PROBLEMS AND SOLUTIONS APPLIED TO MASS CONCRETE

FLÁVIO MAMEDE P. GOMES *

The concrete mass is such that it requires measures to control the cracking of thermal origin. Exothermic reactions provoke the increase of temperature, provoking compressive stresses due to the physical conditions of restriction. After the material becomes stiffer and after the heat dissipation causes the temperature to decrease, tensile stresses greater than the initial compression stresses can cause cracking of the structure. Long research projects were developed involving the customization of finite element software to solve the thermal and mechanical problems of the construction of layered concrete dams. Nevertheless, a serious international effort has been made to validate these software implementations. While TU COST 1404 (http://www.tu1404.eu/wg2/group-priorites) makes experimental validations, it was suggested to develop analytical solutions for simple geometry problems. In fact, in the early days of concrete mass, simple solutions were applied to the most diverse practical cases (Hoover Dam). In this presentation will be shown some unpublished developments of thermal problems considering the internal heat generation. If time allows, it will also be shown what was developed for the mechanical part, as well as what is yet to be developed.

Joint work with prof. Miguel Frasson (USP São Carlos).

We create a directory in GoogleDrive to provide some bibliographic references, publish articles and drafts unpublished waiting help to this: https://goo.gl/CLtwRJ

*FURNAS, UnB, email: flaviomamede.gomes@gmail.com