

RESEARCH RESULTS OF THE PAHSADEVOR (CLAY WALL) DEPARTMENT AT THE TERRITORIES OF KARAKALPAKISTAN

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INTRODUCTION

There are more than 300 historical monuments in Khorezm and the Republic of Karakalpakstan, the southern part of the Aral Sea [2]. At present, researchers from the Khorezm Mamun Academy and the Karakalpak State University named after Berdaq are monitoring the technical condition of these architectural monuments.

Complex scientific and experimental researches are carried out with the involvement of young scientists to determine the technical condition of historical monuments of Khorezm and Karakalpakstan.

At present, the negative effects of pollution have been severely damaged by any solid structures. Specifically, the Fortresses are mainly to be erected on the basis of timely monitoring of their conservation work, due to the fact that they are constructed from raw bricks.

This paper is based on the proven samples of the samples taken from the fortified Fortresses and fortresses located in the territory of the Republic of Karakalpakstan - "Gavur kala", "Ichan Kala (Inner fortress)" and "Katta Guldursun qal'a". The walls are unprotected from the effects of the atmosphere and are exposed to rain, wind, snow and sun for 1500-2000 years. In the disadvantaged ecological environment, during the exploitation, the wall collapsed and began to decline. About 50% of the walls were lost, and most walls were cracked. The distance between these cracks is 1.0-2.0 meters. The maximum opening width is 40 to 60 mm.

This Fortress, inspired by the XII century "Great Guldursun Qala" wall, is located in Ellikqala district of Karakalpakstan (Figure 1). It has an improper rectangular shape, measuring 350 x 230 meters [4]. The



Figure 1. A general view of the "Great Guldursun Fortress" wall

walls of the ancient walls have been preserved in 13 to 15 meters in some parts of the wall. Their crotch is made of crude material, and its top is made of 40x40x10 cm of crude brick.

The "Gavur Kala" IV-III century architectural monument is 200x450x400 meters (Figure 2). In some places, the wall is up to 15 meters high.



Figure 2. A general view of "Gavur Kala"

An architectural monument of the XIX-XX centuries known as "Ichan Kala (Inner fortress)" is located in Kegeyli district of the Republic of Karakalpakstan (3rd place). The Fortress plan is in rectangular shape and measures 120 x 145 meters. Ichan Kala (Inner fortress) has 50-70 rooms built in the first building period, and it has been rebuilt for a large residential building.



Figure 3. A general view of the "Ishan Fortress" wall

In Table 1, the strength of the samples cut in cubes from "Gavur Kala", "Ichan Kala (Inner fortress)" and "Katli Guldursun Kala" were determined by laboratory tests. The dimensions of the cube samples were duplicated (Fig. 4).

1. For the first group sample - 100 mm;
2. For samples of the second group - 50 mm. Samples were tested on the PG10 hydraulic press (Fig. 4).

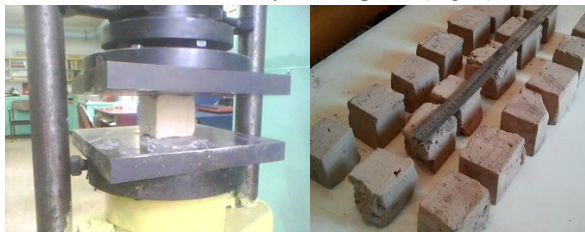


Figure 4. Clay samples on the press and appearance of specimens prepared.

Methods for testing concrete samples were tested in accordance with KMK 2.01.03-96 "Construction in earthquake zones" [5].

Table 1 summarizes the results obtained from the "Gavur Kala", "Ichan Kala (Inner fortress)" and "The Great Guldursun Fortress" cube-shaped samples.

The results of the Pakhsa devor (clay wall) monuments from the sampling of cotton samples

1st table

Number of samples	Strength of cube samples Ri, MPa				Medium bikin g cock Rm, MPa	Cubic independence greater restrictions in the mid-squared □, MPa	Lasting enough to change the dust intake. K	Consistency is 95% MPa
	1	2	3	4				
1	2,6	2,2	2,1		2,35	0,037	0,15	0,18
2	1,0	1,2	1,2		1,2	0,015	0,13	0,09

3	1,1	1,0	1,0		1,0	0,006	0,06	0,08
4	1,8	1,6	1,4	1,4	1,6	0,027	0,17	0,15
5	1,5	1,5	1,4	1,5	1,45	0,007	0,05	0,14
6	1,8	1,2	1,5	1,6	1,5	0,03	0,2	0,16

Note: 1-3 examples of "Greater Guldursun fortress"; 4-6 samples of "Ichan (Inner) Kala"; 7-9 - example "Gavur kala" is a clay wall;

CONCLUSION

In summary, the following should be noted:

1. Dimensions of samples made of paper do not affect their durability;
2. The item can be considered conditional;
3. A method for testing concrete samples can be used to determine the strength of the particles in the compression.

"The great Guldursun fortress", "Ichan Kala", "Gavur Kala" from the architectural monuments of the pakhsadevor strength of the samples is reduced 1,7-1,85 MPa, respectively.

The technical condition of the wall and shouts of historical monuments based on the analysis of the results of the monitoring should be noted that, ecology and save them from the negative effects caused major problems.

The subject of the research is a new scientific direction in the republic, and the research works on the issues of preservation and extension of the southern Aral Sea architectural monuments vary from the "complex" approach to existing problems. Because of the research, a wide range of new and accurate data on the constructional methods and properties of the pillars of architectural monuments were obtained.

In general, architectural monuments glorify the spirit of our ancestors, and this is a great example for our young people, as long as the historical monuments are witnessed by the history of our people.

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