Failure of Concrete Structures Caused by Chemical Reactions of Particular Elements in Concrete

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Concrete structures can exhibit cracking during their service life depending on the quality of ingredients, method of casting and curing, and on the environmental or weather exposure. Some cracks may develop in early stages; some are visible after many years in service. Cracking occurs when the maximum principal tensile stress exceeds the concrete tensile strength.

Three types of cracking caused by reactions of particular elements in concrete are discussed:

- Alkali-Silica Reaction (ASR)
- Delayed Ettringite Formation (DEF)
- magnesium hydroxide

Chemical reactions, latest theories of reaction mechanisms, and characteristic features of these cracks observed on concrete structures and by scanning electron microscopy (SEM) on concrete microstructures will be described and accompanied by photos of affected structures and typical SEM micrographs.

Přednáška se koná ve čtvrtek 21.10.2010 v malé zasedací síni děkanky (místnost B 161) v budově Stavební fakulty ČVUT v Praze, Thákurova 7, Dejvice. ***Všichni zájemci jsou srdečně zváni.***

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