

Exploring barriers to energy efficiency in supermarkets

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Abstract

Energy efficiency activities in sections of grocery stores for chilled groceries are subject to particular challenges as this is a complex indoor environment given that the goal of store owners is to offer consumers chilled groceries of high quality in a comfortable environment while at the same time trying to reduce energy use. Consequently, it is important to maintain the right temperature in the right place and to be aware of the consumers' shopping situation. The way chilled groceries are displayed, the form of refrigeration, the building size, and business and merchandising practices may differ between retail stores, impacting energy efficiency. Finding a balance between being energy effective and efficient, i.e., doing the right things or doing things right, is therefore important. This particular environment, where consumers interact with store staff, other consumers, chilled groceries, and other environmental factors, is a surprisingly unexplored part of retail, especially when it comes to consumers' behaviors and perceptions.

This thesis is multidisciplinary, and the research has been broadened from studying measured and perceived comfort parameters in supermarkets to incorporating qualitative studies with a clearer and deeper interest in consumers' perceptions and behaviors. In this thesis, findings from the cold environment of chilled food display cabinets, either with doors or without, are discussed and tangible commodities are used to illustrate how 'details' such as doors on cabinets matter to consumers. The consumers are of the main interest since they make up the businesses. The aim of this thesis is to gain knowledge of how to improve energy efficiency and the store layout for chilled groceries by adding consumer insights. Four specific papers contribute to this thesis' aim of overcoming specific challenges faced by retail grocery stores as regards energy efficiency.

The results show how details such as doors can affect consumers' perceptions and behaviors. The details that matter concern how consumers perceive and behave in relation to having doors or no doors on cabinets, with different forms of approach or avoidance behavior in terms of accessibility, both beneficial and problematic. Moreover, the results also show that knowledge of how to provide service to the consumer, in particular in the foodscape and with doors on cabinets, can affect the store's energy use in a positive way and contribute toward more sustainable and energy efficient retail grocery stores. By elaborating these results in relation to "foodscape", this thesis contributes to research on servicescape. The thesis also contributes to research on in-store energy efficiency in relation to four challenges that retail grocery stores face: building design, retail context, consumer insights, and management. The perspectives of the consumers may help to overcome barriers to energy efficiency, aid in the design of a functional foodscape and facilitate technology change for sustainable and efficient energy use in supermarket buildings.

Keywords: retail, servicescape, foodscape, chilled groceries, energy efficiency, barriers, refrigerated display cabinets, consumer behaviors, consumer perceptions