Geometric Models of Islamic architecture from Umayyad to the end of the ottoman era in the light of selected examples

ABSTRACT; this study aims to explore the history and evolution of geometric models in Islamic architecture up to the Ottoman era. It seeks to understand the emergence of these models and their uses in the Islamic era, analyzing the cultural, religious, and social factors that influenced their appearance and design. The study reveals the ingenuity of early Muslims in architectural engineering, as they not only depicted their architectural works in two-dimensional drawings but also created three-dimensional geometric models using precise engineering methods. This trend extended beyond Muslim architects to include foreign architects who admired and documented Islamic architecture with geometric models. The study investigates the significance, purposes, diverse forms, and materials used in the production of these models, emphasizing the cultural, artistic, and engineering dimensions of this heritage. Furthermore, it underscores the importance of preserving this heritage and deepening the understanding of its impact on the present. The researcher employs several research methods, including the historical-inductive approach by tracing references in historical sources, and the descriptive-analytical method for selected models remaining from these geometric models. Additionally, the study examines the technological development and innovation in the production of these models and their advanced uses in modern times through modern engineering software, known as three-dimensional modeling.