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Abstract

Mathematical model for calculation of outlet air temperature from varying inlet temperature had been studied and experimented, but the temperature response of air with different humidity ratio has not yet been clearly explained.

Engery level of vapor in the air at high humidity ratio has much influence on time response comparing with that of dry air. This is because the rising up or going down of temperature depends largely on the air energy level. In this thesis,the newly modification of rockbed mathematical model can distinguish the temperature response of humid air with that obtained from the dry air calculation

Comparing with the testing result,the mathematical temperature response is somewhat higher, this is because of the unable controlling heat lost in this experiment. The result of the mathematical time response is a little bit shorter than that of the testing result because of the error in the air measuring instrument which yields higher value. The mathematical calculation result from that of dry air gives lower temperature and longer time response than that of calculation with air having higher

humidity ratio.

Aside from this,the computer program for the new modified mathematical model is also written for user computer software.