visitor movement within the site, provide scientifically grounded information about the monument, ensure safety, and promote the site without damaging the historical environment.

Information boards, directional signs, maps, universal pictograms, QR codes, and pedestrian routes should be organized on the basis of a unified architectural and design concept. In this process, minimal intervention, compatibility with the historical environment, harmony with the landscape, visual simplicity, and functional zoning emerge as the key principles.

In the conditions of Uzbekistan, the introduction of modern information and navigation systems at ancient architectural sites will serve to increase their tourist attractiveness, strengthen respect for cultural heritage among local residents and young people, and develop historical sites as active educational spaces.

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