JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205

Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

DESIGN OF PUBLIC BUILDINGS: CHARACTERISTICS, STANDARDS AND REQUIREMENTS OF PROJECT DEVELOPMENT

Rahmonov Shavkat Sherkuziyevich

Andijan State Technical Institute teacher, Andijan, Uzbekistan

E-mail: akhmadjon00@mail.ru

Abstract: This article examines the main principles of project development features, standards and requirements in the design of public buildings. Challenges facing architects in project development are also discussed, including the demands of sustainability, accessibility and social responsibility.

Keywords: architecture, public buildings, spatial planning, user experience, sustainable development, social responsibility.

Enter

Business centers, shopping and entertainment areas, educational institutions of various sizes, sports complexes - all this requires dual attention from project developers and builders, because a large flow of people passes through these places, which increases the risk of fire and other emergency situations. In this article, we will talk about the architectural design of residential and public buildings and structures.

What is included in this concept?

Most social needs are fulfilled in groups of people. For this, you need a room adapted to the event program. Designers pay attention to two main indicators - compliance with technical regulations and at the same time - comfort and needs of people and architectural safety, practicality of placing building parts, installation of all engineering systems, etc.

The first rule determines the achievement of a functional goal, for example, an educational institution must be divided into zones, which in turn are divided into offices. The second shows technical needs, for example, the installation of fire alarms and exits, compliance with sanitary and hygienic requirements for lighting.

Sample ready-made projects of residential and public buildings and structures differ depending on the construction category. There are structures for temporary accommodation and there are structures for living, for example, hotels and motels, sanatoriums. The availability of sleeping places, the number and location of bathrooms, as well as other "benefits" that are difficult to imagine staying in one place for a long time will depend on this.

Categories of buildings

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

All objects are divided into:

Education and training institutions: schools, kindergartens, universities, technical schools, as well as places of additional education - children's art schools, etc. The layout of such spaces is strictly divided into offices for educational processes, and the rest for faculty and business needs.

Scientific centers. They are distinguished by the availability of laboratories, test rooms for experiments, as well as meeting and conference rooms for holding meetings.

Healthcare institutions. These are not only hospitals, polyclinics and polyclinics, but also all types of sanatoriums and medical recreation complexes. If inpatient treatment is carried out, then there must be a bed for patients or residents. Also, in addition to doctors and receptions, great attention is paid to the area around the building. A design feature of public buildings for healthcare purposes is the presence of free access (for an ambulance), as well as green spaces, a park area with gazebos - this is a place for a walk and for the recovery of patients. Sometimes in cities this condition is not met.

Sports facilities. They are divided into internal and external parts. The first are more complex structures with areas for spectators, areas for athletes, including showers, dressing rooms and a medical room. The second is outdoors. Their design is quite simple.

Cultural institutions. These are theaters, museums and other recreation centers. The design and construction of public buildings for cultural purposes is primarily regulated by the customer's specifications. If the performances will take place here, then the acoustic system, as well as the enfilade arrangement of the audience and the lighting system should be calculated. Screen placement and sound quality are important for movie theaters. Exhibition centers emphasize large areas with simple geometry and enhanced security systems to prevent theft.

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

Catering establishments. For restaurants, cafes and kitchens, it is necessary to clearly divide into two zones: guest and assistant. In the first, the main focus is on the interior and the arrangement of the seats. The second is more complicated, where it is necessary to divide it into an administrative part, buildings for employees, as well as kitchen workshops - cold, hot, pastry, etc. The entire project must comply with the sanitary and hygienic standards of public catering.

Shopping areas: shopping centers, markets, small private shops.

Transport interchange facilities: railway stations, airports. These are the most difficult objects to secure. Due to the increased risk of terrorist attacks, maximum requirements are placed on them. These are also high-traffic areas, so it's important to provide non-intersecting lines for human flows - entry, exit and movement. Also, separate rooms should be reserved for service personnel. This group also includes metro stations.

Communal buildings. This service is at different levels - from a public toilet with established standards of regulation of utility networks to large ceremonial halls of the registry office.

Multi-functional objects are separated. They can combine different zones. The complex may consist of a retail space, a dining area, a sports center and entertainment facilities such as cinemas. The rules for the design of large-scale public buildings provide only for an individual project. In fact, standard solutions are not used, because each individual center has different components.

Normative documents regulating the activities of designers (Designers).

The main document containing construction rules is the Urban Development Code of the Republic of Uzbekistan. Its updated edition was released in 2018. It regulates the activities of

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

designers, builders, as well as the responsibility of employees for the work performed.

This document is substantially consistent with the Land Code of the Republic of Uzbekistan. In addition to safety standards and general regulations, attention should also be paid to the overall appearance of the city, so all projects must be coordinated with local authorities.

Direct document containing design standards for residential and public buildings and structures SNNK 1.01.01-09, SHNK 1.01.06-23. It is based on the State Law "Technical Regulation on the Safety of Buildings and Structures" and includes requirements for the protection of life and property of citizens, as well as the environment.

The code of regulations outlines standards for usable space based on ceiling height, availability of stairs and passenger and freight elevators, distance between various facilities and doorways, and the type of facility and number of public visitors expected.

