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Drinking Water Engineering and Science Discussions

Interactive comment on "Non-residential water demand model validated with extensive measurements" *by* E. J. Pieterse-Quirijns et al.

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General comments:

The paper focus on a topic with a significant impact on the design and management of water distribution networks and buildings. The paper is very objective and the main achievements are clearly available. Proposed methodology has been properly designed and corresponding results are easily understandable. Two principal improvements are recommended: i) to support better the background with available studies about non-residential water demands, ii) to improve the justification about the transference of the proposed procedure to various types of buildings in the Netherlands and in other countries.

Although, the research about non-residential water demands is limited, the background about the characterization of this type of users should be improved with available studies (e.g., Cobacho et al., 2005, Vickers, 2001), in order to illustrate some important facts, namely the variability of demand, the fact that some users have similar behaviour with residential households whereas others have a completely different behaviour and the types of non-residential categories adopted by the water utilities, etc.

Specific comments:

Page 458, lines 3-4: is important to justify the choice of offices, hotels and nursing homes for this study and in what type of category they can be classified: small-scale or large-scale users.

Page 458, lines 24-26: a more detailed explanation is recommended about the fact that simulated demand for cold water appears to underestimate the instantaneous peak demand in Figure 1.

Page 459, lines 13-14: the choice of the dominant variable in each case should be discussed or supported with background information and the source of information used ought to be presented.

Page 461, lines 1-4: the use of the presented rule is based on the assumption that MMF follows a theoretical distribution (i.e., Normal distribution). It is recommended to support better this assumption and the contribution of this approach for this study.

Page 461, line 9: refer the time step usually adopted to obtain MMF for design purposes.

Page 465, lines 3-5: the conclusions refer that the procedure is easily transferable. It is recommended to refer the mains steps, if the procedure is applicable to only to small-scale users or also to large-scale users and some ways to overcome the variability of non-residential users.

Other suggested references:

DWESD

5, C209–C211, 2012

Cobacho, R., Arregui, F., Juan Camilo, P., and Cabrera Jr, E. (2005) Improving efficiency in water use and conservation in spanish hotels, 3rd international Conference on efficient use and management of water, 14 a 18 de Março, Santiago, Chile. Vickers, A. (2001) Hanbook of water use and conservation: homes, landscapes, businesses, industries, farms, WaterPlow Press, ISBN 1-931579-07-5.

Interactive comment on Drink. Water Eng. Sci. Discuss., 5, 455, 2012.