

عنوان مقاله:

EXACT AND NUMERICAL SOLUTION OF THERMOELASTICITY PROBLEMS IN CONCRETE STRUCTURES

محل انتشار:

نخستین کنفرانس بین المللی بتن (سال: 1388)

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خلاصه مقاله:

Addition thermal and structural forces can produce tensile stresses in structures. In a concrete structure such as RCC dam these tensile stresses can be very dangerous for structure stability. Thus study of this quantity especially in concrete structure is very important. In this paper heat transfer differential equation, types of boundary condition, their theoretical solution in stationary and non-stationary process and stress analysis in some cases such as a flat wall, a thin plate and a RCC dam are considered. Then with finite element approach, these concrete structures are modelled and results are compared with changing of effective parameters such as type of boundary condition. With comparing of these result, it is shown that finite element and analytical solution are the same but finite element approach is simpler and can be developed for complicated structures that their exact solution are very difficult. Also with thermal and structural analysis of Kinta RCC dam, some tensile stresses are observed that can be produced some cracks in concrete and damage its safety.

کلمات کلیدی:

Thermoelasticity, RCC dam, exact solution

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