

Modelling of a water flow window

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A study on a water-flow window installed in a test box is presented. This window is composed of two glass panes separated by a chamber through water flows. The flow of water comes from an isolated tank which contains heat water. In order to fully evaluate the water-flow window performance for different room and window sizes, locations and weather conditions, a mathematical model of the whole box is needed. The proposed model, in which conduction heat transfer mechanism is the only considered, is one dimensional and unsteady based upon test box energy balance. The effect of the heat water tank, which feeds the water-flow window, is included in the model by means of a time delay in the source term. Although some previous work about moving fluid chamber has been developed, air was used as heat transfer fluid and no fluid storage was considered. Finally a comparison between the numerical solution and the obtained experimental data is done.

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