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Drinking Water
Engineering and Science
Discussions

Interactive comment on "Shower heat exchanger: reuse of energy from heated drinking water for CO_2 reduction" *by* Z. Deng et al.

Anonymous Referee #1

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Interesting article about heat recovery from showers. General comments The introduction does not present a review that shows knowledge on the topic of heat recovery from showers, there is no references of previous studies made with showers heat exchangers. In the introduction it is mentioned that the saving potential and payback are compared with DSS and other estimations however, I only found the estimation of Mol (2013). The added value of the paper is not well emphasized. It was not clear the number of repetitions made in laboratory experiments and why the author refers to 10 monitored sites but presents the results of only one apartment. In any case, the presenting the results of the whole 10 monitored sites can greatly improve this research. There are no long term results or at least it seems so since the duration of the experiments is not mentioned. The results of the research are compared to few

references; it can be improved with a wider comparison of peer reviewed publications on shower heat exchangers. Specific comments Figure 1: It would be good to see how far the heater is from the hot water tap. If Table 1 and 2 talk about the same topic; why not using only one table? Table 2: What does the "showers" column mean, Number of showers in the time schedule? Section 2.2: The temperatures and flow rates were chosen based on specific information? Please explain. How many repetitions of each experiment were made? Was the room temperature and humidity registered? It can be assumed that in the monitored apartment the water at the drain is not clean however in the controlled experiments at the laboratory it is not mentioned. Was there a control sample? The results and discussion section seems short for the experiments and analysis performed. Please, explain the results of the monitored site(s) and the steps to calculate the payback period. Section 3.3: The authors should consider how a long term decrease in efficiency (due to biofouling or corrosion for instance) can affect the payback period. Technical corrections Figure 2 and 4: The heat exchanger can't be seen. Page 124 Line 12: The experiments were made the same day? If so, does the number of showers/day can be representative of a normal use (probably no more than 2 times per day) per department? What influence can have a time interval of 10, 20, 30, etc. minutes between showers? Section 2.3: The equations have no number. Figure 5: The numbers and titles are too small and the results cannot be seen. Page 126 Line 15: It is not clear what "3 tests" and "18 showers" mean. Other comments in the PDF File

Please also note the supplement to this comment:
http://www.drink-water-eng-sci-discuss.net/8/C57/2015/dwesd-8-C57-2015-supplement.pdf

Interactive comment on Drink. Water Eng. Sci. Discuss., 8, 119, 2015.