ENGLISH SUMMARY

PROBALISTIC APPROACH TO STRUCTURAL SAFETY

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Structural safety is examined with probabilistic methods. Loads
and structural properties are considered as random variables. The
probability of failure is introduced as the measure of safety or
reliability. The evaluation of the probability of failure and the
design of structures are considered under some simple assumptions.
The safety index is introduced as a practical measure of safety. To
determine the safety index it is sufficient to know the mean values
and standard deviations of all variables. A upper bound of the pro-
bability of failure of a structure under repeated loading is given.
Upper and lower bounds of the probability of failure of structural
systems with several possible failure models are also given. Finally
the effect of safety and partial safety factors on the probability
of failure is examined. It is found that total safety factor is
worthless as the measure of safety, while a satisfactory result is
obtained when partial safety factors based on the actual deviations
of the variables are used.