TECHNOLOGY OF MANUFACTURE OF PRECAST REINFORCED CONCRETE STRUCTURES IN A DRY-HOT CLIMATE

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Abstract: *This article aims to determine their optimum application area based on the research of methods of heat treatment of concrete in reinforced concrete enterprises in regions with a dry-hot climate.*

Keywords: *Concrete, heat-resistant plate, strength, porosity, structure, building materials, building structures, experiment.*

ENTER

No matter what kind of building or structure, the role of factories producing reinforced concrete products and enterprises supplying construction raw materials is considered special in the expansion, renovation, and restoration of any construction. Most concrete and reinforced concrete products are used in construction.

Basically, in the restoration of buildings and structures, in the construction of roads, bridges, airfields, spectacles and sports facilities, in general, almost all parts of the building are prepared on the basis of building materials, structures and concrete mixtures. Building structures with concrete blocks are mainly created in plants producing reinforced concrete structures and delivered to the consumer. In plants producing such reinforced concrete products, heat vapors are used to solidify concrete products continuously in winter and summer. That is, in the production of concrete and reinforced concrete products and structures, heat treatment is used, which is considered the most energy-intensive technological process. Most of the factories producing such reinforced concrete products are located in open areas in our Republic. But in all reinforced concrete production plants, winter-summer heat treatment is used in open areas and workshops throughout the year.

ANALYSIS OF LITERATURE ON THE TOPIC

Scientists who worked on improving concrete technology in dry-hot climate: Ashrabov A.B, Bazhenov Yu.M, Volzhensky A.V, Gorchakov G.I, Zasedatelev I.B, Krylov B.A, Malinsky V.N, Stupakov G.I, Sheykin A.E and also B. Bresper, L. Byranko, D. Gluklich, K. Djegarman, R. Dutron, V. Lerch, D. Ravnin, B. Hank, R. Shalon and others.

It has been found that the dry-hot climate creates difficulties in concrete preparation, transportation, laying and maintenance and has a negative effect on concrete physical-

mechanical properties and durability. Evaporation of mixed water from freshly laid concrete in rapid shots is one of the main reasons for the deterioration of physical-mechanical and deformative properties of concrete.

RESEARCH METHODOLOGY

Among them, the most widely used for reinforced concrete products is carried out by steaming with a temperature of up to 100 0C. On average, 700-800 kg of steam is needed to create 1 m3 of product when reinforced concrete products are treated with this method. So far, a lot of research and experience has been focused mainly on reducing the amount of energy in the production of reinforced concrete products, avoiding unnecessary costs, automating heat treatment processes, taking into account the heat released from cement, choosing the most effective method of heat treatment, increasing the efficiency of the heat transfer source. and many other factors.

Heat energy distribution in precast reinforced concrete plant

1- table

Consumption of thermal energy					
For technological purposes			For auxiliary purposes		Total
Heat treatment	Heat the fillers	Emulsol heating	Heating and ventilation	General plant needs	
326,9	16,4	7,0	60,7	56,0	467
70	3,5	1,5	13	12	100

Explanation: The figure shows the amount of real indicators, and the denominator shows the percentage of total heat consumption.

At present, one of the most important and urgent issues is the use of solar energy in hot climates due to the reduction of heat and energy sources used in the heat treatment of concrete and reinforced concrete products.

In the territory of our republic, which corresponds to the conditions of dry and hot climate, and the neighboring republics, including Kazakhstan, Kyrgyzstan, Tajikistan, in general, in Central Asian countries, sunny days are about 2,200-3,000 hours per year, and the average amount of energy falling on the earth's surface is 1,200-1,700 kW. is s□m2. In general, a very large amount of energy reaches the earth's surface - 180,000 billion. kW comes or such a large amount of energy falls on the surface of the earth during 30 minutes that the entire earth cannot consume such amount of energy in a year.

The volume of concrete and reinforced concrete products produced in regions with such an inexhaustible source of energy is approximately 70% of the total volume of reinforced concrete products, taking into account cloudy and cold sunless days. Another aspect of this is that the factories and workshops that produce these reinforced concrete products mainly carry out production in open areas. In such open workshops and landfills, the temperature and heat of the sun directly fall on the concrete products. This, in turn,

creates an opportunity to direct the amount of energy falling from the sun to the processed product.

Therefore, in areas with a hot climate, i.e. in places where the number of open sunny days of solar energy reaches 300 days, the use of solar energy in the production of concrete and reinforced concrete products is one of the most important issues.

ANALYSIS AND RESULTS

Later, at experimental stations in a number of scientific testing institutes of our Republic, including: the 2nd TBMK open landfill in Tashkent under the Ministry of Construction, the 2nd TBMK in Kulyk, the Institute of Construction Physics, TashZNIEP, "Teploproekt", as well as scientific testing and experimental institutes in neighboring Commonwealth countries, NIIJB in Moscow, Scientific staff of VNIPI Teploproekt institutes conducted a number of researches on the use of solar energy, that is, helio-technology, in heat treatment of reinforced concrete products in dry-hot climate conditions. This technology can be implemented in the production of concrete and reinforced concrete products in workshops and open landfills in reinforced concrete factories in all regions of our Republic. In order to accelerate the one-day hardening of concrete products and to increase the use of molds in areas with dry-hot climatic conditions, the technology of using solar energy for about 5-7 months a year instead of boiler room steam and electricity is called "Heliotechnology".

The introduction of "Heliotechnology" in the heat treatment of concrete and reinforced concrete products solves many problems, including: solidification of the product at the required level within one day, effective use of molds, year-round use of open landfills.

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