

Interaction model of the stress-field and seepage-field for a dam and its foundation

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Abstract Under the occurrence of seepage, a swell effect will appear in a dam. The coupled effect between the stress and the seepage field needs to be considered. The calculation formulae using the equivalent surface and body forces are derived to deal with the effect of seepage and the loading method using numerical analysis to simulate the swelling that is developed. In addition, the corresponding coupled analysis model for the stress field and seepage field is proposed and a computer program is developed. The results of an example show that the model proposed agrees with the actual result.

Key words coupling analysis; concrete; seepage field; swell
