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# THEORETICAL AND PRACTICAL RECOMMENDATIONS FOR THE CREATION OF A MODERN PROJECT OF A MULTI-STOREY RESIDENTIAL BUILDING

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**Abstract:** This article provides theoretical and practical information on the creation of a modern project of a multi-storey residential building.

**Keywords**: optimal, plan, construction, constructive, technical, design.

## Introduction

The main task of the material resistance science is to calculate the strength of the structures, find the cross-section of the scraper and check for certain conditions. Finding or checking cross-sections is mainly due to the following conditions and requirements:

1) condition of consistency, 1-condition of restriction:

2) condition, 2-limitation condition;

3) priority condition;

4) condition of optimality.

The larger the cross-sections of the structures in the above conditions, the faster the conditions are satisfied, but this condition can lead to excessive costs. Therefore, it will be necessary to take into account the economic constraint, which will lead to the optimal solution of the construction.

Optimal design means finding the optimal solutions for structures and adapting them to life. The science of optimization dealing with the same problems exists. This direction will be the direction of economic mathematics and will enter the youngest generation of mathematics. This direction was formed as a science in 1930-40s and created the following theories and calculations.[1]

The practice of optimization in construction can be widely used, ensuring that the optimal location of the building, the form of the building, the number of floors, the size of the rooms, the optimal solutions of such issues, the construction of which is cheap, low labor, efficient and purposeful.

When it comes to the issues of optimal design of construction structures, it is possible to design and execute all the constructions of the building on the basis of many criteria, such as the best, the most solid, the cheapest, the least labor, all the constructions of the building: the foundation, the elevating constructions, the self-supporting structures, the superstructure, the staircase and other constructions.

The optimization process provides for the possibility of finding a viable solution based on the capabilities and technical requirements of each of the structures, including the designed-cement relationship to the construction, the cross-sectional dimensions of each of the structures, the indicators of the fittings, the regularities of the change in the axis of the construction of the cross-sectional, the.

Optimization process. it is especially effective when antique materials (high-branded cement, high-class fittings) are used in unique, expensive, multi-storey constructions. The fact that the practice of optimization at the international level has been used on a large scale and on a large scale, and has been introduced in large-scale expensive castles and structures, has cost millions of dollars.

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[1] Тураев Х. А. АЙЛАНИШ СИРТЛАРИНИНГ СОЯЛАРИНИ ЯСАШ ОРҚАЛИ ТАЛАБАЛАРНИНГ ФАЗОВИЙ ТАСАВВУРИ ВА ТАФАККУРИНИ РИВОЖЛАНТИРИШГА ОИД МЕТОДИК ТАВСИЯЛАР //Science and Education. – 2020. – Т. 1. – №. 8.

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Optimization the most surprising indicator of the theory and practice of analysis is that it takes into account the technical, economic and other various conditions and possibilities.

**Goal from optimization.**

The resistance of materials, Mechanical Sciences serve as the science of ensuring that the structures are strong. However, it requires modern structures to be economically viable, efficient and economical. This means that it is necessary to include the terms of camaraderie in the range of terms of consistency, stutter and priority. In mathematics, this side effect is included in the category of optimization issues.[2]

The purpose of optimization in the design of new structures, it is necessary to choose its dimensions and characteristics in such a way that the construction is as light as possible, affordable and low-cost. This condition is referred to as the 4 - optimization condition. The execution of this goal is carried out through such disciplines as "Optimal design", "Исследование операции", "optimization of structures". Optimization has been widely applied in all areas and is also effectively used in the design of structures.

**Optimization technology.**

Determining the optimal dimensions of the projected construction is a technology that is executed in a certain sequence. it consists of target function and constraint conditions. The first step in optimization is to create a mathematical model of the issue, for which the optimality will consist in choosing the target function - the criterion, setting unknown arguments and clarifying the solution of the issue, and then determining the conditions of the constraint.

The hardening and solution of the issues of optimization of construction is carried out in three stages using economic mathematical methods (Figure 1):

1. The Lamb of the matter, the creation of a mathematical model.

2. The stage of resolving the issue.

3. Solution acceptance stage.

So, proceeding from the indicated stages, the solution of the issues of optimization of various constructions of different complexity is carried out in the following sequence:

- putting the issue-creating a mathematical model;

- providing a solution to the issue;

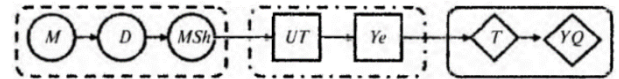- acceptance of the solution of the issue.



Figure 1

Putting the issue-the stage of creating a mathematical model consists of the following:

M-selection of Optimum criterion, target function;

X, Y-setting unknown arguments, parameters;

D-determination of the limitation conditions of the solution;

Formation of the model of the issue.

When solving optimization issues, it is necessary to choose the criteria for the issue, determine the variable parameters and clarify the limitations that are relevant to the solution of the issue. A variety of melon, unknown parameters are different, it is necessary to find out the amount of them so that the matter has reached its goal, that is, get the most effective. This is referred to as unknown optimization parameters, and since they are unknown to the mathematical model.

In the issues of optimization of material resistance, the geometrical characteristics of the cross-section, dimensions, physical and mechanical characteristics of the material as an unknown arc can be considered as such. For example, in the case of stretch-compression (b, h, d, F), silencing, bending, the cross-sectional masses of (b, h, d, F, J, W) and the law of change by their axis as well as the type of while in the case of static uncertainty, there may be a ratio of additional to the above.

**Choosing the criteria for the issue.**
When creating a mathematical model, it is

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necessary to determine the optimum criterion (quality or Economy Indicator, target function), that is, the optimization criterion of the solution is determined. The selection of the criterion is one of the responsible stages and is determined based on economic and functional requirements. Incorrect selection of criteria leads to ambiguous and, even, incorrect conditions of optimization results.[3]

In the process of selecting the optimum criterion should meet the following requirements:

- it is necessary to put the expression of numbers in the optimization criterion and express it in mathematical form;

- the optimization criterion must be expressed through independent unknown variables;

- the optimization criterion should be expressed through a single size indicator in general;

- if the issue consists of several criteria, then it is necessary to choose the main one, that is, the criterion. If this is not possible, then it is necessary to solve the problem of multi - purpose-vector optimization.

If the BOMs concerns optimization issues, in particular, only material resistance issues, then the following specific criteria can be used:

- construction weight;
- construction volume;
- cost of construction;
- the cost of labor that went to create the construction;
- potential energy of the construction.

The optimization criterion is determined depending on the purpose for which the issue should be addressed each time.

## Determination of the conditions of limitation-D of the issue.

It is known that when creating any construction, workpiece, and other things, the issue can be resolved in full only if there is an opportunity. The limitation terms related to the construction are technical terms, and as long as

the material and other relevant conditions necessary to create the construction can also be taken into account.

## Mathematical model of the issue purpose function

the limitation in the criteria and optimization arises from the set of conditions. The conditions of limitation in the optimization of the construction are different and somewhat different.

In addition, the cross-sectional dimensions of the construction has various limitations on The Shape of the cross-sectional surface and others. The solutions located between the specified limitation conditions are referred to as permissible solutions and they are referred to as permissible surface or area.

The main purpose of the issue is to determine the criterion by which it expresses its and the conditions under which it is put on the issue, the conditions of the unknown and the limitation, which include mathematical modeling of the issue.

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