It also provides recommendations for the installation of utility networks - ventilation shafts, heating devices, lighting, water supply and drainage, etc.

Architectural project of the public building

When creating the project, you need to divide the entire area into two perimeters:

As the core of planning, any high-rise buildings are based on the central forming room, which is also known as built according to this principle. In the center can be the main flight of stairs or an elevator shaft - this is necessary for the skeleton, because it supports other elements - non-load-bearing walls. If a non-high-rise building is planned, the core can be in the form of a main room. For example, a lobby or large hall for theater or other performances. The task of such placement is to form a structure. Secondary areas - administrative, communal and economic - branch off from it.

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

Structural nodes. The rest of the halls, rooms and corridors should be connected to the unified structures. This goal should be ensured by the same flow of people from the outside and the entry of service personnel from the inside.

According to these two zoning rules, we can imagine the remaining zones that should be located in the building. The most convenient way to do this is in ZWSOFT software. ZWCAD software is designed to create a very complex project. With its help, you can draw the master plan and individual units, create sections and prepare construction documents. This is helped by special add-ons - VetCAD++ and SPDS GraphiCS modules, which include State-GOST standards for drawing. Regulations are quickly updated with each change in legislation.

Any purpose building should have the following set:

The door. There can be one or more - it depends on the volume of transportation. Their location should correspond to the presence of a pedestrian crossing on the road, and if a park area or other area is allocated during construction, then access roads and paths for pedestrians should be equipped. If the doors are automatic, then they must be mechanical - in case of emergency, they must always be open. If stairs are available, ramps should be provided for disabled persons and women in wheelchairs. If not, a button should be provided to ask staff for help.

Checkpoint. Some facilities must have a checkpoint. These are airports, hospitals, stadiums and educational institutions. They should be equipped with electronic or mechanical turnstiles, cameras and a guard post.

Closet. Locker rooms. Sometimes, in order not to create traffic, it is installed not at the entrance, but in additional rooms, for example, in the basement.

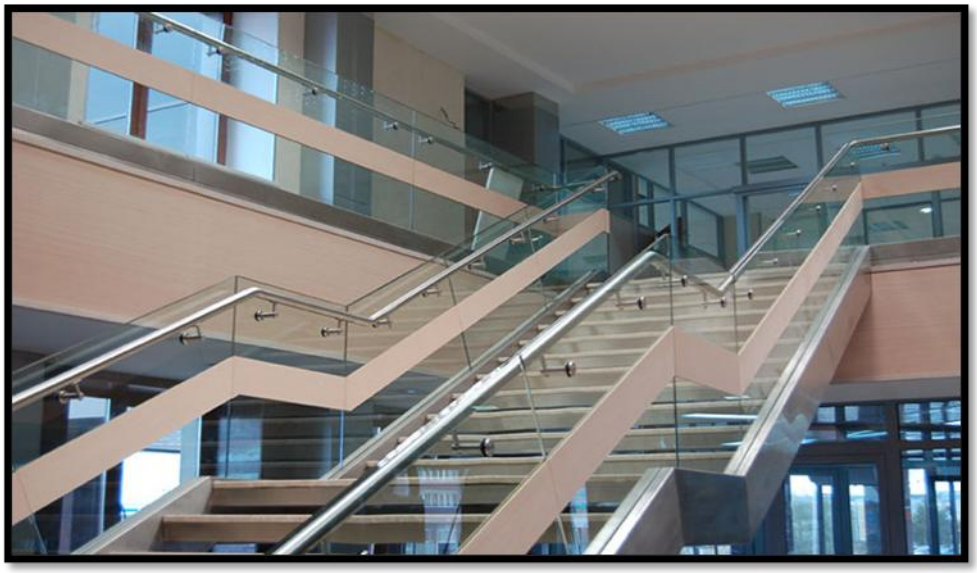
Lobby. Its size is calculated based on the number of visitors.

Emergency entrances and exits - every stairwell should have an evacuation plan. The number of emergency access teams is also determined by the number of people expected.

In addition, this functional unit may include: vestibule, porch, hall.

Stairs and elevators in public buildings - based on project recommendations.

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75



The technological solution should always include main, auxiliary and emergency stairs. The first is for visitors, the second is for employees, and the third is for both groups in case of emergency.

They can be two or three flights, depending on the purpose and size of the human flow. The width of the stairs is calculated as follows:

The number of people over 100 people - 1.35 m.

Auxiliary structures for employees - 1.2 m.

For small spaces with no more than 5 people at a time - 0.9 m.

The intermediate platform is not less than one meter.

The entire flight of stairs should be the same, that is, each step should be similar to the previous and subsequent steps. There will be no more than 16 stairs in one span.

Ceiling height

For buildings with living rooms, such as sanatoriums and tourist centers, it is important to make the ceiling at least three meters above the floor. For hospitals and clinics with a large number of visitors, an additional allowance is given - at least 3.3 m. For sports complexes, an individual standard is developed depending on the type of sport that requires the use of a large area.

