# Optimization of Floor Heating System in the Incompressible Turbulent Flow Using Constructal Theory

**Authors :** Karim Farahmandfar, Hamidolah Izadi, Mohammadreza Rezaei, Amin Ardali, Ebrahim Goshtasbi Rad, Khosro Jafarpoor

**Abstract :** Statistics illustrates that the higher amount of annual energy consumption is related to surmounting the demand in buildings. Therefore, it is vital to economize the energy consumption and also find the solution with regard to this issue. One of the systems for the sake of heating the building is floor heating. As a matter of fact, floor heating performance is based on convection and radiation. Actually, in addition to creating a favorable heating condition, this method leads to energy saving. It is the goal of this article to outline the constructal theory and introduce the optimization method in branch networks for floor heating. There are several steps in order to gain this purpose. First of all, the pressure drop through the two points of the network is calculated. This pressure drop is as a function of pipes diameter and other parameters. After that, the amount of heat transfer is determined. Consequently, as a result of the combination of these two functions, the final function will be determined. It is necessary to mention that flow is laminar.