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Practical Bases for Implementing Quality Management and Increasing its Efficiency in Building Materials Manufacturing Enterprises

Hakberdiev Ulugbek Nasrullo ugli

Researcher at Tashkent University of Architecture and Civil Engineering,
E-mail: ulugbek_haqberdiyev@mail.ru.

ABSTRACT

This article analyzes the practical aspects of organizing quality management in enterprises producing building materials. The introduction of international standards in quality assurance, the use of automated control systems, and the role of quality departments in the organizational structure are separately studied. Based on scientific sources, classical and modern approaches are compared, existing problems are analyzed, and practice-oriented recommendations are developed. The situation in the field is illustrated with specific examples through tables and statistical data. Research conclusions quality management strategic to the level lift the necessity based on gives.

Keywords: quality management, building materials, ISO 9001, quality control, automation, standardization, production, certification, quality department, competitiveness

Introduction. Today, one of the important pillars of economic development around the world is the construction industry. Construction is inextricably linked not only to the construction of new facilities, but also to the renewal of entire infrastructure, the development of urban planning, and the improvement of the living standards of the population. The stability and efficiency of this industry directly depend on the quality of the materials used, and high-quality building materials are a guarantee of durable and long-lasting structures.

Building materials manufacturing enterprises, as a separate segment of the industry, require comprehensive, solid management and coherent organization. Quality is not just the appearance of a product or its compliance with standards, but also its reliability, environmental safety, cost-effectiveness and how well it meets consumer needs. Thus that's it, quality to manage random process as not, maybe whole management system as see necessary.

In Uzbekistan last in years construction field state in politics priority from networks to one New residential areas, large industry zones, infrastructure objects, road and bridges, education and medicine institutions construction state and private in the sector wide in scope done This is a very important issue. in turn, construction to the materials was demand year gradually is increasing.

such circumstances local working issuers load increasing is going - not only quantity in terms of, maybe quality point of view from the point of view of. But in practice this shows that some in enterprises quality to the management serious not being approached. Standards complete compliance not being done, the product one kind not technological of procedures enough at the level control not to be done - construction in the process various problems brought Some in cases, poor quality from materials use construction of objects short within the period damage, safety to the rules compliance insufficiency and material to losses take is coming.

From this besides, in our country local products external to the market export size increase according to directions active is supported. Export-oriented product working release for and quality management international to standards answer to give condition. International ISO, CE, and other to certificates has not been products many countries to the market is not included. There fore quality management effective organization to do not only internal market, maybe external economic activity solution for doer importance has.

Market mechanism under the circumstance's quality - this competitiveness main is the criterion. Customers poor quality the product acceptance does not do, different to alternatives appeal In such a situation working issuer enterprise not only in the market instead loss, maybe financial stability is also at risk under Therefore, the quality management system current to grow - of the enterprise strategic priority from directions to one rotation necessary.

Construction materials working release in the field again one important aspect - ecological and social responsibility Quality control is a matter of absence ecological danger procreator, human health for harmful materials working to be released reason to be It is possible. This is public protest, state organs by punishment measures and other negative to the consequences take is coming.

That's why for this too on the subject scientific-theoretical and practical analyses take to go, construction materials working issuer in enterprises quality management system perfect in the form on the road to put aimed at approaches study and to practice current to grow today's of the day extreme current issue is considered.

To the topic related literature Quality Management in the field take visited research and scientific research today's on the day not only technical, maybe strategic and innovative requiring approaches complicated to the system that has become shows. This in the field classic and modern of scientist's views construction materials working in the release quality provide and to manage related main theoretical and practical the platform creates.

VE Deming in his "Out of the Crisis". quality 14 principles of management previously pushed are , they are between high management strict participation , continuous improvement , employees qualification increase , and to processes attention to give such as approaches main place Deming 's to look at according to , quality control only the result not , maybe also covers the process to receive condition.[1] This principle construction materials working issuer in enterprises working release stages integral control to be done the necessity emphasizes .

And Joseph Juran "defense" and "development" of quality separates. Its stating that quality only check through not, maybe strategic planning, entrepreneurship culture and quality function organization all at the levels to absorb through provided.[2] It is produced in the release quality plan and quality price such as concepts previously pushed.

Philip Crosby's Quality is Free named in his work quality provide cost not, maybe investment that it is emphasizes. It is "nul" "zero defects " principle previously push, quality from the beginning right organization to do through malfunction and again work expenses eliminate to grow possible proved.[3] Construction materials working in the release this look very important because poor quality products whole construction to objects danger to give birth possible.

From Uzbekistan researchers are also national under the circumstances quality management to oneself typical aspects In particular, QQ Kuchkarov "Quality" management systems: theory and"

practice" in the monograph national in enterprises quality management still a lot in formal situations that it is international to standards appropriate systematic approaches lack of emphasizes.[4] His in my opinion, local working in issuers quality culture formation, staff readiness increase and automated control systems current to do priority from tasks is considered .

N.Sh.Bekmurodov and working in the release quality in providing technician regulations, metrological supply, and certification importance separately highlights. His 2018 in research, local working issuers most international to standards not local normative to documents reliance saying passed.[5] This is export-oriented product working to release serious barrier become remains.

Also, Sh. Alimov said in his in the article quality management system current in the process of there is obstacles - technological shortages, personnel qualification inferiority, quality indicators statistical analysis not to be done such as to problems attention focused.[6] He only control tool as not, maybe competition advantage as to see offer does.

