

Problems of Improving the Product Quality Management System in Enterprises

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Abstract: The article presents an analysis of the problems of improving the quality of products at the enterprises of the construction and construction industry and methods of creating a system of operational quality control. Also presented are the types of preparatory work for the implementation of the system, a description of the final results of the control system, conclusions and recommendations.

Keywords: Market economy, quality, quality system, defect, quality level, cost price, tender, material, design, quality indicators and others.

Introduction. As the Republic of Uzbekistan introduces a market economy, it requires, first of all, a new approach to production in enterprises, the production of competitive products, material and moral stimulation of employees, the achievement of the quality of the produced products at the level of demand, and the reduction of the price of products [2, 3]. Recently, great attention has been paid to the improvement of product quality in the construction, engineering construction enterprises and industrial enterprises operating in our republic, especially in order for construction organizations to participate in tenders and win the competition, one of the main indicators is the delivery of quality products in the first place, and the second is engineering communication networks in construction. quality performance, because people's living conditions are comfortable (komfortnost), at the level of modern demand, customer satisfaction depends on these things. In order to produce a quality product, it is necessary to overcome the influence of many factors, for example, it is necessary to know well the influence of factors such as the quality of workers, the quality of raw materials, timely and correct control, the integrity of technology, and the organization of managers.

Body part. Even now, the quality of products in the construction and engineering communications system is not at the required level, especially it is directly related to housing construction. At present, 20-30% of buildings are commissioned with defects. The construction of engineering communications requires raw materials, semi-finished products, structures and materials. But the quality of these materials is not up to the required level [4.5.]. The products produced by the factories have a lot of defects, many defects, sometimes the workers have to give up their main work and engage in repairs in order to eliminate the defects in the factories. Therefore, the costs increase by 1-3%, the wage fund suffers up to 2%. [5].

Therefore, a special service, a product quality management system, is being introduced in construction manufacturing plants for the construction of engineering communications. Quality management system, control, planning, attestation, incentives are being implemented. But this is still not enough. There are many disadvantages.

In recent years, teaching staff and students have been conducting scientific research in the field of quality assessment, attestation, control and introduction of the quality management system in construction. Our department has a lot of experience in this field.

Analysis shows that product quality assessment depends on many factors. The complexity and multiplicity of these factors require the use of an expert survey method when ranking unit quality indicators (UQI)[5].

An expert survey was conducted to determine the importance of UQI for roofing panels produced in factories of the city of Samarkand, data processing is shown in Tables 1 and 2.

The products produced at the Samarkand reinforced concrete plant include the following UQI:

1. Accuracy of the position of installed parts and lifting hooks;
2. The absence of defects on the surface of the products;
3. Condition of the surface of the products;
4. Correct placement of ceramic tiles;
5. Position of channels for hidden electric wires;
6. Integrity of panel body and ribs;
7. Sufficient carrying capacity;
8. Finishing the surface of the panel;
9. Product branding;
10. Flatness of the front surface;
11. Humidity of products and their resistance to cold, etc.

