STANDARDS FOR BUILDING GLASS AND BUILDING-GLASS PRODUCTS ADOPTED IN THE RUSSIAN FEDERATION

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The standards for building glass currently used in Russia include international standards of the CIS, USSR state standards, Russian Federation state standards, and a number of specifications developed in the industry or by production companies.

The State Institute of Glass (GIS) JSC is developing state standards and industrial specifications for building glass. The State Construction Committee of Russia (Gosstroj) has made GIS the principal entity responsible for standardization of the corresponding products. Moreover, GIS used to fulfill the function of organizing metrological services in the glass industry.

Up to 1991 integrated standardization programs for the development of state, republic, and industrial standards and specifications used to be adopted every five years with a view to constantly improving quality parameters. All these works used to be financed by the state budget. At present this system does not exist, and development of standard specifications is not regulated by an adopted plan, but is motivated by a need for a specific document. The development of standards is financed by interested parties, which most frequently are, regretfully, foreign companies. Domestic associations of manufacturers and consumers do not manifest due interest in keeping the regulatory documents at a sufficiently high level.

The regulatory specifications for building glass and building-glass products currently in force in Russia include 2 inter-CIS standards, 21 state standards of the USSR, 2 state standards of the Russian Federation, and a number of specifications for the above products. The numbers and names of the standards are listed below.

LIST OF STATE STANDARDS FOR BUILDING GLASS AND METHODS FOR ITS TESTING

GOST 111–90. Sheet glass. Specifications.
GOST 5533–86. Sheet figured glass. Specifications.

GOST 8894–86. Glass pipes and profiled fittings to them. Specifications.
GOST 24866–89. Glued double glass panes. Specifications (currently being revised).
GOST 17057–89. Facing glass mosaic tiles and mosaic tile carpets. Specifications.
GOST 19246–82. Slag glass ceramic sheets and slabs. Specifications (cancelled).

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Multilayer building glass (the standard is currently being developed).
Hardened building glass (the standard is currently being developed).
It can be seen that most of the standards are over 10 years old, i.e., they are obsolete.
Moreover, two standards that for various reasons were once canceled are still in force. Thus, GOST 22279–76 “Hardened enamel glass ‘stemalite.’ Specifications” was cancelled, and yet stemalite is now more and more frequently used in construction.
It should be noted that at present certain state standards are in force, although those products are not produced, whereas some promising products arrive on the Russian market, and corresponding specifications do not exist. Such is the situation with glass pipes that are not made in Russia, although they are promising products that are indispensable in transporting aggressive chemicals. Their main manufacturers in the CIS are the Lomonosov Glass Factory in Gomel (Belarus) and the Buchanskii Glass Factory (Ukraine). Foam glass is not currently produced in Russia and is imported from Belarus. At present several companies intend to start foam-glass production in Russia, since this is a highly efficient heat-insulating material, but there is no standard for foam glass in Russia.
An analysis of regulatory documents for building glass in force in Russia revealed the following:
Quantitative aspect:
the overwhelming majority of the standards regulate requirements imposed on products and exist in the form of specifications;
12 standards are devoted to testing methods; there are no standards for computational methods for determining parameters (properties). An example of such methods is the standard ISO 9050:1990 “Glass in construction: determination of light transmission, direct solar transmission, total solar-energy transmission, ultraviolet transmission, and corresponding glazing parameters,” which makes it possible to determine appropriate coefficients for various types of glazing (multiple glass panes, multilayer glass, etc.) using calculation formulas without the need for costly lab equipment;
documents regulating material consumption norms in the production of glass and glass articles are inadequately represented: the one standard ST SÉV 5865–87 “Tank furnaces for making stretched sheet glass. Calculation of power-consumption parameters” was introduced by direct application; there is only one terminology standard ST SÉV 2439–80 “Building glass articles. Terminology and definitions,” but it contains a limited range of terminology, has some inaccuracies, is rather obsolete and needs to be revised, although the demand for such a standard is urgent, due to existing confusion in terminology, especially in the characteristics of new types of glass with special properties;
there are no standards for application of building glass and environmental protection;
there are no state standards for new types of glass that are increasingly commonly used in construction: multilayer building glass, fire-resistant glass, glass of increased strength, glass with special properties (low-emission, heat-resistant), glass with coatings.
Qualitative aspect:
in developing domestic standards researchers used to study international standards, standards of the Council for Mutual Economic Assistance, and especially national standards of foreign countries, and therefore the majority of the domestic standards, in their quality parameters, correspond to the world level of the late 80s – early 90s but are significantly behind contemporary requirements with respect to the product range and the quality parameters; for example, GOST 111–90 for grade M 1 glass allows four exterior defects per m², whereas EN 572-2 “Glass in construction – Basic products – Part 2: Float glass” allows one defect per 20 m²; the areas of glass application have changed with respect to the requirements of the standard; for instance, GOST 111–90, when developed (the end of the 80s), was a document describing sheet-glass grades and application areas with prospects for future use. However, with the development of construction technologies and more complex glass structures, builders do not limit themselves to grade M 1 – M 6 glass in glazing and mostly use grade M 1 glass, although the above standard recommends the latter grade for high-quality mirrors and automobile windshields;
with respect to the terminology used, most standards are oriented to knowledgeable specialists and sometimes are difficult to comprehend for ordinary consumers;
with respect to quality parameters and regulated requirements, domestic standards are more overloaded than their foreign analogs;
standards have obligatory and reference requirements; however, some standards also contain technological requirements, which should be excluded and transferred to production forms and records;