

Experiments on fibre orientation in UHPC

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Abstract. Distribution and orientation of fibres in fibre reinforced composites are essential for the structural performance of elements and structures. The paper deals with experimental research where this phenomenon was investigated. During construction of the first large footbridge, many experiments were made, which should guarantee the quality of the UHPC segments. Later the problem was investigated more in detail, when a technology of hollow core slabs was developed. Three basic experiments were carried out where the direction of pouring of concrete and the structural response were compared. Standard beams which were cast in horizontal and vertical positions, small beams were cut from the hollow core slab in different directions and finally thin slabs were cast in horizontal and vertical directions and their load carrying capacity was tested. Reduction of flexural strength in different directions may vary significantly.