

ARCHITECTURAL DESIGN PROVIDES LIGHT GRAYS

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ABSTRACT

In particular, future builders, architects, bridge builders or technicians, engineers and others should become masters of their profession. Today, construction drawing shadows play a major role. Thanks to light and shadow, the architect can show the sophistication of the exterior. Drawings performed in the process of architectural design should be visual and give the most complete picture of the volumetric-spatial structure of the object, compositional solution, the appearance of the building, its plastic solution, surface relief, etc.

KEYWORDS: Architecture, perspective, orthogonal shadow, relief, space, lighting, beam, drawing, images.

INTRODUCTION

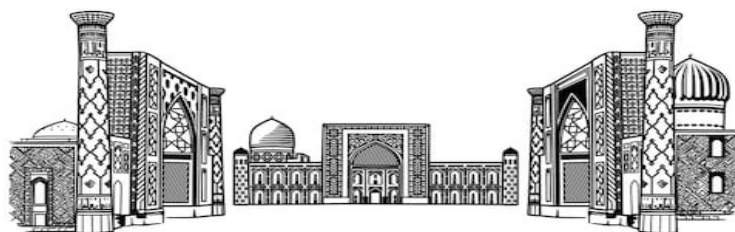
The concept of developing a higher education system until 2030 includes raising the content of higher education to a qualitatively new level, creating a system of training highly qualified personnel capable of making a worthy contribution to the sustainable development of the social sphere and economy, and finding its place in the labor market. The emphasis was on ensuring the quality and independence of academic hours in higher education. It is important to establish relationships based on mutual respect, sincerity, the use of non-traditional methods in organizing educational activities, creating a working environment with real-life examples, in order to ensure knowledge, development and effectiveness of this process. In the process of mastering the basics of a subject specific to a specialty, the student focuses on creative activity. In particular, future "builders", "architects", "bridge builders" or technicians, engineers and others should become masters of their profession.

Architectural monuments of various eras indicate that masters of the past skillfully used the architectural quality of chiaroscuro. In Egyptian architecture, with bright and high sun, even minor reliefs gave an expressive texture to the walls. This highlights the work of the architect. Particularly skillful application of the historical architecture of Uzbekistan is the Degaron Mosque, the Sherdar Madrasah, the Samnite Mausoleum and other qualities of light and shadow can be seen. In the constructions of Samarkand, Bukhara, Navoi and the valley of oases. Masters of the Renaissance perfectly used the formative properties of chiaroscuro.

Today, construction drawing shadows play a major role. Thanks to light and shadow, the architect can show the sophistication of the exterior.

Chiaroscuro plays the role of a formative factor in the perception of any spatial object. Drawings performed in the process of architectural design should be visual and give the most complete picture of the volumetric-spatial structure of the object, compositional solution, the exterior of the building, its plastic solution, surface relief, etc. Shadows on the architectural drawing provide an opportunity to bring a little closer perception a flat image to the perception of a real object in kind.

Perspective - an image built on the basis of central projection, taking into account the apparent changes in the size and shape of the depicted object, caused by its distance from the observation point and its location in space. A perspective image can be constructed by projecting onto various planes or surfaces.



- Linear perspective - the image is created mainly in planes that are inclined relative to vertical, and sometimes horizontal planes;
- Panoramic perspective - the image is created from the inside of the cylinder surface;
- Dome perspective - the image is made inside a spherical or elliptical surface;
- Plafond in perspective - the image is made in a horizontal plane and is mainly processed on the ceilings of the building;
- Theatrical perspective - the image is made in several planes, then it is collected and used in the scenery of theatrical scenes;
- Relief perspective - the image is made in part of space and is mainly used in sculpture;
- Stereoscopic perspective - the image of the object consists of two points of different colors, which are located one above the other at a certain angle. When you look at such an image with glasses called anaglyph, the object looks three-dimensional;
- observation perspective - a set of rules for processing an image of an object in the form in which it appears;
- aerial perspective - the image of the object is depicted in colors depending on the intensity of its lighting, the depth and width of the space is set by color;
- Analytical perspective - created by calculating the image of the object;
- Cinematic perspective - the science of learning information about the speed and acceleration of a moving object in a graphical way using photographic images and moving images.

