

«Elaboration of material-specific coefficients of resistivity for the assessment of interfaces of steel fibre sprayed concrete supplements in accordance with National Application Standards concerning DIN EN 14487 and DIN EN 14488»

As part of the research project, experimental and numerical investigations will be conducted, on the load bearing characteristics of the connection of non-reinforced steel fibre sprayed concrete supplements. The assessment of the shear strength of the non-reinforced interface is performed on small format specimens without and with normal residual stress of the interfaces. This will include the investigation of the influence of the surface pretreatment methods, of the concrete base and of the fibre content for different depths of roughness by the use of different typical sprayed concrete mixtures. In addition, it will be determined what will be the restraint induced shrinkage deformation for different types of sprayed concrete. A statistical evaluation based on small format specimens without normal stress on the interface shows, following the used steel fibre geometry meeting the design regulations of the bonding load capacity in accordance with (DIN EN 1992-1-1:2011-01) in combination with (DIN EN 1992-1-1/NA:2013-04), that a sufficient level of safety can be achieved for building structures subsequently supplemented by sprayed concrete or non-reinforced steel fibre sprayed concrete, provided that careful curing of the interfacing surfaces is guaranteed. This applies to interfaces with roughness categories of rough, indented or pre-cast.