



# BRITISH TUNNELLING SOCIETY

Thursday 15<sup>th</sup> June 2023 at 18:00 hrs

In-Person at

Institution of Civil Engineers, 1 Great George Street, London SW1P 3AA

## Design of Watertight Structures Can we rely on the self-healing of cracks in concrete?

Speaker:

**Dr Carola Edvardsen** – Technical Director, *COWI*



Structural engineers commonly use EN 1992-3 "Liquid retaining and containment structures", BS 8102 and also Ciria C775 for the design of watertight concrete structures such as basements, tunnels and water tanks exposed to one-sided water pressure. Following e.g. EN 1992-3 one may interpret that for water retaining structures, leaking full depth cracks is allowed. In good faith designers believe that depending on the hydraulic gradient full depth cracks between 0.05 and 0.20 mm are acceptable. However, this is only the case if the cracks heal themselves effectively within a relatively short time. Unfortunately, the self-healing of cracks does not always occur, and the reinforced concrete structures are at risk of serious reinforcement corrosion which could endanger the structural integrity without mitigation measures (e.g. injection).

The presentation will give some insight in the design of watertight structures, the self-healing effect of cracks and the presenter's own experience from several projects where relying on the self-healing of cracks as a design assumption had serious consequences for the structures, both with regard to durability and structural integrity.

**Note 1:** This is an in-person event which can also be streamed online at:

<https://youtu.be/x5HaJ8SYbqQ>

**Note 2:** Tea and coffee will be served from 17:30 onwards.

**Note 3:** Post-lecture drinks and food will be served downstairs in the ICE bar and are sponsored by Webac.

In case of any query please contact; The Secretary, BTS Tel: 020 7665 2238

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or visit: <http://www.britishtunnelling.com>