doi:10.1088/1755-1315/1530/1/012002

## Framework for Enhancing Heritage Buildings Sustainability Value by the Integration of Green Retrofitting Methods

Eman Ayman<sup>1</sup>, Laila A. Elsawaf<sup>1,2</sup>, Gehan Nagy<sup>3</sup>

Abstract. Heritage buildings have a significant role in cultural identity and historical significance preservation. Heritage buildings face several challenges due to outdated construction methods, and lack of sustainability. The main challenge is to preserve the heritage building historical and cultural integrity while retrofitting these buildings to increase their sustainability value. The main aim of this study is to develop a comprehensive Framework for Enhancing Heritage Buildings Sustainability Value by the Integration of Green Retrofitting Methods. This study adopts quantitative and qualitative method approach. Research methods consist of theoretical and applied studies, which discuss and study heritage buildings value, various retrofitting strategies, assess their impact on sustainability, and explore case studies that adopt the retrofitting strategies. As the research study aims to bridge the gap between the preservation and sustainability, the results obtain that following the proposed framework will guide the practitioners efficiently for successful retrofitting process of a heritage building in matter of sustainability.

**Keywords:** Heritage Buildings, Sustainability Value; Green Retrofitting; Conservation; Cultural Significance; Building Deterioration

<sup>&</sup>lt;sup>1</sup>MSc. Student, Sustainable Engineering Design & Construction, Architectural Engineering, The British University in Egypt, Cairo-Suez Desert Road, El-Shorouk, Cairo, Egypt.

<sup>&</sup>lt;sup>2</sup>Assistant Lecturer, Interior Architecture Department, Faculty of Design and Media, Coventry University Egypt Branch, Cairo-new Cairo, Egypt

<sup>&</sup>lt;sup>3</sup> Professor of Architecture, Architectural Engineering Department, Faculty of Engineering, The British University in Egypt, Cairo-Suez Desert Road, El- Shorouk, Cairo, Egypt.

<sup>\*</sup>Corresponding Author's E-mail: emanhaykal934@gmail.com