The types of perspective mentioned above have evolved to this day and will continue to evolve.

The perspective of the line is convenient to build on the singular points of the line. Special points of the line include:

- the beginning of the line - the point of intersection of the line with the plane of the picture;
- limit point of the line - the point of the line infinitely distant from the observer.

The perception of the architectural drawing with the image of chiaroscuro is much closer to the perception of a real object.

The image of chiaroscuro in the drawing consists of two stages: the first is the identification and transmission of gradations of illumination, taking into account physical laws and the “air” perspective, and the second is the construction of shadow outlines. The architect’s method can be called a variation of the ray trail method, when the perspective is not combined with the frontal projection, but transferred to a free field of the drawing or to another sheet, while scaling the image. In the future, there are many different methods. One of them is an architectural method. Distinguish the way the architect with one vanishing point, with two, with a lowered (raised) plan and with a side wall. An architect's method with one vanishing point. A plan (horizontal projection) and a facade (frontal projection) of a certain structure are given.

Natural light source. In this case, since the light source (the sun or moon) is very far from the earth, the light emitted from it is considered to be parallel, and this type of lighting is called parallel cracking. Because the shadows of the sun or moon are reflected in the size of the object, the light source is infinite. When a light source falls on the back, front, right or left side or top of a person, it looks as if the person’s face is changing.

For example, in drawing or drawing lessons, teachers use lighting equipment to illuminate nature after training. When you place a lighting device on either side of nature, it is placed on the convenience side, that is, where it is interesting to draw.

This means that the artist or architect must skillfully use light and shadow. In the theatrical scene, the viewer is attracted by the main character, directing the light of the projector to the corresponding person.

In general, where there is light, there are shadows, and these shadows are divided into two types, things are divided into their own shadows and the shadows that fall from them. If you look at a still life consisting of several things, if there is something next to it, light will fall on them and form a reflex. The reflex phenomenon is in the shadow of everything, and sometimes, when we look at it with our own eyes, we do not understand this. You can see this clearly by taking a piece of white paper and looking at it in the light.

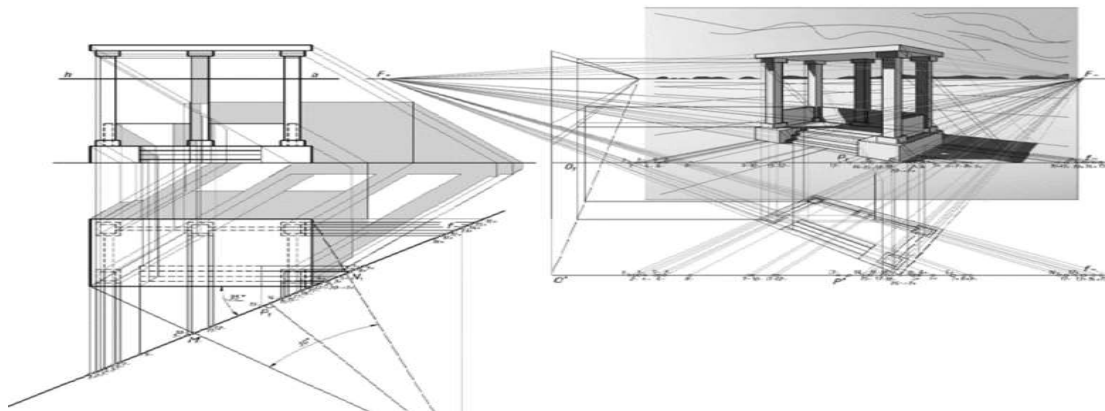
In the future, artificial and natural light sources will be used to determine the shadows of surfaces and the shadows falling from them.

