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## Wall effect on mixed convection from horizontal surfaces with a variable surface heat flux

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**Abstract:** This work investigates analytically the wall effect on the mixed convection from a horizontal plate embedded in porous media. Variable surface heat flux is assumed at the plate. The wall effect due to no-slip boundary condition at the wall is introduced using the Brinkman model. Two sets of transformations are used, one for the forced convection dominating regime (FCDR) and the other one for the natural convection dominating regime (NCDR). The wall effect is found to be characterized by the boundary parameters  $L = Dax Pe_x/??$  in FCDR and by  $M = DaxRax 23/??$  in NCDR. Velocity as well as temperature profiles are calculated at different values of governing parameters. Local Nusselt number variation for the entire mixed convection regime is also calculated and presented. Accurate correlations for local and average Nusselt number valid for the entire regime of mixed convection and for the range of boundary-parameter from 0 to 100 are obtained.