A Computational Framework for Risk Assessment of RC Structures Using Indicators

Abstract:

The present article starts out by proposing a framework for risk assessment of RC structures utilizing condition indicators. Thereafter, the various building stones of the suggested framework are described. This description includes a summary of the basis for the probabilistic modeling of the initiation phases of chloride-induced corrosion of concrete structures. Furthermore, a probabilistic modeling of condition indicators regarding the condition state of concrete structures is proposed whereby information available at the design stage of concrete structures as well as information obtained through in-service inspections may be utilized for the purpose of reliability updating. Finally, it is described how the probability of localized and spatially distributed degradation of different degrees can be assessed and examples are given on how the various indicators may be used for the purpose of updating the statistical characteristics of the future degradation of RC structures. The presented framework forms a consistent basis for risk assessment of concrete structures subject to chloride-induced corrosion. It can easily be adopted to other degradation phenomena such as carbonation-induced corrosion and it forms a good basis for the
development of efficient approaches to Asset Integrity Management of RC structures.

Stichworte:
Computational Framework, Risk Assessment, RC Structures, Indicators

Dewey Dezimalklassifikation neu:
620 Ingenieurwissenschaften

Zeitschriftentitel:
Computer-Aided Civil and Infrastructure Engineering

Jahr:
2006

Band:
21

Monat:
Apr

Heft / Issue:
3

Seiten:
216–230

Reviewed:
ja

Sprache:
en

Volltext / DOI:
doi:10.1111/j.1467-8667.2006.00429.x

WWW:

Verlag / Institution:
John Wiley & Sons

Publikationsdatum:
26.01.2006

TUM Einrichtung:
FG Risikoanalyse und Zuverlässigkeit

Format:
Bild/Text

Eingabe:
24.09.2015

Letzte Änderung:
24.09.2015

Occurences:
Einrichtungen > Fakultäten > Ingenieurfakultät Bau Geo Umwelt > Lehrstühle > Fachgebiet Risikoanalyse und Zuverlässigkeit (Prof. Straub) > Zeitschriftenartikel

Entries: