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Corrigendum 1

fib Bulletin 73
Tall buildings: Structural design of concrete buildings up to 300m tall

Please note that *fib* Bulletin 73: Tall buildings, dispatched to members in October/November 2014, contains the following error:

Page 128

In the text and the equations on page 128 of *fib* Bulletin 73, the symbol Xi is used instead of Epsilon.

The second page of this document in PDF is the corrected page of the bulletin, with Epsilon replacing Xi.

This page can be printed out and inserted into the bulletin.

must be defined consistently so that their sum corresponds to the measured stress-induced, time-dependent strain.

- Within the range of service stresses, the stress-induced strain is considered an age-dependent linear viscoelastic behaviour for concrete, combining the assumptions of linearity and superposition of the strain responses to stresses applied at different times.

According to these basic definitions and assumptions, when considering only shrinkage as a stress-independent strain, the total time-dependent strain $\varepsilon(t)$ in hardened concrete at time t under a constant imposed stress σ applied at a concrete age t' may be defined by the following equations:

$$\begin{aligned}\varepsilon(t) &= \varepsilon_{\sigma}(t,t') + \varepsilon_{sh}(t) \\ &= \sigma J(t,t') + \varepsilon_{sh}(t)\end{aligned}$$

$$J(t,t') = \frac{1}{E_c(t')} + C(t,t')$$

where $\varepsilon_{\sigma}(t,t')$ is the stress-induced strain, $\varepsilon_{sh}(t,t')$ is the shrinkage strain, $J(t,t')$ is the compliance representing the stress-dependent strain per unit stress, $E_c(t')$ is the nominal initial modulus of elasticity for the concrete associated with the nominal initial elastic strain $1/E_c(t')$ per unit stress, and $C(t,t')$ is the creep strain per unit stress.

For a variable imposed stress $\sigma(t)$, in the frequently assumed case that the law of variation of the imposed stress is continuous after an initial finite step $\sigma(t_o)$ at age t_o, the stress-induced strain at time t is given by the expression:

$$\varepsilon_{\sigma}(t) = \sigma(t_o)\, J(t,t_o) + \int_{t_o}^{t} J(t,t')\, d\sigma(t')$$

This equation, a linear Volterra integral equation, represents a constitutive law for the strain response of concrete to variable imposed stresses. Prediction models for concrete creep usually provide information for the prediction of the compliance $J(t,t')$on the basis of a set of the most significant parameters.