However critical point of view from the point of view when viewed, local in research in the field advanced international experiments with deep comparative analyses enough at the level not. In world practice being used digital technologies, such as SCADA, ERP, IoT and Big Data- based quality management systems Uzbek in enterprises almost implementation not yet achieved. [7,8] This is in research practical recommendations technological in terms of limited take is coming.

This regard, the topic related from literature taken from the view's conclusion as in other words, construction materials working issuer in enterprises quality management effective organization to grow for not only classic theoretical basics, maybe modern digital technology, human to capital investment and strategic planning based on complex approach is required.

Research methodology Construction materials working issuer in enterprises quality management current to grow and efficiency increase practical the methods of comparative analysis, statistical data study and economic comparison and analysis, logical thinking, scientific abstraction, analysis and synthesis, induction and deduction were widely used.

Analysis and results. In practice, there are cases where some enterprises evaluate quality only by inspection results. That is, quality control only product ready since then, laboratory tests through done but modern quality management such approach does not consider it sufficient. Today on the day quality management strategic task as of the enterprise all to the stages - project working output, raw material chooses, work production, logistics, sales and service show to the processes implementation to be necessary.

Industry in Uzbekistan too modernization, import reduction and export potential increase policy within local working issuers in front of quality provide according to new requirements In particular, construction materials ISO standards in the field appropriate product working release, international certificates to take and competitive price-quality to the ratio achieve today's of the day priority from directions is one.

Table 1. Construction materials in enterprises quality management status

Types of enterprises	Total share (%)
ISO 2001 current done enterprises	18
Only those that comply with internal standards	35
Enterprises with automated quality control	12
Businesses that perform quality control manually	40
Enterprises with a dedicated quality department	22
Enterprises without a quality department	45

Source: Prepared based on information from the “Uzsanoatqurilishmateriallari” association

The data in the table analyzes the practical situation of quality management in construction materials manufacturing enterprises based on the situations shown in the table above. The table shows the different approaches of enterprises to quality management and their market share in percentages. They are based on the following analysis:

1. The share of enterprises that have implemented ISO 9001 is 18%, which indicates that the number of enterprises that have organized quality management at an international level is still low. This situation limits export opportunities.
2. Only 35% of enterprises adhere to domestic standards, which means that a large proportion of manufacturers are limited to local regulations. This reduces the ability to ensure quality at the level of global requirements.
3. Automated control systems current reached enterprises - only 12%. This number working release in the process human mistakes reduce and quality in real time following to go that the chances are low shows.
4. In hand control take to go enterprises - 40% - this and unreliable and subjective to assessments-based control system column that it is means.
5. The quality department has enterprises - 22% - this indicator organizational in the structure quality management enough at the level place that he didn't get means.
6. Quality Department there is not been enterprises - 45% - almost in the middle such department absence in enterprises quality management systematic accordingly done not to be exceeded shows.

Table 2. Quality management main principles and their practical results

Principles	In practice implementation	Expected results
To customers orientation	Customer opinion based on the product improvement	Consumer confidence and permanent sales
Process approach	Production of release every one stage standardization	Production release efficiency increase
Strictly leadership	Quality strategic goal as designation	Sustainable development and corporate responsibility
Employees attraction to grow	Employees permanent teaching and motivation	Good prepared personnel and less mistake
Priority permanent improvement	PDCA cycles current to grow	Systematic improvement and innovations acceptance to do

Source: Author's analysis based on ISO 9001:2015 standard, Juran (2010), Deming (1986) recommendations

The results of the analysis show that the biggest problems in the field of organizing quality management in building materials manufacturing enterprises are the lack of automation, the lack of approaches based on international standards, and the lack of quality departments in the organizational structure. These problems quality random and at a formal level to manage take is coming.

Conclusion. Effective organization of quality management in enterprises producing building materials is a crucial strategic task from the point of view of today's market requirements, priorities of state policy and world standards. The conducted analysis shows that systematic approaches to quality management, automated control mechanisms and international certification standards have not been sufficiently implemented in the industry. This negatively affects the competitiveness of enterprises, their position in domestic and foreign markets, as well as the safety and stability of construction sites.

Based on the research results, the following important conclusions and recommendations are made:

1. The introduction of a quality management system in enterprises based on the ISO 9001:2015 standard paves the way for a transition to a systematic management model that meets international requirements. This not only product quality, maybe process efficiency and internal control strengthens.
2. Quality control processes digitization and automation - human to the factor related mistakes reduces, statistically analysis and monitoring capabilities increases. Such as SCADA, ERP and IoT systems current to be this in the field new step begins.
3. Enterprise organization in the structure independent and functional quality department organization to do - quality management independence and impressionability This section provides only inspector not, maybe quality improve according to initiative to be necessary.
4. Each employee for quality according to regular qualification increase courses and trainings organization to grow - quality culture in formation solution doer from factors is one. Employee quality only not a technical requirement, but own of labor value as acceptance to do need.
5. Strengthening product certification and metrological assurance - increases the level of confidence in the product market, ensures consumer safety, and expands export potential.
6. Harmonizing national regulatory documents used in the activities of enterprises with international standards will allow for the faster introduction of technological innovations through the globalization of the regulatory framework.

In general, quality management in the construction materials industry should be seen not only as a technical control tool, but also as a continuous management process aimed at the strategic development of the organization, gaining market position and gaining consumer trust. In this regard, if the proposals and conclusions presented in the study are implemented in practice, local manufacturers can be fully competitive not only in the domestic market, but also in the international arena.

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