



Evaluation of Air Mixing and Thermal Comfort from High Sidewall Supply Air Jets

By National Renewable Energy Laboratory (NREL)

Bibliogov, United States, 2012. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book ***** Print on Demand *****.Uniform mixing of conditioned air with room air is an essential factor for providing comfort in homes. The higher the supply flow rates the easier to reach good mixing in the space. In high performance homes, however, the flow rates required to meet the small remaining thermal loads are not large enough to maintain uniform mixing in the space. The objective of this study is to resolve this issue and maintain uniform temperatures within future homes. We used computational fluid dynamics modeling to evaluate the performance of high sidewall air supply for residential applications in heating and cooling modes. Parameters of the study are the supply velocity, supply temperature, diffuser dimensions, and room dimensions. Laboratory experiments supported the study of thermal mixing in heating mode; we used the results to develop a correlation to predict high sidewall diffuser performance. For cooling mode, numerical analysis is presented. The results provide information to guide the selection of high sidewall supply diffusers to maintain proper room mixing for heating and cooling of high performance homes. It is proven that these systems...



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