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## Modern Wall Materials

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**ABSTRACT:** During the construction of buildings and structures for many centuries, their design decisions and the materials used in the structures were changed, among which one of the most ancient is stone.

**KEYWORDS:** mechanisms of management, a system of labor incentives in construction, organization and regulation of labor, social and material incentives.

### I. INTRODUCTION

From immemorial time, builder has sought to make his buildings strong and durable, first using stone blocks of a natural form, then processing them. People are rightfully proud of the great creations of builders of the past, in many countries a large number of outstanding monuments of stone architecture have survived: the pyramids and temples of Egypt, the bridges and amphitheaters of Ancient Rome, the buildings of the East, the construction of Samarkand, etc.

The history of the creation of "Lego brick" is quite old. Even in the first half of the 20th century, the Danish builder Ole Kirk Christiansen, as the leader of the team of joiners and carpenters, came up with a brick with fixing elements.[1]

### II. RELATED WORK

"LEGO" brick has a number of advantageous design features. This is a regular rectangular block. Its dimensions are the same. On the upper plane of the product there are two spikes that are hollow inside. Accordingly, there are two grooves on the lower plane. These bricks are stacked as the well-known children's constructor "LEGO".

Advantageous design features

- Comfortable masonry. The bricks stack one on one, creating perfectly even corners and neat surfaces. Even a builder who does not have rich experience will be able to work with such material. The laying speed increases several times.

- Lots of functionality. Holes in bricks can be used for electrical wiring or utilities.
- Heat preservation. The resulting air cushion in the wall of such a brick has excellent heat-insulating properties.

- Noise isolation. An air cushion will prevent the penetration of sounds.
- High strength and wear resistance. The raw materials used will ensure the durability of LEGO brick products.[1]

This product is hyper pressed brick. It is manufactured using a technology that does not require final firing. Hardness is created due to the high pressure on the product inside the machine. A method similar to cold welding is used. Thus, the brick comes out of the machine ready for use.

As the main element - loose rock - crushed limestone, dolomite, limestone, marble, travertine and other rocks can be used. This product compares favorably with ceramic brick, which requires special clay. Thanks to these features, the production of LEGO bricks can be carried out everywhere. Because, there is no need to become attached to the deposits of raw materials.

### III. TEXTINPAINING

Hyper pressed "LEGO" brick is quite simple to use. Each block is the same size. When compiling, there are no inconsistencies. The use of mortar when laying "LEGO" brick is prohibited. Adhesive functions are performed by a special adhesive for outdoor use. It must be applied with a thin layer on the surface of the brick in places not far from the holes. The glue should not protrude on the outside. When used correctly, the masonry structure will have a perfectly even shape.

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Before starting work, you should pay attention to the preparation of glue. It should be perfectly kneaded to the consistency of "thick sour cream." To prevent lumps from forming, you need to pour glue into the water, and not vice versa. Its consumption, as a rule, is not large.

A new type of brick can be stylized to different elements of the decor. Through the use of different types of coloring rocks, the desired effect is achieved. Bricks can have a different degree of roughness, a variety of colors, the style of wild stone and other rocks.[2]

### IV. EXPERIMENTAL RESULTS

Building from LEGO brick is very convenient and comfortable. Simplicity of laying due to spikes and grooves, which are ideally suited to each other. For example, if you need to fold a pole for a fence, then all that is necessary for you is to fold 5-6 rows of bricks, insert reinforcement into the central tunnel, and pour in thick concrete. Moreover, the speed of construction is accessible not only to professionals. It takes 5-7 minutes to lay one pillar.

Using LEGO bricks is very convenient to create fixed formwork for monolithic construction, all concrete structures will have a finished noble appearance, and a smooth construction speed. Pouring should be low heights, not forgetting to reinforce. From "LEGO" brick it is very simple to create absolutely any buildings.

Brick "LEGO" has not only high characteristics of strength and frost resistance, but also has several other advantages:

- The appearance of the "LEGO" brick today has no analogues; in appearance, it can be called a facing brick.
- From the brick "LEGO" you can create any configuration of houses, fixed formwork for monolithic columns, and other monolithic fillings. The appearance of the structures will already be final, or they can be cleaned of dust and dirt, varnished or, as an option, painted.
- Another important advantage of building from "LEGO" brick is that along the entire height of the building there are two vertical channels, 60 mm in diameter, which can be used as a channel for all possible utilities, without damaging the appearance of the structure.
- Fast and accurate masonry. The most important thing is to mount the first row at exactly the level, and the speed and quality of the remaining work depends on how well the first row is completed.[2]

### V. CONCLUSION

Cost-effectiveness of masonry - bricklaying of LEGO bricks is carried out by tiled glue for outdoor works using an ordinary building syringe.



Fig. 1. Laying the "LEGO" brick



Fig. 2. Elements of the “LEGO” brick

The following solutions were most widely used:

- cement-clay (clay 80–90%, cement 10%, water – 3%);
- cement-clay-sand (sand 50-60%, clay 30-40%, cement up to 10%, water);
- Lego bricks based on screenings or sawn waste of limestone rocks are considered to be of the highest quality.

The composition of the mixture consists of 75-80% melusa, up to 15% Portland cement and water.

In addition to the main components listed above, in the manufacture of Lego bricks, other ingredients are also used. These are pigments that improve the aesthetic appearance of the building. For example, phthalocyanine, iron oxide or oxiditanium based. Also in case of increased requirements for moisture permeability, various plasticizers are used.

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