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1 Numerical and experimental study of a combined solar Chinese kang and
 2 solar air heating system based on Qinghai demonstration building

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 12 **Abstract**

13 To meet the heating demand in north China and reduce the pollution of traditional
 14 Chinese kang, a novel combined heating system consists of solar kang system and
 15 solar air heating system is proposed. The solar air system is built for the residents'
 16 daily heating demand. The solar kang system can store the solar energy collected in
 17 the daytime and provide a good sleeping environment at night.

18 In this study, demonstration buildings are built in Huzhu, Qinghai province and one
 19 of them is chosen to test its thermal performance. Three different operation modes:

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