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INFLUENCE ON DURABILITY OF CONTACT ZONE OF WORKING JOINT TIME OF THE ENDURANCE OF A NEW CONCRETE

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----------ANNOTATION----------
The results of experimental studies on the causes of the deterioration of concrete adhesion in the working joints, establishing the degree of influence of these causes on the monolithic structure are presented in this article.
KEY WORDS: *contact zone, time, technical, technological, practical worker, significant decrease.*

DISCUSSION

In the practice of domestic and foreign construction, as well as in the completion and reconstruction of facilities, prefabricated monolithic concrete and reinforced concrete structures are increasingly used. The presence of technological seams in massive monolithic structures makes them similar to prefabricated monolithic.

One of the dangerous types of destruction of such structures is a violation of the strength of the contact of hardened (old) concrete with freshly laid (new) concrete, which reduces their strength characteristics and performance in general .

Many researchers have dealt with the issues of adhesion of old concrete to new ones.

However, if we turn to the relevant literature, it turns out that this issue has been completely insufficiently studied and elucidated. A number of positions and conclusions of individual authors remain controversial, not to mention the fact that in different sources often conflicting solutions are offered. [1,2]

Naturally, in the context of the construction of various structures, with different methods of production of work and other factors on which the decision of the working joint depends, this question often causes significant difficulties for a practical worker.

As a result of this situation, the working joints are located, in most cases, in the most dangerous places of structures, the nature of the processing of the joint does not correspond to the requirements imposed on it, and the connection between the concrete of the masonry at different times therefore sharply decreases, reaching 30-40% of the normal strength. This study aims to identify the causes that contribute to the deterioration of concrete adhesion in the working joints, to establish the degree of influence of these reasons on the solidity of the structure.

When studying the issue of weakening the contact zone of the working joint, first of all, one has to deal with the phenomenon of damage to old masonry. Such damage to previously laid concrete occurs during short interruptions in work, usually maintained at 8-16-24 hours. By this time, the old concrete does not yet have sufficient strength and as a result of damage and when processing a new layer laid on it, the strength of the concrete adjacent to the joint decreases [3].

Most builders have an opinion that concrete on normal cement, which has lain for more than 1 hour before laying, cannot be applied due to a significant deterioration in its quality. If in some cases such concrete is

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allowed in irresponsible structures, then already lying 3-4 hours are thrown out as completely unsuitable. we carried out a study to identify the degree of influence on the strength of concrete, its increase by the time of laying.

The study was carried out on samples of prisms with dimensions 4x4x16 cm molded from fine-grained concrete with a composition of 1: 3 with W / C = 0.5 prepared on Portland cement "Kuvasaycement" grade 400, the beginning of setting of which is 5 hours 10 minutes, the setting time is 8.00 hours.

Specimens after holding in normal hardening chambers for 1,2,3,5,9 and 24 hours. the ultimate tensile strength in bending and compression was determined using an MII-100 device and a PSU-100 hydraulic press.

The test results are shown in the table, from which it can be seen that the first 5 hours of concrete lying do not give a noticeable decrease in strength. Only after 5-9 hours, the strength decreases by 9-17%, respectively, and then falls, reaching after 24 hours, only 11% of the strength of the concrete laid immediately after preparation.

Table

Influence on concrete strength - holding time of the mixture before laying.

In%, to concrete, laid immediately after production	**Exposure time, hour**					
	1	**2**	**3**	**5**	**9**	**24**
Bending tensile strength	105	107	98	91	67	17
Compressive tensile strength	107	110	109	98	84	33

The results of testing the samples, for tensile bending, we see an even more favorable picture, a significant decrease in strength begins even later (after 10-12 hours), the first 9 hours give a completely insignificant weakening of concrete (3-5%).

Based on the above, the following conclusions can be drawn:

1. Concrete that has lain after production for the time before the start of setting and then laid in the structure does not lose strength during the period.
2. A sharp deterioration in the quality of concrete occurs only in the period after the end of setting, i.e. usually, with normal cement, after 5-9 hours or more.
3. Based on the above paragraphs 1 and 2, it can be assumed that only starting from the moment showing the end of the cement setting, and before the onset of a known strength in concrete, the processing of concrete laid at the junction can reduce the strength of the adjacent layer of old concrete due to mechanical damage to it.
4. The magnitude of the decrease in the strength of the joint within clause 3. the longer the break.

Of course, in each case it is necessary to take into account the external conditions in which the work is performed (temperature, humidity, etc.), as well as the brand of cement and the consistency of concrete.

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