

Towards the Need of Resilient Design and Its Assessment in South China

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Abstract : With rapid urbanization, there has been a dramatic increase in global urban population in Asia and over half of population in Asia will live in urban regions in the near future. Facing with increasing exposure to climate-related stresses and shocks, most of the Asian cities will very likely to experience more frequent heat waves and flooding with rising sea levels, particularly the coastal cities will grapple for intense typhoons and storm surges. These climate changes have severe impacts in urban areas at the costs of infrastructure and population, for example, human health, wellbeing and high risks of dengue fever, malaria and diarrheal disease. With the increasing prominence of adaptation to climate changes, there have been changes in corresponding policies. Smaller cities have greater potentials for integrating the concept of resilience into their infrastructure as well as keeping pace with their rapid growths in population. It is therefore important to explore the potentials of Asian cities adapting to climate change and the opportunities of building climate resilience in urban planning and building design. Furthermore, previous studies have mainly attempted at exploiting the potential of resilience on a macro-level within urban planning rather than that on micro-level within the context of individual building. The resilience of individual building as a research field has not yet been much explored. Nonetheless, recent studies define that the resilience of an individual building is the one which is able to respond to physical damage and recover from such damage in a quickly and cost-effectively manner, while maintain its primary functions. There is also a need to develop an assessment tool to evaluate the resilience on building scale which is still largely uninvestigated as it should be regarded as a basic function of a building. Due to the lack of literature reporting metric for assessing building resilience with sustainability, the research will be designed as a case study to provide insight into the issue. The aim of this research project is to encourage and assist in developing neighborhood climate resilience design strategies for Hong Kong so as to bridge the gap between difference scales and that between theory and practice.

Keywords : resilience cities, building resilience, resilient buildings and infrastructure, climate resilience, hot and humid southeast area, high-density cities

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