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DESCRIPTION OF THE NEW COMPREHENSIVE MECHANIZED PLASTER TECHNOLOGY

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ABSTRACT
A new improved design and technological scheme of complex mechanized equipment for plastering work is proposed.

Keywords: complex-mechanized technology, mold system, mixing mixture, telescopic column, reference profile, clamp, "ascending flow" method, plaster layer

INTRODUCTION

The process of comparative analysis of known complex-mechanized technologies for the implementation of monolithic plaster, performed by the authors, allows to determine whether the method of complex-mechanized plastering is a relatively reasonable method for relatively large-scale finishing work. it also eliminates the need for manual labor to achieve the required geometric accuracy and roughness, in which case the gap created between the mixture, the mold sheet and the wall is filled with the mixture and the adhesion and required strength of the plaster layer is ensured [1].

The main disadvantages of this solution are: including low level of technology (ease of use); the complexity and complexity of the mold assembly process; a significant number of anchor devices are required to attach the formwork to the plastered wall structure; Precise fastening of anchors at the design locations The use of conductor devices and careful adherence to linear dimensions in the preparation of holes for mounting anchor devices. The significant mass of the mold sheets makes it difficult to assemble the molds at height. The application of the mixture to the mold sheet and the processing of the mixture under excessive pressure in the wall space has a negative effect on the mold sheet, causing it to bend. It is necessary to increase the stiffness of the roof structure to prevent bending of the roof, which in turn increases the weight of the roof.

As a result of comparative analysis, the authors proposed a new, improved design-technological scheme of complex-mechanized technology in the implementation of plastering works, which does not mention the above-mentioned shortcomings in the technology and ensures high quality finishing.

The new solution is aimed at solving the following tasks:

- Reduction of labor costs for plastering;
- Increase the technological level of construction processes;
- Increase labor productivity while performing high-quality plastering;
- Complex - the expansion of the scope of mechanized technologies should be in such a volume of work that the use of these technologies is rational.

According to the proposed technology, the plastering of the plaster mixture on the wall surface is carried out using a system of molds, the basis of which consists of a small shield mold with a unified polymer and rasped telescope columns. The structural scheme of the molding device is shown in Figure 1. The peculiarity of this formwork system is the base structures in the form of a telescopic column of the ceiling and with a adjustable clamp (Fig. 2). A general schematic view of the proposed technology is shown in Figure 3.

The creation (execution) of a monolithic plaster coating on the new, proposed technology is carried out in the following form. The choice of the working set of sheets is made on the basis of their configuration and the height of the structure according to their standard size dimensions. Before mounting the ceilings on the floor and ceiling surface, using a laser leveling tool (or "vertical"), a linear marking is made along the entire length of the plastered surface at a distance of about 25 - 30 cm from the walls. Then, with the help of a tape measure, the mounting points of the support columns are determined, so that the vertical seams of the screeds should be located opposite these marked points. Then, the base telescope columns (Fig. 2) are placed in a vertical position, where the square-shaped mark of the base part of the columns is combined with the floor and ceiling markings and secured by means of a screw jack included in it. In the next stage, shchits are installed on the back of the columns and they are connected to each other with G-shaped handle rods, in which the edge of the shchit is inserted into the holes along the perimeter and screwed together at 90o. The combination of these sheets in a separate flat appearance ensures the airtightness of the entire mold sheet. Before starting the plastering work, the working hoses (Fig. 3) are lowered in a certain precise steps to the bottom of the cavity, which forms a gap formed between the formwork and the wall. Then, the grooves in the guide profile are mounted on the clamps and the turning posts are installed and rotated to 90o for fixed fixation in the guide profile.

Then, the clamps are tightened using screws and bolts. The number of clamps varies depending on the height of the room. Then, the vertical position of the guide profile is adjusted using a shear-level device or a rake, by moving the adjustable supports to the desired length distance, despite the deviations in the plane value of the plastered surface in terms of non-flat surface of the plastered surface. the gap between the formwork and the wall should be kept to a minimum. By adjusting the guide section (profile) to a vertical position, the adjustable support struts are fixed in the clamps with pulls. In addition, the installation of panels in the planes parallel to the plane of the wall is controlled by means of a straightener-straightener, in which the straightener-straightener is poured simultaneously on three guide profiles in a horizontal position.

Sealants in a hermetic state are installed on its sides to prevent leakage of the mixture from the plastered cavity (Fig. 4).

