PROSPECTS FOR NEW TYPES OF PRODUCTION OF COSMETIC BUILDING MATERIALS.

Gadoeva O.P.[1]
senior lecturer
Mominov Jamshid[2]
student
[1-2]Bukh MTI
https://doi.org/10.5281/zenodo.7393397

Abstract: Fire safety of finishing materials from ceramic materials in the siding system. Polystyrene concrete is used in enclosing structures, load-bearing walls during the construction of parts, Nanoconcrete is a promising building product, self-compacting concrete does not require compaction with a vibrator, and it can be compacted due to polycarboxylate nanoparticles.
Key words: horizontal connection systems, noise protection, finishing materials, fire safety system.

In the Address of the President of the Republic of Uzbekistan Sh.M. Mirziyoyev to the Oliy Majlis of the Republic of Uzbekistan dated December 28, 2018, the focus should always be on improving the living conditions of the population, providing them with decent housing, improving the welfare of our people, and continuing the affordable housing construction program in the coming years. and it was stressed that particular importance should be given to improving the design of typical houses, the use of energy-saving technologies, as well as the use of modern and cheap building materials.

In today's view, fast and high-quality finishing of the facade of the building is the imperative of the time, in which, along with natural, artificial, environmentally friendly materials are intensively used. In new buildings, gypsum compositions for finishing the facade are considered one of the modern methods, their use remains a requirement of the 22nd period, and their use is recognized as one of the structural elements that effectively protect the load-bearing part of the building from a long time.

Siding seam systems are widely used in the repair of old buildings in need of reconstruction, along with the finishing of the facade of new buildings. Siding - English SIDING-Americanism, a technological type of building decoration. Protects the outer walls of buildings and their roof from the effects of the natural environment (snow, rain, wind, sun), gives the outer wall an aesthetic appearance.

Siding was first used in North America in the 11th century, made of planks of wood, laid flat, with a second plank overlapping on top of the bottom plank, providing a slope, preventing rainwater and solar heat. from entering the house through the wall. In the 1950s, vinyl siding panels began being produced in the United States and Canada in a variety of wood-resistant colors.

They did not need to be painted or processed, the fastening technology was simple. Later, the production of siding panels made of metals, cement, natural stones and plastic materials began. Currently, siding panels of complex composition are being produced and effectively used. Currently, siding docking systems based on the technology of keeping the walls ventilated are used on the facade of the building [1]. These compositions, along with

improving the appearance of the facade, work effectively when using heat, noise protection and ventilation of the structural load-bearing part of the building.

The use of ceramic materials in a composite system with siding gives good results. Basically, porcelain stoneware is used for this purpose. Ceramic materials have an advantage over other building materials due to their resistance to heat and cold, resistance to mechanical and chemical stress, and environmental friendliness.

At the same time, ceramic materials justify the trust of builders with their durability and relatively low cost [4]. The systems of Japan and Russia take their place in the siding system, which is based on coating the surface of ceramic tiles with weather-resistant pigments. The next type of siding bonding system is porous (perforated) ceramic tile bonding, which is a network of bonding ceramic panels with a special appearance.

In it, the color can be changed depending on the type of raw material used in the preparation of the ceramic material. One of the main indicators of these products is a variety of colors and a low level of noise and heat transfer [4]. The class of the fire safety system of finishing materials made of ceramic materials in the siding system is equal to the combustibility group of the finishing material K0, which indicates the complete incombustibility of the system [4].

USE OF POLYSTYRENE CONCRETE IN CONSTRUCTION

Highly effective thermal insulation materials include: expanded polystyrene, porous plastic, mineral wool, glass wool, mineral wool mats, expanded perlite, etc. One of the modern thermal insulation materials is expanded polystyrene. The expanded polystyrene used for the production of boards and blocks contains 98% air. This provides high thermal insulation properties.

This material is characterized by heat resistance, biostability, water resistance. Polystyrene concrete - a type of lightweight concrete - is a composite material, which includes Portland cement, expanded polystyrene granules, water and an air-permeable additive.

Thanks to the combination of heat-insulating materials, which are polystyrene and concrete granules, in one product, it was possible to obtain the most optimal combination of characteristics for a building material - rotting resistance, hydrophobicity, the highest bearing properties, thermal insulation, fire protection, sound absorption, frost resistance and frost resistance. Deadlines have indicators.

Polystyrene is used in reinforced concrete enclosing structures, load-bearing walls - in the construction of wall parts, ceilings, attics, roof insulation - in the production of building blocks and facade decorative and insulating panels, monolithic casting. Polystyrene concrete has good structural strength. Polystyrene concrete blocks combine the advantages of concrete (strength), expanded polystyrene (high heat and sound absorbing properties). Polystyrene concrete is widely used as building thermal insulation with a thermal conductivity coefficient of 0.055 - 0.145 W / (m * K). Figure 1.

Density of polystyrene concrete. Expanded polystyrene boards are used in roof structures, external wall insulation, thermal insulation layers of multilayer panels, roof structures, foundation construction, road construction. 68 The physical parameters of polystyrene concrete are indicated. Table 1 No. Grade Density Density, kg/m 3 Specific heat capacity, KJ/(kg*K) 1 D600 600 Thermal conductivity W/(m*K), 1.06 2 D500 500 0.145 1.06 3 D400 400 0.125 1.06 4 D300 300 0.105 1.06 0.085 To date, the practice of efficient use of the areas of the underground parts of buildings, and in some cases their transformation into residential apartments, is widespread.

polystyrene concrete refers to moisture resistant materials. In polystyrene concrete, the mass fraction of moisture does not exceed 8%, in aerated concrete 12-22%. polystyrene concrete withstands from 50 to 100 cycles of freezing and thawing, which allows it to be used for the production of closed structures. polystyrene concrete is a biostable heat-insulating material, it is not a nutrient medium for the presence of various microorganisms.

