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Title: A review of climate change impacts on commercial buildings and their technical services in the tropics

Author(s): Yau, YH (Yau, Y. H.); Hasbi, S (Hasbi, S.)


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Abstract: Climate observations in recent years indicate that the effects of climate change events are apparently having an increasing impact on society. These impacts will likely also affect the building sector. Numerous studies have been conducted to assess future building energy consumption rates. However, these studies often do not take into account climatic variability and consumer reactions towards a temperature shift. A literature review on climate change impacts for commercial buildings and their technical services in the tropics was carried out. This review focuses on the buildings' contributions towards climate change as well as climate change impacts on building structures, changing patterns of energy use and peak demands, building heating and cooling requirements, thermal comfort and emissions impacts. In general, buildings in regions with a predicted increase in temperature will need more cooling and less heating loads. Thus, building energy consumption and carbon emissions are projected to rise during its operational phase. In addition, the erratic weather trends will also affect the building efficiency and sustainability, indoor air quality and thermal comfort. Even though the existing literature on this issue has increased substantially in recent years, there is still a need for further research in tropical climates as the climate change impacts vary with the different seasons, periods and regions. (C) 2012 Elsevier Ltd. All rights reserved.

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Reprint Address: Yau, YH (reprint author), Univ Malaya, Dept Mech Eng, Kuala Lumpur 50603, Malaysia.

E-mail Address: yhyau@um.edu.my

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