

Introduction

This document provides additional guidance relating to the use of fibre reinforcement in concrete in lieu of traditional steel reinforcement.

Current technical standards

There are two current standards covering the requirements for fibres for concrete:

- BS EN 14889-1:2006 Fibres for concrete — Part 1: Steel fibres — Definitions, specifications and conformity
- BS EN 14889-2:2006 Fibres for concrete — Part 2: Polymer fibres — Definitions, specifications and conformity

In the 'scope' section of the aforementioned standards the following is stated:

'This Part of EN 14889 specifies requirements for polymer fibres for structural or non-structural use in concrete, mortar and grout.'

'Structural use of fibres is where the addition of fibres is designed to contribute to the load bearing capacity of a concrete element. This standard covers fibres intended for use in all types of concrete and mortar, including sprayed concrete, flooring, precast, in-situ and repair concretes.'

The above standards only provide guidance on the requirements of fibres and their evaluation of conformity and not how they can be adopted as alternative reinforcement in structural design codes.

Warranty position

There are two types of fibre reinforcement available on the market: micro-polymer fibres and macro fibres. For Warranty purposes, we only accept the use of macro fibres.

Where traditional steel reinforcement is to be replaced with fibre reinforcement, evidence must be provided that the alternative reinforcement satisfies all of the below requirements.

Third party product approval certificate

- The fibre reinforcement must hold a valid and current third party product approval certificate from a UKAS accredited testing body, which is deemed satisfactory to our Structural Engineering Department.
- The 'scope of use' section of the third party product approval certificate must state the product can be used as an alternative to traditional steel reinforcement for the specific application proposed.
- It is imperative that the wording in the 'scope of use' section of third party product approval certificates is checked. As a number of product certificates actually say 'contributes to anti cracking properties' – that is not the same as being an alternative to steel reinforcement and therefore is not acceptable.
- The third party product approval certificate must state the product will have a minimum durability of at least 60 years.
- The certificate information and certificate holder must provide sufficient data to allow a structural engineer to provide a design.

Quality management requirements

The dosage and on site mixing requirements will need to be carefully controlled. To satisfy warranty requirements, an approved contractor accepted by the macro fibre manufacturer must be responsible for controlling the process of mixing the fibre into the concrete to ensure it will achieve the correct specifications for the project.

The structural engineer must also clearly stipulate the correct concrete grade to be used for the project.

Evidence of all of the above requirements must be provided prior to works commencing on site.

Summary

Prior to the use of any fibre reinforcement, in lieu of traditional steel reinforcement, the developer is advised to seek confirmation from our structural engineering department, through our site surveyor, that the proposals would be acceptable to the warranty provider.

Every care was taken to ensure the information in this article was correct at the time of publication (November 2023). Guidance provided does not replace the reader's professional judgement and any construction project should comply with the relevant Building Regulations or applicable technical standards. For the most up to date Premier Guarantee technical guidance please refer to your Risk Management Surveyor and the latest version of the Premier Guarantee Technical Manual.

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