



## APPLICATION OF NEW TECHNOLOGIES IN DESIGN AND CONSTRUCTION OF ENGINEERING COMMUNICATION SYSTEMS

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### Annotation

In order to improve the construction production process, reduce energy consumption and use of manual labor, increasing labor productivity due to the replacement of old and outdated construction techniques and technologies in construction enterprises with new modern technologies is presented on the basis of indicators and data.

**Keywords:** construction, building, structure, excavator, motor grader, construction machine, bulldozer, universal machines, control cabin.

- As in all areas, in many areas of construction, deep reforms are being carried out today. Road construction and building construction can be a clear example. As an example, we will make an economic analysis of the composition of machines used in construction and their performance:
- Bulldozer, excavator and motor grader in earth excavation works

#### *20 years ago*

Bulldozer B-170 - the volume of the working equipment is 5 m<sup>3</sup>, the productivity of 1 hour is 230 m<sup>3</sup>/hour, fuel consumption is 38 l/hour, on 3-4 class ground.



#### *Currently*

Bulldozer Shantui SD23 - volume of working equipment is 5 m<sup>3</sup>. 1-hour productivity on 3-4 class soil 365 m<sup>3</sup>/h, fuel consumption 24 l/h



Excavator EO-3322, productivity 65-75 m<sup>3</sup>/h, fuel consumption 35-40 l/h

Excavator Robex 180W-9S performance 110-120 m<sup>3</sup>/h fuel consumption 20-24 l/h



Автогрейдер, иш унумдорлиги 45-50 м<sup>3</sup>/соат, ёқилғи сарфи 30-40 л/соат

Autograder Caterpillar, productivity 70-80 m<sup>3</sup>/h, fuel consumption 20-25 l/h



From the above analysis, it can be seen that the productivity of construction machines has increased by 1.5-2 times, and fuel consumption has decreased significantly. It can also be said that the periodicity of technical and service maintenance for this type of machines has increased 2-3 times compared to 20 years ago, as a result, the time spent on servicing is saved, the maintenance of machines in technical service and the drastic impact on the overall productivity level are reduced. The reason for the increased service intervals is due to the use of synthetic oils and the use of composite materials in the production of parts.

We have observed that various occupational diseases cause vibration, noise and various traumas when old techniques and technologies are used. The only important indicator of the quality and overall safety of the machine is its ergonomics. When the intensity of the sound increases to 130 dB, pain occurs in the hearing organs (pain



threshold), and the sound becomes inaudible. At 145 dB, the eardrums can burst. If it is more than that, it will lead to the death of a person.



*Picture 1. Sources of noise*

In this regard, first of all: vibration and noise level, temperature, dust and pollution level, force applied to the control body (lever, pedal), parameters of the operator's control cabin - the dimensions of the working seat and the force applied to the steering wheel are important indicators.

Therefore, the following requirements are imposed on construction machines:

1. Constructive students;
2. Technological students;
3. Usage requirements;
4. Economic students;
5. Social students.

In addition to the use of new technologies in the design and construction of engineering communication systems, it will be more appropriate to use multi-purpose machines. Idle time in cars is significantly reduced. We can observe that the machines and equipment used in the preparatory work will remain idle until the work starts on the next construction site. As an example, the company BOBCAT, a manufacturer of universal multi-purpose construction machines, with more than 30 universal exchangeable working equipment, has rapidly entered the construction process of buildings and structures. As a result, it was possible to do with one machine what more than 30 machines could do (Picture 2).

Picture 2. Multi-purpose machine with universal exchangeable working equipment  
It should be noted that the use of small types of construction machinery in construction facilities increases work productivity.

In conclusion, in the construction of engineering communication systems, the use of modern techniques and technologies in accordance with regional and international



standards, multi-purpose universality, and the low impact of harmful factors on the operator of the machine lead to the timely completion of the planned works.

### References

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