The construction of shadows in the future is performed using the principles set forth earlier in the construction of shadows in orthogonal projections.

1. Shadows are own and falling.
2. Own shadow - the unlit part of the surface of the object.
3. Drop shadow - a shadow cast by a surface in its own shadow onto other surfaces or planes. The basic principles for constructing shadows in perspective: the light source is removed to infinity (sunlight); light rays S are parallel to the plane of the picture; the light rays S are parallel to each other; the sun can be located both on the right and on the left; the angle of the light beam is assigned individually. To give perspective images more expressiveness, they build their own and falling shadows.

We accept an angle of inclination of the light beam of 45° . Shadows can be constructed both with artificial illumination of the object and with natural sunlight. In the first case, the light source is located at an insignificant distance from the object. In this case, the rays of light form a conical beam of rays, the center of which is the light source. In natural light, the light source is removed to infinity and the light rays are parallel to each other.

The shadow of the point will fall on that plane of projections that the light beam will meet earlier, that is, to which the point is closer. It is possible to build a shadow of a point without conducting light rays, but forming a right-angled isosceles triangle in the direction of the light beam, as shown in the drawing. Sometimes it becomes necessary to build a shadow of a point, which in reality is not. Such a shadow is called imaginary.



To construct the shadow of a curve line, it is enough to construct the falling shadows of a number of points belonging to this line and connect them with a smooth curve.

When constructing shadows in orthogonal projections, the direction of the light rays is taken parallel to the diagonal direction of the cube, whose faces are parallel to the projection planes. The projections of the diagonal of a cube are the diagonals of squares. The projections of light rays in this case make up an angle of 45° with the x axis.

Such a “standard” direction of light rays creates certain advantages when constructing shadows and performing an architectural drawing, as it facilitates construction and makes it possible to “see” the location of building elements, to understand the shape, proportions and sizes of object elements by the amount of shadow cast by individual parts of the building

When constructing shadows from geometric bodies, they build their own and falling shadows. Own shadow is formed by light rays tangent to the surface. Each point of its own shadow corresponds to a point of shadow falling. If the base of the geometric body is located on the projection plane, the construction of the shadow is simplified. Glare is the most illuminated part of the surface of an object.

When constructing a shadow on two planes of projections, first build a shadow, assuming that the shadow falls on one plane of projections (use an imaginary shadow). Meeting with the OX axis, the shadow is refracted and goes to the frontal plane of projections.

The construction of shadows on the facades of buildings is based on determining the points of intersection of light rays with the vertical planes of the facades or sloping roof slopes. To complete the constructions of the falling shadow, it is necessary to have at least two projections of the building or its fragments given. When

determining the contour of a falling shadow, it is necessary to use all the rules formulated earlier. When building the shadow of the fragments of the building determine:

For the training of modern, comprehensively trained specialists in higher educational institutions, vocational education was opened, and the issue of training qualified engineers, architects or teachers is raised and solved in an interesting technique. To this end, and professional education for specialists in this field.

Development began with painting, and people who still do not know how to write, carved images of what they saw on the rocks, walls of mountains and elsewhere. Such images are common in China, Egypt, Central Asia and other countries. The idea of depicting and using such graphic symbols has a long history in human development.

In conclusion, it should be noted that the formation of students' human qualities, the strengthening of their desire for knowledge is important, and this issue has always been relevant. Because the desire leads a person to creativity, productivity, creativity.

REFERENCE

- 1) PF-5847 No. 08.10.2019 "On approval of the Concept of development of the higher education system of the Republic of Uzbekistan until 2030".
- 2) N.A. Troitskaya, G.N. Butuzova. Shadows in orthogonal projections, perspective and axonometry. Vladimir 2009
- 3) Klimukhin, A. G. Descriptive geometry. Moscow: - 2007.
- 4) Budasov B.V. Construction drawing textbook for universities Moscow: - 2002.