

# **Standardization of methods for repair reinforced concrete structures in Russia**

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# Issues related to concrete and reinforced concrete repair

- Definitions and repair rules
- Correct diagnostics to state causes of defects and be able to select appropriate repair techniques
- Requirements to material properties and testing methods
- Production control
- Conformity assessment



# National standards

## «Products and systems for protection and repair of concrete structures»

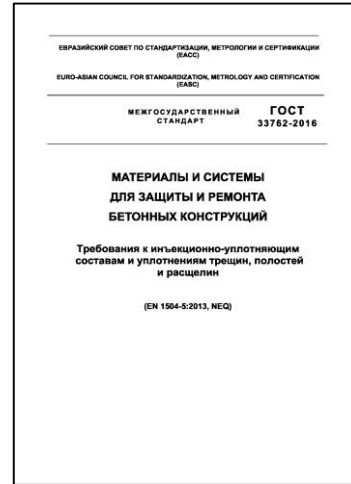
### GOST 32016-2012

Products and systems for protection and repair of concrete structures.  
General requirements



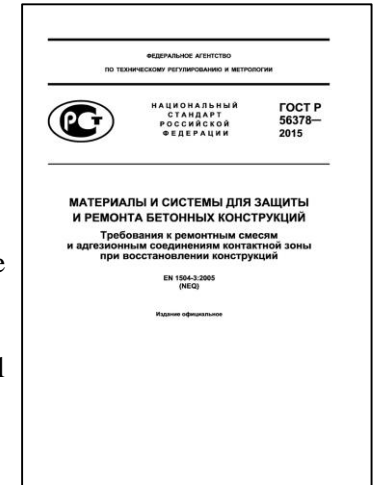
### GOST 32943- 2014

Products and systems for protection and repair of concrete structures. Requirements to bonded connections of structural strengthening elements



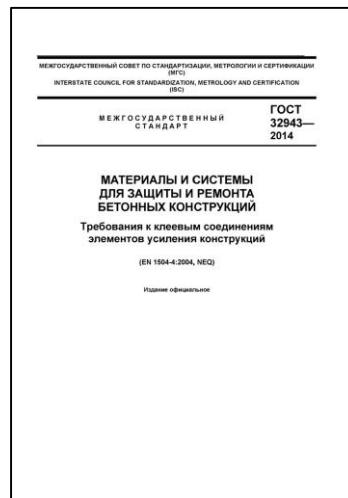
### GOST 34277-2017

Products and systems for protection and repair of concrete structures. Requirements for anchoring products and bondable load-bearing structural strengthening elements



### GOST 32017-2012

Products and systems for protection and repair of concrete structures. Requirements for systems for concrete protection in the course of repair works



### GOST 33762-2016

Products and systems for protection and repair of concrete structures. Requirements to injectable sealing products and filling of cracks, voids and interstices



### GOST R 56378-2015

Products and systems for protection and repair of concrete structures. Requirements for repair products and bonded connections in contact zones in the process of structural rehabilitation



## **The main requirement**

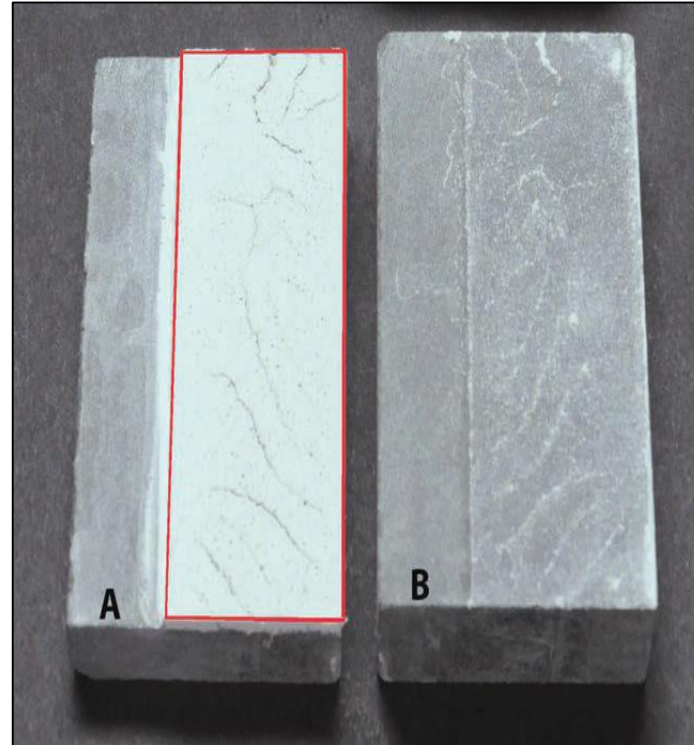
**of these standards is products compatibility to the authentic structural material.**

