

Abstract #: 203

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**Abstract Title: Short People Need Hotter Water**

Abstract Text:

Water heating is the first or second largest thermal load in most residential applications. Daily hot water use has extremely large variations within and among households. In commercial applications the amount of hot water varies from very, very small (hand washing in lavatories) to very, very large (hotels and full-service restaurants), again with large daily variations within and among nominally similar facilities. This presentation will present data on hot water use patterns gathered from field studies in the US and Canada. Most of the data comes from single family occupancies. Multi-family and commercial occupancies will also be discussed as the physics is the same. We will discuss how the choices of water heaters, piping, plumbing fixtures and appliances, and capturing heat from the waste water all influence occupant behaviors. One key area we will discuss is how the volume in the piping between the nearest source of hot water and the use influences our behaviors and our perception of the hot water system. Participants will be asked to develop a list of best practices that can be implemented in programs and practice. Some of these will be for retrofits others for new construction. Consumers want the service of hot water, as (water, energy and time) efficiently as possible. Given human nature, it is our responsibility to provide infrastructure within our buildings that supports efficient behavior. It is particularly important to get the plumbing right, as it is not likely to be replaced for 50-100 years. This presentation would provide a larger context for the proposal entitled "Eliminating Behavioral Waste Without Requiring Behavioral Change"