It does not rot and does not attract rodents, which is a very important factor in the construction of agricultural structures and buildings. By studying the nanostructure of the material, the use of silica nanoparticles makes it possible to slightly compact concrete and, accordingly, improve its mechanical properties (compressive strength increases up to 3-6 times). In addition, the modification of the material with silica nanoparticles softens the Sa-Si-H bond responsible for adhesion to concrete, preventing calcium leaching [3]. One of the components added as an additive to concrete is titanium (IV) oxide.

The fact that this material has a high reflectivity to UV rays and other properties allows it to be used as an additive to concrete, window glass and paint coatings. In addition, the hydrophilicity of titanium (IV) oxide gives the material a self-cleaning water droplets condense on the surface and carry away contaminated particles.

Currently, the production of white concrete containing titanium oxide, which gives buildings an aesthetic appearance, has been established, researchers also pay special attention to the interaction of concrete with carbon nanotubes. Adding small amounts of nanotubes to concrete can slightly increase its compressive and flexural strength. Adding carbon nanotubes to any material has some disadvantages. In this case, as a result of the interaction of nanotubes with graphene sheets, large clusters are formed, which leads to the loss of their cohesion.

Therefore, to achieve high performance of the composite material, it is also necessary to perform additional work on the separation and homogeneous dispersion of nanotubes. One of the methods available today is the pre-mixing of carbon nanotubes with gum arabic. However, the choice of a composite with such a composition requires further research.

Carbon nanotubes have a number of unique properties, and their effective use in various fields of computer technology, aeronautics, and medicine is expected in the near future. In this case, the building materials industry will also be able to indirectly use discoveries in other areas.

The high cost of nanotubes hinders their widespread use. It should be emphasized that in order to maintain the optimal composition of such nanoconcrete, it is not necessary to compact it with vibration. Its use allows you to somewhat reduce labor and energy costs. The starting material containing highly dispersed polycarboxylate nanoparticles behaves like a thick liquid at low water-cement ratios

Plasticizer particles suspended in the liquid prevent the formation of voids and cracks. There is another important feature of self-compacting concrete. Ordinary plasticized concrete hardens slowly in winter, which requires steam treatment. Polycarboxylate nanoparticles reduce the amount of water used and the drying time of the material, eliminating the need for steam treatment. Polycarboxylate nanoparticles somewhat reduce the amount of water used and the drying of the material, thereby eliminating the need for steaming.

The use of a composite consisting of nanoparticles containing silicon oxide gives good results when applying fibrous coatings to the surface of the formed concrete. Nanoparticles fill cracks on the surface of the drying concrete and firmly bind it to the base material. Carbon fibers

play an important role in the formation of cracks and increase the service life of concrete structures in wet conditions. Chemical additives have become one of the independent branches of the building materials industry. At present, in most developed countries, the production of modified concrete is 85-95%.

In Japan, they invented a way to produce cement from food waste

Food waste is a worldwide problem. In the United States alone, 40 percent of all food is thrown away uneaten. As a result, a huge amount of resources is wasted, waste rots in landfills and releases huge amounts of methane. Can food waste be turned into something useful?

Scientists from the Institute of Industrial Sciences at the University of Tokyo use food waste to produce building materials. This method involves the production of cement only from fruit and vegetable residues such as cabbage leaves and orange peels. The results of the study are promising: food waste has been proven to be an effective binder.

A group of researchers led by Professor Yuya Sakai uses the "hot pressing" method, which is widely used in the production of building materials from wood powder. Seaweed, cabbage leaves, oranges, onions, pumpkin and banana peels are dried and pressed into a powder. The resulting cement is not inferior in strength to commercial Portland cement. In addition to recycling food waste, the new process could cut carbon emissions from cement production. So far, the technology has only been tested on a small scale. But if expanded to industrial scale (the group's next goal), it could be a game-changer in the building materials market.

The method invented by the Tokyo University team could have far-reaching implications for the construction industry and the fight against climate change

If the technology is implemented on a large scale, humanity will be able to get rid of dependence on traditional cement. The cement industry currently accounts for about 8 percent of global carbon dioxide emissions. Also, this method allows rational use of food waste, which is one of the largest sources of greenhouse gas emissions.

References:

1. Bryan Trandem. The complete guide to roofing & siding. Creative Publishing international, Inc., Minnesota.2004, ISBN 1-58923-418-9

2. Saveliev A. A. Work with siding, M., Adelant-2010, ISBN 978-5-93642-109-9

3. Gusev, A.I. Nanomaterials, nanostructures, nanotechnologies / A.I. Gusev.-M.: Fizmatlit, 2007. P.416.
4. Alfimova, M. M. Entertaining technologies / M. M. Alfimova. -M. Binom, 2011.-p.96. 3.
5. Yudovich, M.E. Regulation of the properties of plasticity and strength characteristics of cast concrete / M. E. Yudovich, A. N. Ponamarev / / Building materials. -2007. - No. 1.
6. A.A.Tulaganov Local raw material base of building materials. Tashkent-2014.
7. Kasimov E.Yu. Construction Materials. Textbook. - Tashkent. Mekhnat, 2004.
8. Samygov N.A. Materials science of construction and repair of structures. Textbook. - T .: National Society of Philosophers, 2011.
9. Gadoeva O.P. Fatilloev S.Z. New efficiencies of energy-saving facade paints based on a combined film former. (Uzbekistan Bukhara)