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QUALITY CONTROL OF PRODUCTION OF VOLUMETRIC BLOCKS

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Construction is one of the most ancient and important human activities, which plays a key role in shaping our living environment. It covers a wide range of processes, from design and planning to the construction of buildings and infrastructure. Today, in Kazakhstan, where urbanization and population growth continue to gain momentum, efficient and sustainable construction methods are becoming especially relevant. Innovations in materials, technologies and design approaches open up new horizons, allowing you to create more comfortable, safe and environmentally friendly spaces.

Volumetric blocks are an effective solution in modern construction, providing high speed of construction of buildings, improved thermal and sound insulation characteristics, as well as the possibility of using various architectural forms. Their use helps to reduce labor costs and reduce the amount of waste, which makes the construction process more environmentally friendly. In addition, volumetric blocks provide high strength and durability of structures, which is an important factor for the sustainable development of urban infrastructure. The introduction of new technologies and materials in the production of volumetric blocks opens up prospects for further improvement of construction practices and improvement of housing quality [1].

Quality control of volumetric blocks is a critically important element that must be carried out at every stage of their preparation and formation.

The construction stages begin with the development of a project of volumetric blocks, which includes calculating their number for the building and determining various types of blocks. Volumetric blocks are classified into residential blocks and blocks designed for elevator and stairwell shafts. At this stage, the selection of materials is carried out, while the most effective of them are selected on the basis of experimental studies in laboratory conditions.

The resulting concrete mixture is tested according to the following climatic characteristics:

1. Resistance to low temperatures
2. Resistance to high temperatures

3. Water resistance
4. Strength
5. Earthquake resistance

These indicators relate only to the preparation stage. At the subsequent stages of production, which include the preparation of concrete mix, electrical wiring, fittings, a frame made of reinforcement, as well as a block frame with integrated electrical communications, filling of volumetric blocks, connecting various parts of blocks and their lining, careful control is necessary. Each of these stages is of critical importance, since the safety of human life depends on their quality.

The quality control of the volumetric block should be carried out at each stage using non-destructive methods in accordance with the requirements of GOST 17624-18 and GOST 22690-70 [2-3].

Checking for compliance with the organization's standards is carried out by the Quality Control Department at each stage of production, using a non-destructive, visual method.

Quality and compliance control extends to the following stages:

1. reinforcement work;
2. electrical wiring;
3. preparation of molding machines for concreting volumetric elements;
4. concreting volumetric elements;
5. heat treatment of volumetric elements;
6. stripping of volumetric elements;
7. operational control of formation of volumetric elements

Quality control of volumetric blocks in construction includes several methods and approaches aimed at ensuring that materials and products meet established standards.

1. Visual inspection
2. Measurement of geometric parameters
3. Strength tests
4. Laboratory tests
5. Non-destructive testing
6. Material composition control
7. Production process monitoring
8. Documentation and traceability

Volumetric blocks play a key role in modern construction due to their strength, cost-effectiveness and speed of installation. Their use reduces construction time and labor costs, providing high heat and sound insulation, minimizes waste and simplifies transportation [4].

References

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