

## References

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## LAYERED FIBERCONCRETE WITH NON-HOMOGENEOUS FIBERS DISTRIBUTION

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Use of fiber-reinforced concrete in structures with high physically-mechanical characteristics makes it possible to reduce the weight and costs of the structure, to simplify technology of its production, reducing or completely eliminating the reinforcement work, while increasing reliability and durability.[1]

The aim of present research is to create fiberconcrete construction with non-homogeneous fibers distribution in it. Traditionally fibers are homogeneously dispersed in a concrete. At the same time in many situations fiberconcretes with homogeneously dispersed fibers are not optimal (majority of added fibers are not participating in a loads bearing process).

Layered beams with different short fibers content in plies were fabricated. Beams were tested under four point bending conditions. Increasing external applied load macro-crack started at the bottom side of the beam. The technology of specimen preparation can be found in the Latvian invention patent LV14667 and P-13-33. [2,3] All fibers were oriented in the direction of tensile stress see fig.1.

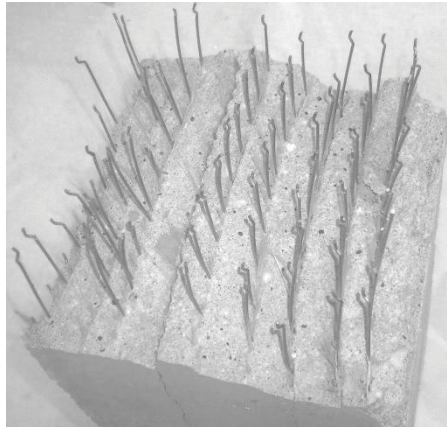


Fig.1. Fibers oriented technology result

Material fracture process was modeled. Modeling results are compared with the experimental curve for beams composed of layers with different fiber content. Prediction results were discussed. Model predictions were validated by 100×100×400 mm prisms for four point bending tests. Fracture surfaces analysis was realized for broken prisms with the goal to improve elaborated model assumptions.

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## References

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