**Compatibility of any repair product is defined by substrate properties as well as by structural requirements.**

# Laboratory testing



To control repeatability and reliability of test procedures described in the standards as well as to be able to estimate them, we at ZAO «Triada-Holding» carried out laboratory testing



1) Tested specimen

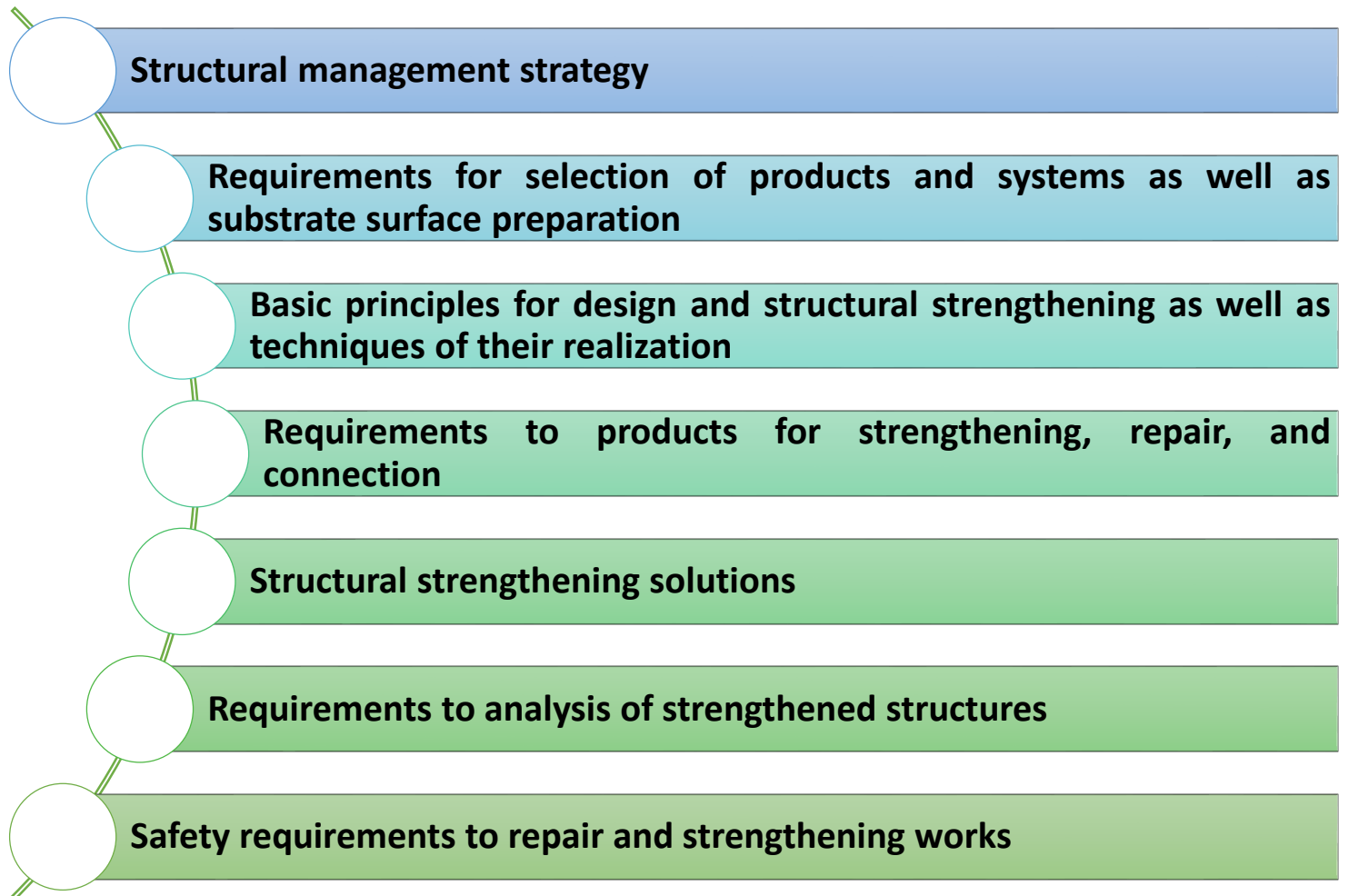
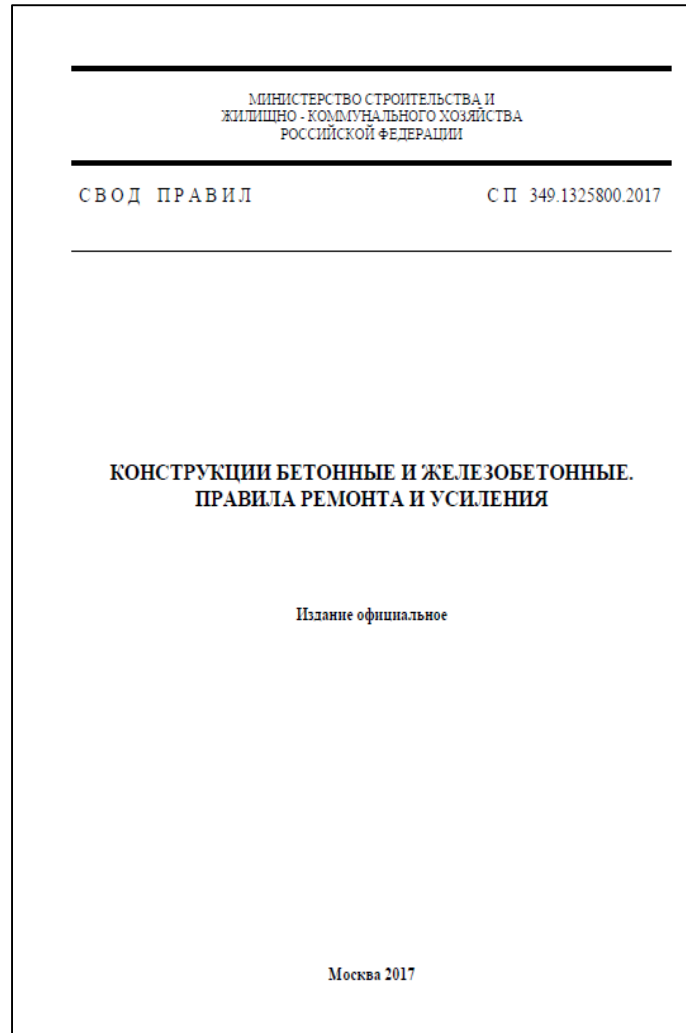
3) Columns filled with grouts



