USING SUNLIGHT TO IMPROVE CONCRETE QUALITY

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Abstract: The article revealed that the production of reinforced concrete products by energy-saving methods plays an important role in saving material and energy resources and costs, increasing the great economic efficiency of the national economy.

Key words: Cement, reinforced concrete, monolithic reinforced concrete, solar energy, thermal energy, dry hot climate, energy resources of the economy.

The main materials in modern construction are concrete and reinforced concrete, the share of which is increasing every year. It should be noted that at this stage, the volume of use of monolithic concrete is increasing and is up to 50% of the total volume of concrete and reinforced concrete.

If earlier in our country monolithic reinforced concrete was used mainly in industrial construction and, mainly, in the construction of structures and structures of the zero cycle, now this material is increasingly used in housing and civil

construction, and in the construction of not only underground , but also above-ground parts of buildings and structures.

In the production of prefabricated reinforced concrete, it is subjected to heat treatment in order to accelerate the process of concrete hardening. The duration of the heat treatment process is 70-80% of the entire technological period, and at present, this process consumes 70% of the thermal energy consumed by reinforced concrete plants. This indicates that not 70, but 75-80% of the total heat consumption is spent on heat treatment. This indicates that in arid and hot climates, the energy costs for heat treatment are high, and the ambient temperature is practically not used.

One of the ways to reasonably save thermal energy is to improve heat treatment, reduce the duration of heat treatment while maintaining the required yield strength of concrete. This can be achieved by choosing the right heat treatment method.

In recent years, concrete heat treatment methods using natural gas and solar energy have been developed and are being introduced. This plays an important role in raising the great economic efficiency of the national economy.

To minimize the negative impact of a dry and hot climate, it is recommended to take care of freshly poured concrete.

Hardened concrete can be maintained by:

1. Holding open horizontal surfaces of concrete under a layer of water (method of closing reservoirs). For this, formwork is used with waterproof beams that rise 6-7 cm above the poured concrete. 30 minutes after pouring the concrete, the open surfaces of the devices are filled with water to a thickness of 2-5 cm. boards, and the joints are filled with clay to prevent the outflow of burnt water. Reservoirs covering the surface of the devices can also be formed using longitudinal and transverse formwork beams, made at a height of 6-7 cm above the concrete surface. To reduce the evaporation of water from the overlying reservoir,

compounds with a density less than the density of water, insoluble in it and forming a thin protective layer on its surface, such as used oil, can be used. When using the reservoir method, the maintenance of concrete is greatly facilitated, it can be easily produced even in places with a lack of water, but it cannot be used in devices of complex shape. The temperature of the water used to spray the concrete screeds and form the covering basins must be the same as that of the concrete, otherwise thermal stresses may occur and the concrete may melt.

2. Continuous spraying of water on a freshly poured concrete surface in the form of small drops using various humidifiers. This method can only be used where there is a centralized water supply.

3. Cover the concrete surface with polymer films. Another way to process concrete in arid steppe regions is to use mainly light-colored ready-made polymer films. Surfaces of devices should be immediately covered with a decorative film. Then:

welding and rounding of individual pieces of polymer films

and cover the surface with a durable film;

Covering the edges of the film with wood, sand or soil;

apply the film on a flat concrete surface so that it does not fall off and fits snugly;

film protection from mechanical damage;

It is recommended to remove the film in the evening after curing the concrete.

The holding time of concrete under polymer films is determined by the construction laboratory, taking into account specific climatic conditions. This method cannot be used in hydraulic structures (canals, basins, dams, etc.).

4. Sprinkle the curtain-forming ingredients onto the surface of the freshly poured concrete. To protect freshly poured concrete from dehydration and rapid setting, to create good wet conditions, the surface is sprayed with curtain-forming

components. These ingredients form a film in a short time. Its advantage over other methods is that these ingredients can be sprayed onto the concrete surface as early as 10-15 minutes after application. It is especially advisable to cover the surface with such materials when concreting devices with a large open modulus (ratio of surface area to its volume) (road and airfield pavements, canal pavements, etc.), as well as when performing concrete work in areas with water shortages. Data from the Internet also confirms that the use of curtain-forming compounds for the care of freshly poured concrete is an effective method.

a) they must be well sprayed onto the concrete surface, form a waterproof solid surface on the surface, which must protect the concrete from dehydration and adhere to its surface;

b) do not corrode concrete and reinforcement;

c) not have a negative impact on the environment;

The use of curtain-forming compositions for the care of freshly poured concrete is very effective, since the technology for applying this method is simple, relatively inexpensive compared to other methods, and there is enough raw material. Favorable moisture conditions are created under the hinged coverings for concrete hardening.

In conclusion, we can say that the climatic conditions of the republic provide great opportunities for saving energy during heat treatment. One of them is the use of solar energy in heat treatment. Research analysis shows that the use of solar energy in the heat treatment of concrete and reinforced concrete structures can reduce the cost of concrete by 20%.

Obviously, the saving of material and energy resources plays an important role in reducing the cost of concrete and reinforced concrete structures and increasing production efficiency. Therefore, the combined application of the above measures will bring a great economic effect.

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