REINFORCEMENT TO CONCRETE TOPPINGS

for suspended beam and Expanded Polystyrene (EPS) block floors explained.

The specification of lightweight, insulating EPS infills as an alternative to traditional concrete blocks in suspended floors has become increasingly popular. However confusion has occurred over what types of reinforced concrete toppings are acceptable to use with these systems.

Background:
Concerns were raised by the NHBC over the use of Micro Synthetic Fibres in concrete toppings above suspended concrete beam and non-load bearing Type R1 EPS infill blocks as they provide insufficient structural capabilities to prevent cracking and floor failures.

Where a non-structural type R1 EPS infill block is specified, such as the Stylite T-Beam, a suitably reinforced structural concrete topping is required. This is to provide sufficient structural performance and give the topping significant moment capacity to withstand all loading conditions.

Solutions:
There are three options available to designers and installers that meet the NHBC requirements:
1. Steel Reinforcement Mesh
2. Steel Fibres
3. Macro Synthetic Fibres

Accreditations:
The NHBC also require flooring systems using Steel Fibres or Macro Synthetic Fibres to be independently assessed and certificated as a complete system by a third party certification body accredited to undertake such assessments.

NHBC Requirements:
On 1 January 2018 the NHBC requirements changed. They no longer accept the use of Micro Synthetic Fibres in concrete toppings when used in conjunction with suspended concrete beam floors with non-structural infill blocks.
Fibre Toppings v Steel Mesh:
Steel Fibre or Macro Synthetic Fibre toppings are easy to install compared to steel reinforcement mesh. Dissolvable bags of specific fibres containing the correct dosage rates are added to the concrete at the mixing plant. This solution has been used for over 30 years and is proven to work, avoiding any on-site confusion.

Steel reinforcement mesh can be difficult to install on-site and poses several health and safety concerns, including manual handling due to its size and weight, and also the need to cut it using power tools such as angle grinders. By choosing fibre toppings these installation concerns are alleviated.

Conclusion:
Micro synthetic fibre toppings are no longer acceptable in suspended floor constructions where a non-structural infill block such as EPS is used. Instead choose from either a traditional A142 Steel Reinforcement Mesh, a Steel Fibre, or Macro Synthetic Fibre topping.

Our Stylite T-Beam Flooring System has been independently assessed and certificated to include the different options for toppings so you can be confident that you are specifying a solution which meets the NHBC requirements. To obtain a copy of our product certificates which contain detailed specifications for each topping, please contact us on 01274 691777.

Further Reading:
If you would like to learn more then we suggest reading the following documents which can be downloaded from the NHBC website at www.nhbc.co.uk.
- NHBC Technical Extra (October 2014) - Issue 15
- NHBC Technical Extra (April 2016) - Issue 20
- NHBC Technical Extra (January 2018) - Issue 23