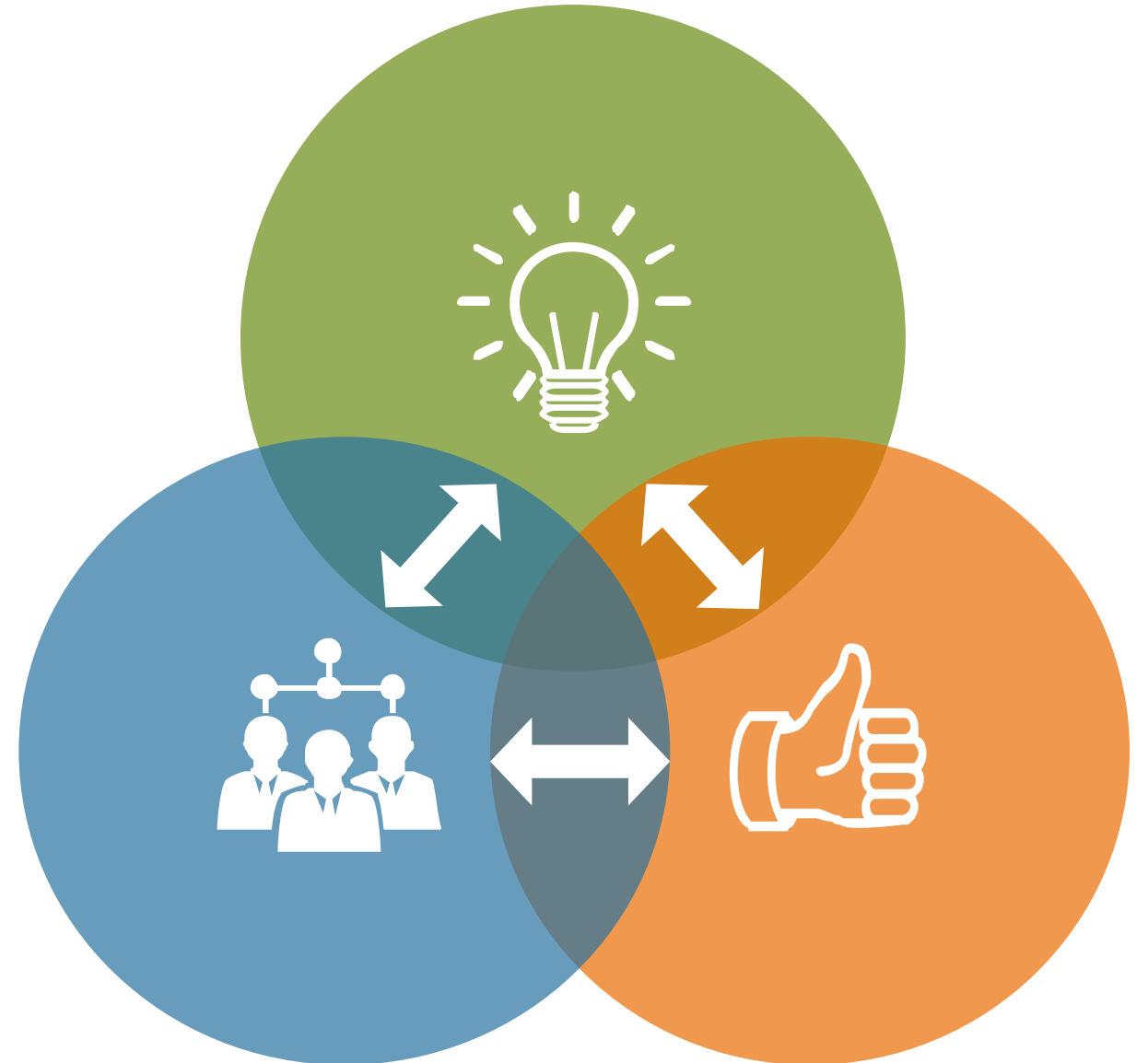
2) Example of a commercially available injectability apparatus with an empty column



# СП 349.1325800.2017 Concrete and reinforced concrete structures. Rules for structural strengthening and repair



**Issues related to repair and protection of concrete and reinforced concrete structures shall be further investigated in more detail. All the parties concerned are to be involved to build a team for developing and discussing normative documents devoted to repair and protection of concrete and reinforced concrete structures**



**Thank you for your attention!**