In a number of utility rooms, ceilings can be made lower, but they are not allowed to be less than 1.9 meters.

Often, the object is reconstructed, and then offices and shops are established in the former residential buildings. This is an exception when the existing standards are allowed to be used.

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

But they are suitable only for small and private centers. Administrative institutions may be established only in accordance with the above Code of Regulations.

CONCLUSION

Public buildings play a major role in the development of the city, their construction accounts for half of the total costs for the development of the residential area. All these buildings are designed for various life processes: public services, education and training, entertainment, etc.

A specific functional feature of all public buildings is the short-term (a few hours) concentrated presence of a large number of people in them.

The mass of functional processes requires the proper organization of the movement of people inside the building, ensuring the safety of people in the building and the possibility of their quick evacuation in emergency situations.

The volume planning solution of a public building should, first of all, meet the requirements of the functional process for which it is intended.

The idea of the appropriateness of the building and its comfort changes significantly over time, and therefore the ability to quickly adapt to new requirements is one of the most important functional qualities.

The last decade has seen an increase in the level of industrialization in construction, the number of civil buildings designed according to standard series using standardized solutions and projects is increasing.

In the design of public buildings, it is recommended to take into account the location of the Republic of Uzbekistan, the structure of the earth, and the actual construction and design rules, taking into account earthquake resistance.

LIST OF REFERENCES

Urban Development Code of the Republic of Uzbekistan

SHNK 1.01.01-09- System of regulatory documents in construction.

SHNK 1.01.06-23- Duration of project work. Residential and civil buildings.

4. Avdotyn, L.N. Urban planning: a textbook for universities / L.N. Avdotyn, I.G. Lezhava, I.M. Smoler. - M.: Stroyizdat, 1989. - 432 p.: ill.

5. Adamovich, V. V. Architectural design of public buildings and structures: a textbook for universities / V. V. Adamovich, B. G. Barkhin, V. A. Varezhkin and others; Under the general. ed. I.E. Rozhina, A.I. Urbach. - 2nd edition, revised. and add - M.: Stroyizdat, 1984. - 543 p.: ill.

JOURNAL OF APPLIED SCIENCE AND SOCIAL SCIENCE
eISSN 2229-3113 pISSN 2229-3205
Volume 15 Issue 03, March 2025
Impact factor: 2019: 4.679 2020: 5.015 2021: 5.436, 2022: 5.242, 2023: 6.995, 2024 7.75

6. Volchok, Yu.P. Constructions and forms in Soviet architecture / Yu.P. Volchok, E.K., Ivanova, R.A. Katznelson, Yu.S. Lebedev. - M.: Stroyizdat, 1980. 4. Gelfond, A.L. Architectural design of public buildings and structures: textbook, training manual. Approved by the Ministry of Education of the Russian Federation / A.L. Gelfond. - Moscow: "Architecture-S", 2006. - 280 p.: ill.

6. Gelfond, A.L. Architectural typology of public buildings and structures: textbook, study guide. Recommended by the teaching-methodological association of the Ministry of Education of the Russian Federation for education in the field of architecture / A.L. Gelfond. - N. Novgorod: NNGASU Publishing House, 2010. - 213 p.: ill.

7. Gelfond, A.L. Business center as a new type of public building: Monograph. / A.L. Gelfond. - N. Novgorod: NNGASU Publishing House, 2002. - 130 p.; 36 l.: ill.

8. Gelfond A.L. Architectural design of public spaces: textbook, manual. Approved by the Educational Methodology Department of the Ministry of Education and Science of the Russian Federation for education in the field of architecture / A.L. Gelfond. - N. Novgorod: NNGASU Publishing House, 2013. - 265 p.: ill.

9. Generalov V.P. Features of the design of multi-storey buildings: a textbook. - method. allowance / V.P. Generals; Samara. state. Arc. - builds a university. - Samara: Samara book publishing house. 2007. - 256 p., ill.

10. Dutsev, M.V. Architecture concept for a contemporary art center. The story. Theory. Practice / M.V. Dutsev. - Russia: LAP LAMBERT Academic Publishing House, 2012. - 184 p.: ill.

11. Zakharov, A. V. Architecture of civil and industrial buildings. Civil buildings / A. V. Zakharov, T. G. Maklakova and others; Under the general. ed.

12. A. Abdurahmanov. PROEKTIROVANIE SEYSMOSTOYKIX ZDANIY I SOORUJENIY Study guide Palmaring-Publishing-Akademie. -978-620-2-38456-8, 2025.

13. A. Abdurahmanov. ARKHITEKTURNOE PROEKTIROVANIE (JILYE I OBSHCHESTVENNYE ZDANIYA) Methodical guide, "Palmarium Academic Publishing". - UDK 69 (075) BBK 38.6Ya7 Ya 667, 2025.

14. A. Abdurahmanov. STROITELNOE PROEKTIROVANIE ZDANIY I SOORUJENIY, UChEBNOE POSOBIE Pod redaktsiey Professor of architecture and construction of Tashkent University, doctor of technical sciences. ISBN: 978-620-2-39631-8, "Palmarium Academic Publishing", 2025.