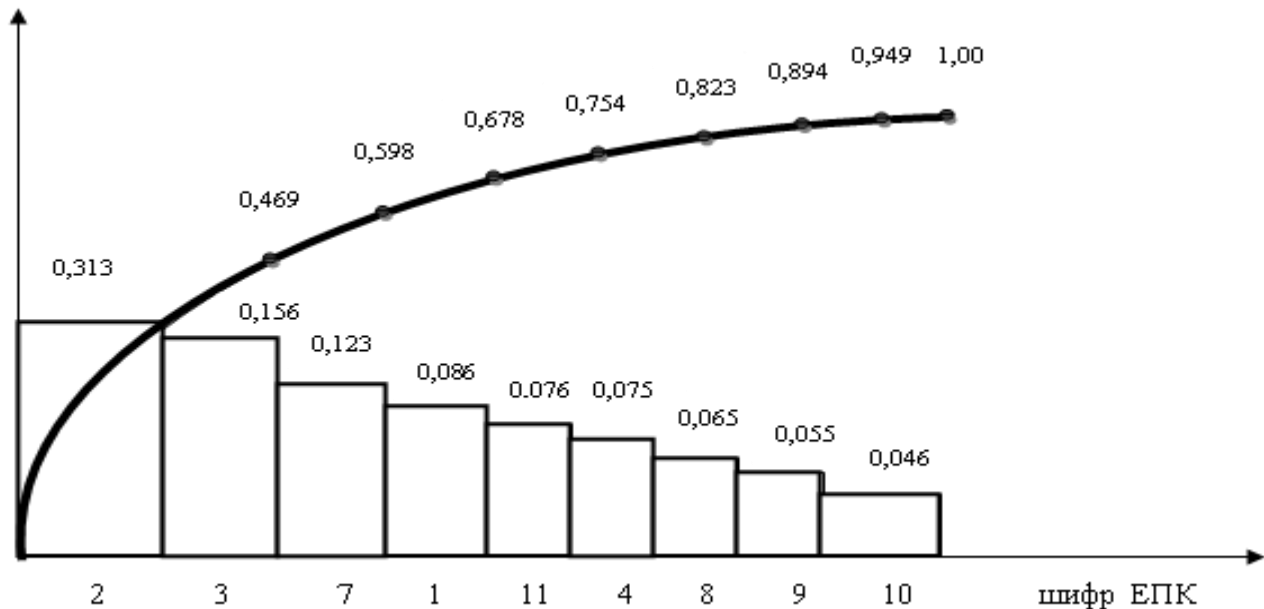
The results of calculating the importance of UQI in the formation of an integral quality indicator for roofing panels are presented in table №1 below. and the histogram is graphically displayed.

Results of ranking of UQI by importance (expert survey)

For roofing panel			
2	1,3	0,769	0,313
3	2,6	0,384	0,156
4	3,3	0,303	0,123
5	4,7	0,212	0,086
6	5,3	0,186	0,076
7	5,4	0,185	0,075

8	6,2	0,161	0,065
9	7,3	0,136	0,055
10	8,8	0,113	0,046

Histogram of UQI ranking by importance (norm for network)



Sorting defects according to their frequency of occurrence allows you to distinguish the main defects from among many defects. An opportunity is created to eliminate the consequences of defects, that is, conditions are created for targeted impact on the highest level of defects. It will be possible to develop technically and economically based measures.

Defective or low-quality products are characterized by:

- a) the average frequency of defects in a shift;
- b) the frequency of occurrence of defects in one product.

$$R_c = \frac{d}{t_c}$$

where: R_c is the average frequency of defects in one shift;

d is the number of defects during the observation period;

t_c is the number of shifts during the observation period;

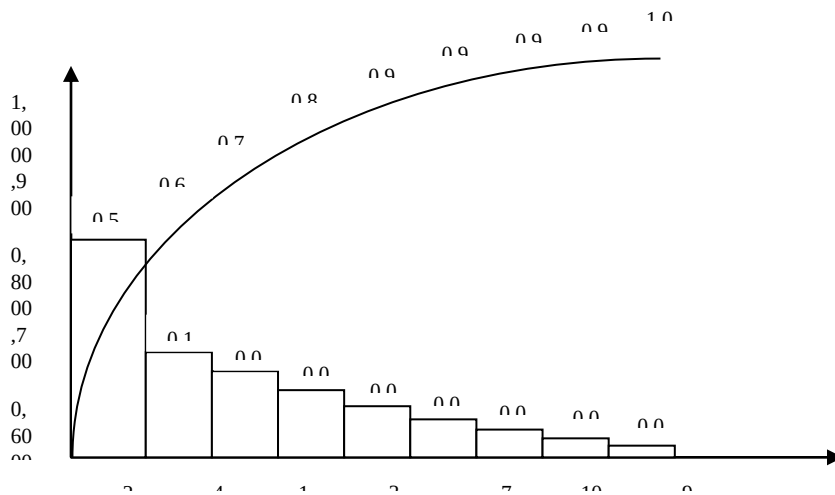
We observed the production of products in the shop in 36 shifts. During this time, 680 roof panels were produced. The most common defects in the plant and their relationship to UQI are presented in the following table (Table 2). The calculation results are presented in Figure 2 and in the form of a histogram.

