Controversies in Technical Regulations on Safety Requirements of Russian Urban Development Code

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Abstract. This article lists the legal requirements on technical regulations in rating, compliance assessment, monitoring, and control. It presents a pyramid of harmonized standard requirements based on a parametric rating system. The specific features of similar requirements are explained according to the Urban Development Code of Russia. The authors suggest some ways of improving the current situation and adjusting the existing system of technical regulation in construction according to the international practices.

1. Introduction
According to the provisions of Federal Law No. 183 of 27.12.2002 On Technical Regulation [1], the efficient existence and development of relations between subjects and objects of market economy stipulates for three obligatory components: a rating system, a compliance assessment system, and a monitoring and control system (Figure 1).

Nevertheless, the sector regulation in construction was broken and thus changed this system and is now using a different one (Figure 2)
2. Suggested solutions
The basic operation of the technical regulation system (Figure 3) implies that safety requirements set out in the respective Technical Procedures should be structured as a pyramid (Federal Law No. 384 of 30.12.2009).

The stages of a construction project life cycle are well aligned with the ideology of the Technical Regulation System based on the spiral of the Deming-Shewhart cycle [3] (Figure 4).
Figure 4. Life cycle stages for a construction project, technical regulation ideology.

The greatest advantage of using a three-component system of technical regulation is that each consecutive cycle improves consumer properties, development standards, architectural and structural solutions through the analysis of operational mistakes, continuous inspection, and the assessment of safety regulation compliance.

In this case, the introduction and utilization of BIM-technology advantages is stimulated naturally.

Architectural activities, urban development, and construction in Russia are subject to regulation according to Law No. 191 of 29.12.2004 On Bringing into Force the Urban Development Code of Russian Federation [2] (Figure 5).

Figure 5. On the regulation of architectural activities, urban development, and construction.

Figure 5 shows the requirements of the Law on Technical Regulation compared to the construction project developed by the contractor, and the requirements of the Urban Development Code compared to the development of a customer’s architectural project.
Focus on the key feature of the result of construction: parties’ responsibilities for the results of work conducted (Figure 6).

Federal Law No. 191 of 29.12.2004 states that the customer is liable to the consumer for the compliance with the requirements of the Urban Development Regulations applied to the architectural project; Federal Law No 184 of 27.12.2002 states that the contractor and operator are liable to the consumer for the compliance with the Technical Regulations on Safety and Facility Operation Guidelines applied to the construction project (Figure 7).

Figure 6. Comparing the work results according to two laws.

Figure 7. On the responsibilities of contractors and operators.
3. Experiment

International standards require that construction contracts should be based on the provisions of the International Federation of Consulting Engineers (FIDIC), which is observed in joint building and installation projects with foreign investors or contractors. To distribute risks between the parties in a balanced (fair) way, the ‘Red’ and ‘Yellow’ books of FIDIC are used.

According to the liability distribution standards, the risks associated with project works and their results are either carried by the project customer (the ‘Red’ book) or the contractor (the ‘Yellow’ book) (Figure. 8).

![Figure 8. The distribution of risks between the parties in the contracts of FIDIC.](image)

For the end-product consumer and manufacturer can make use of the advantages of implementing the Technical Regulations Law in construction, it is necessary to prepare harmonized standards to be used in the development in construction projects [4].

Harmonized standards must be based on the principles of a parametric rating system that allow introducing innovations, brand-new technical solutions, and technologies. Construction standards, on the contrary, are developed through prescriptive ratings, as provided by the Urban Development Code, and they leave little freedom for designers and developers [5].

4. Conclusions

1. Harmonized standards developed as the evidential basis for Technical Regulations on Safety must set out the methods of testing, simulation, and risk assessment, as well as the calculation method. The establishment of self-regulatory organizations (SRO) comprising some leading construction experts in Russia would be feasible in the development and approval of harmonized standards.

2. It is also necessary to improve the compliance assessment system. One should also provide for the assessment of compliance of construction subjects and objects with the provisions of Technical Regulations.

3. Minimize the role of state regulation in construction through the transfer of functions to the market players and assigning personal liability for the results of work from the development and approval of harmonized standards to the commissioning and operation of facilities.
4. The implementation of these suggestions will help revive construction expertise among scientists, engineers, and workers. We can navigate and balance the pluses and minuses of the two existing systems based on the Technical Regulations Law and the Urban Development Code and achieve a sustainable result conditioned by the coming of new experts and the accumulation of real experience and based on the liability of professionals with respective rights and resources. An attempt to visualize this result is shown in Figure 9.

![Figure 9](image)

**Figure 9.** The transformation of the system of technical regulations in construction

L&R – laws and regulations; technical standards; GASK – State Architectural and Construction Supervision Authority; TP – Technical Procedures.

5. References

[1] Federal Law "Technical regulations on the safety of buildings and structures" No 384 of 30.12. 2009 year

[2] Federal Law "On the Enactment of the Town Planning Code of the Russian Federation" No 191 of December 29, 2004

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