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Comments

Commentaires

Erläuterungen

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A statistical evaluation of the risk of a structure becoming unserviceable implies the statistical knowledge of the acting loads, the statistical knowledge of structural behaviour and the combination of these two types of information.

The statistical knowledge of structural behaviour can be experimentally obtained from the test of numerous similar structures or analytically obtained by the use of statistical theories of structures.

The statistical theories of structures shall allow to transform the randomness of the mechanical properties of the materials and of the dimensions into the randomness of the quantities that describe the structural behaviour: rupture, displacements, distances between cracks, crack widths, strains, stresses, etc. In some cases it will be necessary to distinguish between the behaviour of members and of connections between members or supports.

For combining the statistical distributions derived from statistical theories of structures with the statistical distributions of loads it is particularly important to define accurately the extremes that correspond to small resistances and the extremes that correspond to high loads.

The variability in time, both of the loads and of the resistances, and the different possibilities of load combinations are important aspects to be considered also.

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