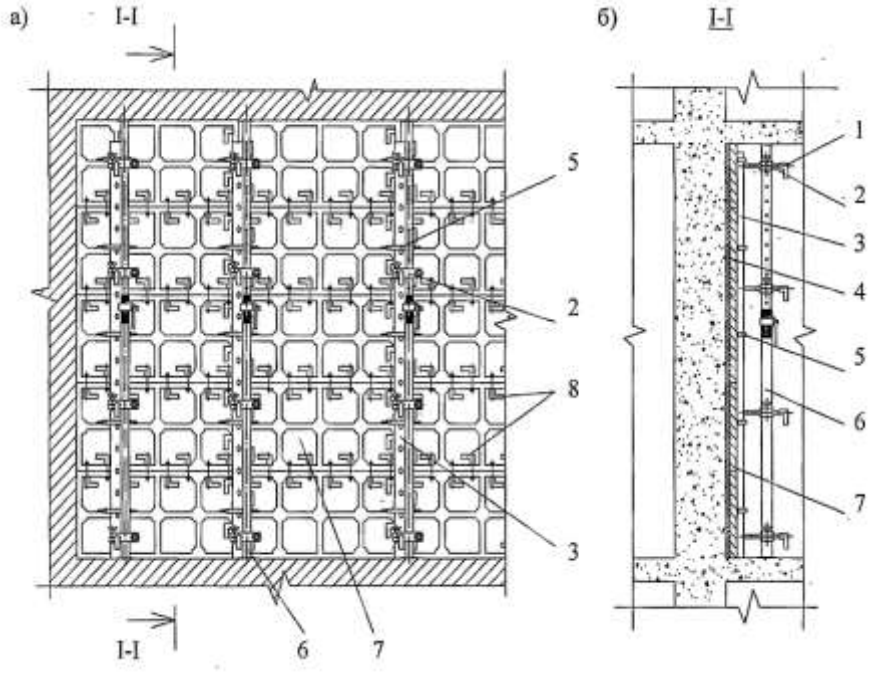

Figure 1. Design scheme of the molding system device, which performs plastering work on the new technology:

a - general view of the mold system; b is the lateral view (section) of the mold system; v - plan view of the mold system: 1 - regulating column; 2 - hamut-ring tensioning device; 3 - reference profile, 4 - shape-forming cavity; 5 - rubber drawer; 6 - telescopic column; 7 - polymer mold sheet; 8 - fastening element.

Before starting to adjust the formwork to the design position, a cord (germoshnur) is inserted from its sides to ensure tightness between the wall and the ceiling. As a result of the compression of the cord between the ceiling and the wall, a hermetic environment is created in the space.

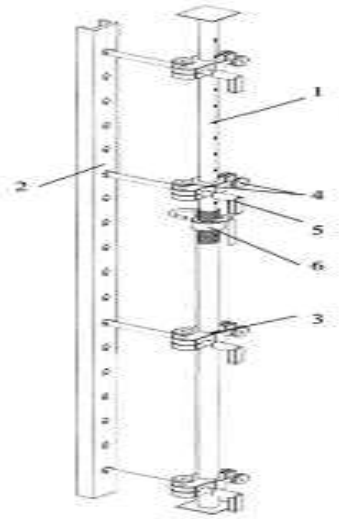

Figure 2. Base telescopic column: 1 - telescopic column; 2 - reference profile; 3 - hamut; 4 - screw weighing device; 5 - adjustable support; 6 - screw jack.

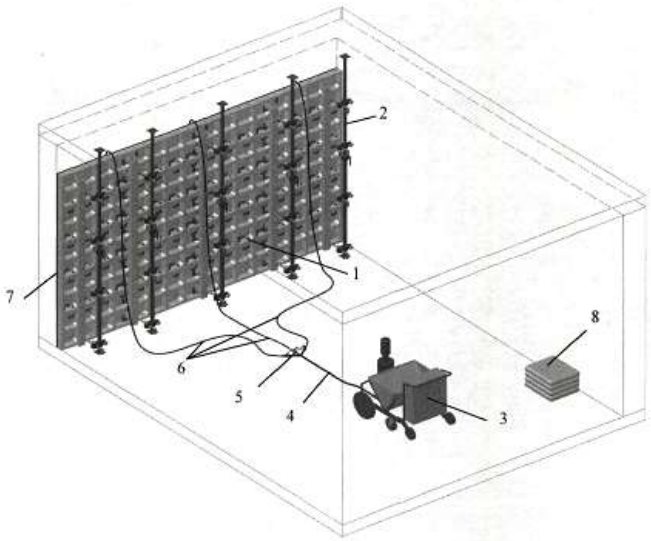

Figure 3. The general scheme of implementation of the walls of the room according to the proposed plastering technology: 1 - mold ceiling; 2 - telescopic column with elements for fastening and adjusting the mold plate; 3 - watering station; 4 - pressure hose; 5 - branching device; 6 - working hoses; 7 - layer of plaster; 8 - dry plaster mixture.

