



FIRE PREVENTION MEASURES AND MOSQUE SECURITY SYSTEMS. CASE OF UZBEKISTAN

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Abstract:

Currently, Islam is regarded as one of the major world religions. There are currently 1.8 billion Muslims worldwide, or around 24% of the world's population, according to some estimates. There are simply too many believers, necessitating the construction of numerous mosques, which are specialized religious structures. As venues where a large number of people of all ages (from youngsters to the elderly) and mobility groups congregate, Muslim religious sites today require extra attention to fire safety. Throughout a million people can fit in some mosques around the globe.

Keywords: religion, Islam, mosque, safety measures, fire, security, evacuation, fire prevention measures.

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Relevance of the topic: Mosques rarely see many visitors throughout the workweek, but on the days of Islamic holidays and Friday prayers, the congregation swells significantly. Due to the unique aspects of this religion's worship rituals, their mobility about the mosque is made difficult. Think about the distinctions between structures of this sort and structures from other religions.

First, outside shoes are taken off and put in a specified spot at the mosque's entrance. People take some time to locate and put on their shoes before leaving, which extends the evacuation period. Additionally, the shoes reduce certain of the track's portions'

throughput. Secondly, the initiated collective prayer will only be finished by the believers after the imam concludes his or her prayer in the case of a fire or other natural calamity (the person leading the prayer). Thirdly, individuals who don't belong in the mosque pray outside, keeping others from leaving the building.

Purpose of the study based on a study of the time the evacuation started and finding patterns in the movement of people in Muslim places of worship, calculating the values required for standardizing the specifications for evacuation routes and exits in mosques.

The following tasks had to be completed in order to achieve **the goal**:



- To examine the design elements and functional implementation of the primary process in Muslim prayer facilities;

- Establish a relationship between the area of their horizontal projections and the number of functional contingents in mosques, as well as the estimated gender and age composition of the human flow.;

- Depending on where the fire is in a mosque, determine the time limits for the evacuation to begin;

- Establish the values for the variables governing the flow of people during the evacuation of mosques in the event of a fire and determine their correlations;

- to suggest techniques for filtering the developed impenetrable protection solutions and assessing their efficacy;

- Create specifications for space-planning, engineering, organizational, and technical procedures aimed at guaranteeing the safe evacuation of people in mosques based on a multivariate analysis of the evacuation process.

Object of study - processes of evacuation of people in mosques in the event of a fire.

Subject of study - The required dimensions of evacuation routes and exits are determined by the start time of the evacuation as well as the patterns of people moving through mosques along different types of paths.

Scientific novelty of the research is as follows:

- The primary functional contingent's gender and age distribution was identified, and a correlation between the size of the prayer hall and the populace was found;

- A connection was made between the start of the evacuation and the distinctive aspects of worship in Muslim places of worship;

- For all sorts of communication channels, a set of values for the speed of movement of mixed flows in mosques at varied densities intervals has been gathered.

The theoretical and practical significance of the work lies in:

- determining the size of evacuation exits to enable the fulfillment of the requirements for safe evacuation in mosques by taking into account the known patterns of people flow;

- making certain that it is possible to undertake scientifically-based estimates of fire

risk values in mosques using actual values that explain the evacuation process;

- the creation of organizational and technical suggestions aimed at maintaining the protection of the mosques' primary operational contingent.

When Islamic law's core sources are taken into account, mosques emerge as the primary locations for prayer. The cathedral mosques, which can hold the most parishioners, are now the principal mosques in the city. They are massive buildings with a variety of premises that often implement and maintain the building's primary functional function. This-sized mosques are plainly visible in the cityscape. It is important to provide the mosque's hundreds of thousands of visitors with not only comfortable surroundings (such as lighting and a microclimate, a flat floor and clean carpeting, good acoustics and the ability to hear the imam's voice), but also safety in the event of a fire, as provided by evacuation routes and exits.

The layout of mosques' interior spaces affects the evacuation paths and exits in a variety of ways. Therefore, it is important to consider how men and women would organize their joint collective prayer in mosques while designing them, especially prayer halls. Separate escape routes are employed to provide complete visible separation of one from the other.

It is a requirement of the Islamic faith that followers undergo the ablution ritual before praying in order to maintain their cleanliness. This necessity served as the foundation for the creation of unique ablution spaces at the mosque, which are still an essential component of it today. The imam's room is located on the mosque's grounds and has a communication link to the front of the prayer hall. This connection enables the imam to enter the room at the start of prayer or the sermon without having to cross the congregation's rows. The evacuation from the mosque's high-rise minaret is particularly challenging, but typically there are only single jobs available.

It should be noted that prayer hall main entrances are typically placed on the side opposite the direction of prayer, serving as evacuation exits in the event of an emergency.



People's quick and unencumbered evacuation is the primary means of ensuring their safety in the event of a fire. Even under normal circumstances, large masses of people gather in front of the prayer hall's entrances at the conclusion of the collective prayers, which is a visual indication of the potential complexity of the evacuation procedure. The main cause is that there aren't enough emergency exits. Other factors include the illogical placement of shoe shelves, donation boxes, and other elements connected to both mosque interior decorating and Muslim religious activity.

Another issue is that "smoky" stairwell escape routes do not always have a set length. Naturally, once at the stairwell, individuals do not proceed to the safe area but rather continue on their way, where they are once again exposed to the dangers of fire.

We believe it is unrealistic to equip mosque prayer halls with automatic fire extinguishing systems due to the difficulty of installing and maintaining these systems in the under-dome space as well as the low fire load within the prayer rooms itself. What about the mosques' halls, where fire safety must be observed? Mosque halls get crowded as people congregate there, and the shoes and clothing left behind by worshippers contribute to a significant fire load. It is crucial for them to have such a system.

A smoke protection system that includes a smoke extraction system is another technology designed to safeguard escape routes. However, there are several issues with its application.

Conclusion.

However, in actuality, there are no such smoke removal systems from prayer rooms, not even in modern mosque buildings. In buildings with two stories or more, corridors without natural ventilation make up the second category of locations where smoke removal is necessary. However, it's crucial to remember that smoke removal is not necessary in such hallways in one-story buildings.

As a result, we can conclude that autonomous systems do not consider architectural details, primary functional requirements, or the protection of evacuation routes.

The fire safety of such buildings cannot be guaranteed due to flaws in the regulatory

framework, a lack of clear standards for securing the structure with smoke protection systems and automatic fire extinguishing installations, and—most importantly—the absence of reasonable and logical standards in the regulatory documents for the regulation of evacuation routes and exits from mosque buildings.

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