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LETTER TO THE EDITOR

William G. Hime and Stella L. Marusin

Erfin, Hime Associates
330 Pfingsten Road
Northbrook, IL 6002-2095

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In the letter from Messers Fu and Beaudoin, DEF is considered to occur only in steam-cured precast concrete products. Based on our research and investigations during the past five years, DEF can occur in concrete cast-in-place members exposed in wet/dry environment in service, and steam curing is not necessary for DEF development. For such an instance, clinker sulfate levels will be over 1.5% and as much as 5%, as SO_3 , and largely unmatched by equivalent alkali contents.

The process referred to by Messers Fu and Beaudoin is related to not only the high-temperature steam-curing process, but also to the time when, and for how long, the high temperature is experienced. Some researchers have suggested that curing temperatures be limited to 60°C, or even less. However, there is very extensive world-wide experience that concrete products cured at much higher temperatures and placed in a wet/dry environment for a number of years have not exhibited DEF development. Thus, factors other than curing temperature are involved, and may primarily relate to the sulfate content of the concrete and the chemistry of the cement.