Table 2. The importance of UQI when considering the frequency of occurrence of defects

Password of UQI	R_c -the frequency of occurrence of defects in shift	$S_s = \pi_s \cdot R_c$ (use first table)	the relative importance of UQI $V_i = \frac{S_s}{\sum S_s}$	UQI serial number (location after ranking)
1	2	3	4	5

A. Paneliperekritiyi				
2	1,02	0,784	0,536	1
3	0,83	0,122	0,083	4
4	0,30	0,090	0,061	5
5	0,61	0,129	0,088	3
6	0,083	0,015	0,010	9
7	1,07	0,197	0,134	2
8	0,20	0,032	0,021	8
9	0,31	0,042	0,028	7
10	0,44	0,049	0,033	6
		$\sum S_s = 1,46$	-1,00	

UQI, taking into account the frequency of occurrence of defects a ranking curve in order of importance



02,04,01,03 are considered critical defects.

It is necessary to take measures quality increases by 85%

As can be seen from this histogram, if we eliminate the defects related to UQI 02,04,01,03 with measures, the quality of the product will increase by 85%. It is necessary to pay attention to these 4 defects. The remaining 07,10,09,08,11 UQI defects do not have a significant impact on product quality (only 15% impact).

We will consider some of the quality management and control systems implemented in factories operating in the Samarkand region.

The implementation of "standards" in enterprises is common. Standard and technological cards specify production according to standards. The standards cover only the direction of quality, goals and tasks, and requirements for the production process. For example, a special standard has been introduced at the Samarkand Communication Construction Materials and Structures Plant, and there are also special standards for quality assessment.

Control of each operation (technological process) has been replaced by (selective) control of some of each category of products when using the quality management system in construction industry factories. This reduces the speed and effectiveness of control, creates conditions for errors and defects in work to pass to

the next stage, defects and defects are not eliminated in time, which sometimes leads to the difficulty of correcting the defect, and even to economic inadequacy, to failure, leads to a decrease in the activity and efficiency of the product quality management system.

It would be desirable to eliminate these shortcomings and create a simple and complex quality management system that does not require a lot of work. The created system should have a good influence on the technological process through the development of economic, organizational, technical, and social measures, and should have the ability to influence the causes and factors that cause defects.

Through observations and the study of special statistical sources, it became clear that the quality management system and service implemented in many communication structures factories and construction industry factories are mainly engaged in performing the following tasks:

technical control and evaluation of product quality;

metrological service;

carrying out laboratory control.

Analyses show that this implemented system and ongoing work lead to an increase in product quality in any case. But in many factories, the reason for the production of defective products is the oldness of equipment, molds, and the violation of production and technological processes, and the use of standard and non-standard raw materials also reduces the quality.

In the factories that we examined and studied, including the joint-stock company, the quality management system is incomplete, some elements have been introduced, this system is mainly of the nature of information gathering, and its ability to influence production processes is very low [5].

In these factories, the employees of the technical control department control the quality, but there are not enough of them, the volume of work is large, most of the working time is spent on filling out various logs and documents, and they do not have time to monitor the process of the appearance of the quality of each product. , in most of the analyzed and observed production enterprises, even the above-mentioned activities have not been started. Our proposal is to introduce and implement a fast, operational quality management system that ensures quality in these factories.

Summary. It can be concluded from the above that in this work, it would be appropriate to develop methodological instructions and provide specifications for the creation of a management system that ensures the quality of factory products, provides quick, operative, and practical solutions. In this direction, a number of practical works were carried out by the authors, based on their results:

- conditions are created to identify defects that are common in the construction network and lead to large additional costs;
- technical control and evaluation of product quality, evaluation of technological process participants, workers, helps in determining quality coefficients;
- is useful in determining the amount of contingent losses (material, labor costs, wage losses) arising as a result of repairing and correcting low-quality products.

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