To prevent the compactor from slipping out, a multi-step angle groove sealing device made of aluminum, reinforced with chisels, is used on the outside. The slot closing device is fastened to the edge of the formwork with screws. The design of the hermetic sealant applied eliminates the leakage of the mixture and ensures that the sealed cavity is completely hermetically sealed.

The hoses in the working position are attached to the three-band (or more) branching device area by means of quick-connect couplings, which are provided with spherical nozzles along each outlet direction and connected by a pressurized hose from the pump conveying the mixture (see Fig. 3).

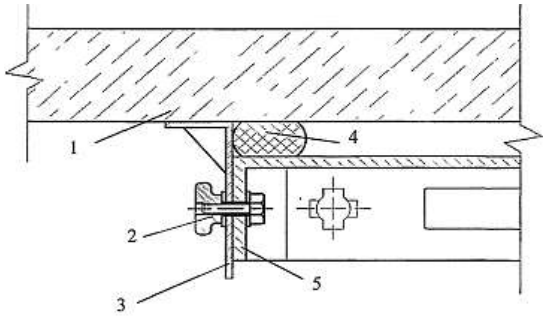

Figure 4. Structural scheme of hermetic sealant: 1 - wall; 2 - screw weighing device; 3 - external slit concealer; 4 - germoshnur; 5 - mold sheet.

Then, in the "ascending flow" method, the transfer of the plaster mixture is started. The choice of this type of technological solution is based on the fact that the use of this method eliminates the formation of excess pressure in the area of the plaster cavity, which can adversely affect the mold in terms of deformation (ie, it can deviate from the plane).). During the installation phase, the third part of the working hoses is lowered to the floor along the groove. Then the mixture is fed, in which the hoses are raised step by step in a position corresponding to the rise of the plaster mixture layer, leaving the lower end of the hoses permanently immersed in the mixture at a certain distance, so that the rational value of this distance by the author. determined as a result of experimental studies.

Once the mixture reaches the top of the mold plate, the mixture is stopped and the ends of the hoses are pulled out of the molding cavity. After the plaster layer has hardened, the rafters are partially loosened and the telescopic columns and formwork are removed, respectively.

Before installing the formwork system to reduce the water absorption properties, the plastered wall surface is covered with primer, and the working surface of the formwork is lubricated with separating mold oil.

The main advantages of this described technology, which differ from the known methods of production, are:

• The highly mobile plaster mixture is fed into the space between the wall and the mold sheet, where the complex - in a relatively rational way for the mechanized method - the mixture is fed along the "rising flow" through the working hoses and three parts of the hoses are constantly immersed in the mixture. stay;

• the required thickness of the plaster layer is achieved due to the high-precision mounting of the formwork by installing a guide profile (cut) in the vertical plane and wall planes, provided that it does not depend on the initial position of the plastered wall;

• The spatial position of the formwork is ensured by the fact that it rests on telescopic columns in the form of pillars placed between the floor and the ceiling, which leads to a significant reduction in labor costs for installation and dismantling;

• The individual sheets of the mold are hermetically sealed with a G-shaped handle, as well as the use of contour sealing to prevent the mixture from leaking from the joints, which also speeds up the assembly process of the mold sheet.

Thus, the use of this proposed method and device has advantages in comparison with other technological-structural solutions, which allows to increase the technical and economic performance of the process of plastering the interior walls of rooms.

REFERENCES

1) Sh.A. Holiqov, X.I. Yusupov .Mechanization of plastering technology in the decoration of rooms on the basis of dry mixes. XI Inter-institutional scientific-practical conference of undergraduate and graduate students, senior researchers "Young researcher - researcher" of JSC "Uzbekistan Railways", TTYMI 2013.
2) Турсункулова Ш. Т. Complicated features and theoretical basis of forming person's esthetic consciousness. // Theoretical & Applied Science. – 2021. – №. 2 (5). – С. 178-183
3) Turgunov S. T., Kazimov J. S. ORGANIZATION AND MANAGEMENT OF PEDAGOGICAL PROCESSES IN SECONDARY SCHOOLS ON A SCIENTIFIC BASIS //European Journal of Research and Reflection in Educational Sciences Vol. – 2019. – Т. 7. – №. 12.
4) Turgunov S. T. et al. Development of professional skills and competencies of teachers //Tashkent" Sano-standart". Tashkent. – 2012.