



Rational Organizational and Technological Solutions for Plastering

Boris Vasilyevich Zhadanovsky^a, Vladimir Evgenievich Bazanov^{b*}

^a *Candidate of Technical Sciences, Professor, Moscow State University of Civil Engineering, 26 Yaroslavskoye Shosse, Moscow, 129337, Russia.*

^b *Candidate of Technical Sciences, Associate Professor, Moscow State University of Civil Engineering, 26 Yaroslavskoye Shosse, Moscow, 129337, Russia.*

Received 12 December 2019; Accepted 13 April 2020

Abstract

Stucco jobs make a considerable share in the total scope of finishing construction operations. Stucco jobs represent an intricate technology involving a great number of manual operations. Mechanization of stucco operations allows reducing labor costs on their performance and increasing labor productivity. This paper is aimed at the selection of optimal workplace practices during façade stucco jobs using powered tools to treat concrete and brick surfaces of outer walls of buildings and facilities. The paper discusses organizational and technological solutions in performing façade stucco jobs including workplace management, workflow process, and equipment and tools utilized. An overview of existent powered tools for the treatment of concrete and brick surfaces is given; the results of undertaken testing of milling tools for the treatment of concrete and reinforced concrete structures are analyzed. Based on the study findings, the authors have concluded that in the improvement of productivity and quality of façade finishing jobs, a great role belongs to correct (rational) organization of labor using the straightforward segmented workflow, performance of works by specialized crews of workers, and utilization of high-performance tools and appliances. Different locations and composition of surfaces being stuccoed require different types of powered tools. The development of new prototypes and the improvement of existent powered tools for surface treatment allows increasing efficiency and reducing the cost of work. New options of star inertia mills made of different materials for powered tools equipped with a flexible roll are suggested.

Keywords: Plastering; Technological Solutions; Mechanized Concrete Processing; Milling Cutters; Inertial Mills; Carbide Tools.

1. Introduction

Finishing work in construction is a laborious and responsible process. They ensure the durability of buildings and their elements, protecting structures from atmospheric influences, and improve the artistic perception of structures. Plastering is one of the types of decoration of buildings and structures. Plastering works are widely used both in new construction and in restoration work to preserve historical and architectural monuments. Plastering is a complex technology, which uses a large number of manual operations [1, 2]. Despite the development of mechanization, their volume remains significant and in some cases reaches 60%.

To increase labor productivity, a rational, economically sound organization of labor, the acquisition of brigades and units by skilled workers, and the use of high-performance equipment, tools, and devices are necessary. These issues are periodically reviewed and investigated by various authors.

* Corresponding author: bazanov_kim@mail.ru

 <http://dx.doi.org/10.28991/cej-2020-03091523>



© 2020 by the authors. Licensee C.E.J, Tehran, Iran. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).