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# Investigation and Analysis of Residential Building Energy End-Use Profile in Hot and Humid Area with Reference to Zhuhai City in China

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**Abstract :** Energy consumption in domestic sector has been increasing rapidly in China all along these years. Confronted with environmental challenges, the international society has made a concerted effort by setting the Paris Agreement, the Sustainable Development Goals, and the New Urban Agenda. Thus it's very important for China to put forward reasonable countermeasures to boost building energy conservation which necessitates looking into the actuality of residential energy end-use profile and its influence factors. In this study, questionnaire surveys have been conducted in Zhuhai city in China, a typical city in hot summer warm winter climate zone. The data solicited mainly include the occupancy schedule, building's information, residents' information, household energy uses, the type, quantity and use patterns of appliances and occupants' satisfaction. Over 200 valid samples have been collected through face-to-face interviews. Descriptive analysis, clustering analysis, correlation analysis and sensitivity analysis were then conducted on the dataset to understand the energy end-use profile. The findings identify: 1) several typical clusters of occupancy patterns and appliances utilization patterns; 2) the top three sensitive factors influencing energy consumption; 3) the correlations between satisfaction and energy consumption. For China with many different climates zones, it's difficult to find a silver bullet on energy conservation. The aim of this paper is to provide a theoretical basis for multi-stakeholders including policy makers, residents, and academic communities to formulate reasonable energy saving blueprints for hot and humid urban residential buildings in China.

**Keywords :** residential building, energy end-use profile, questionnaire survey, sustainability
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