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전통과 현대성의 조화: 베트남 건축 유산을 현대 디자인에 통합하기 위한 Revit 제품군 컬렉션

Blending Tradition with Modernity: A Revit Family Collection for the Integration of Vietnamese Architectural Heritage in Contemporary Design

○짚태보*
Tran, Thai Bao

정나연*
Jeong, Na-yeon

박철흥**
Park, Cheol-heung

안용한***
Ahn, Yong-Han

Abstract

This research aims to merge Vietnamese architectural heritage with contemporary design by creating a Revit family collection of traditional structural elements. By analyzing and digitizing key features from Vietnam's traditional houses, pagodas, halls, palaces, and temples, the project seeks to preserve and integrate the nation's architectural identity into modern constructions. The development of this collection will involve comprehensive data collection and analysis of traditional structures to identify and model the most significant elements. The utility and impact of the collection will be evaluated through a survey among architecture professionals, aiming to foster innovative designs that reflect Vietnam's cultural heritage in today's architectural landscape. This initiative not only seeks to conserve historical architecture but also to inspire designs that harmonize tradition with modernity, contributing to a distinctive and culturally resonant built environment in Vietnam.

키워드 : 베트남 건축유산, 전통 디자인을 위한 Revit, 문화 정체성 통합, 디지털 건축 보존, 지속 가능한 도시 개발

Keywords : Vietnamese Architectural Heritage, Revit for Traditional Design, Cultural Identity Integration, Digital Architectural Preservation, Sustainable Urban Development

1. Introduction

Vietnam's traditional architecture is a profound expression of the nation's cultural and historical depth, characterized by its harmony with nature, intricate craftsmanship, and symbolic motifs. From the stilt houses of the northern mountainous regions, designed for ventilation and flood protection, to the ornate pagodas that serve as spiritual sanctuaries, each structure tells a story of communal life, spiritual beliefs, and adaptation to the environment. The communal halls and temples often feature elaborate woodwork, with roofs adorned by intricate carvings of dragons, phoenixes, and other mythical creatures, symbolizing strength, nobility, and the cosmic balance. The Nguyen Dynasty's palaces display a fusion of indigenous design principles and foreign influences, showcasing the opulence and power of Vietnam's last royal dynasty.

* 한양대학교 대학원 석사과정 스마트시티공학과

** 한양대학교 에리카산학협력단, 공학박사

*** 한양대학교 건축학부 건축공학과 교수, 공학박사

(Corresponding author: Department of Architecture, Professor, Hanyang University, yhahn@hanyang.ac.kr)

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This research delves into these architectural marvels, seeking to distill the quintessential elements that have shaped Vietnam's built environment through centuries. By translating these traditional motifs and structural elements into a digital Revit family collection, the project aims to provide modern architects with the means to weave Vietnam's rich architectural heritage into contemporary designs. This initiative not only preserves the aesthetic and cultural values of traditional Vietnamese architecture but also promotes its integration into the dynamic tapestry of modern urban development, fostering a built environment that is distinctly Vietnamese in character and globally resonant.

2. Research methodology

The research emphasizes the collection of input data from traditional Vietnamese architecture, focusing on roof (Vi nóc) and side structures (Vi nách) spanning from the Tran to Nguyen dynasties. This data forms the foundation for creating a detailed Revit family collection, capturing the essence of styles like Giá Chiêng and Chông Rường, among others. This meticulous documentation is crucial for accurately modeling these elements in Revit, ensuring they serve as authentic representations of Vietnam's architectural heritage in modern designs.

First, we will classify the types of roofs, the number of components and analyze them. Second, continue to classify the types and number of components. Analyze and find the relationship between Vi Nóc and Vi Nách. In addition, for

each type of component, in each type of *Vi Nóc* and *Vi Nách*, we will also analyze the assemblies, types of mortises and mortises used to better understand how the components are assembled. Finally, use statistical probability to choose which types of components are most popular and which types of structures are most suitable to use for the next step, which is to create the Revit Family library.

The subjects of the survey about Revit's applicability were architects, construction experts, cultural preservationists, students of construction design majors, construction contractors, and lecturers of architecture majors.

Table 1. Statistical table of the number of armpit types

Type	Description	Example Usage	Qty
Chông Rường	Stacked beam side structure	Residential Buildings	18
Cồn Mê	Intricately joined side structure	Temples	14
Kẻ Suốt	Longitudinal beam side structure	Communal Halls	16
Bán Giá Chiêng-Chông Rường	Half roof structure with side beams	Palaces	9
Kẻ Ngồi	Sit-on beam side structure	Ancestral Houses	11

Table 2. Statistical table of the number of roof

Type	Description	Example Usage	Qty
Giá Chiêng	Elaborate beamwork roof structure	Pagodas	20
Chông Rường	Layered beam roof structure	Temples	12
Giá Chiêng- Chông Rường -Con Nhị	Combined structure with additional elements	Historical Halls	10
Cồn Chông Rường	Decorative and supportive beam structure	Ceremonial Buildings	12
Vi Kèo Cọc Bàng	Roof structure with unique supports	Traditional Houses	8

3. Result

3.1 Types representing Vietnamese traditional architecture

The most popular types of "*Vi Nóc*" (roof structures) and "*Vi Nách*" (side structures) in Vietnamese architecture typically reflect traditional styles that have been prevalent through various dynasties. The *Giá Chiêng* style for roof structures is widely recognized, characterized by its intricate framework and aesthetic appeal. In terms of side structures, the *Chông Rường* style is notable for its layered beams and intricate joinery, showcasing the craftsmanship of Vietnamese architecture. These styles represent the rich heritage and architectural ingenuity of Vietnam.

3.2 Findings

The research successfully created a Revit family collection of traditional Vietnamese architectural elements, particularly focusing on roof ("*Vi Nóc*") and side structures ("*Vi Nách*"). Key outcomes include:

A detailed digital catalog of traditional structures from the Tran to Nguyen dynasties.

2. Identification of prevalent elements like the *Giá Chiêng* roof and *Chông Rường* side structures.

3. Demonstration of integrating these elements into modern architectural designs.

4. Insights into the evolution of Vietnamese architectural styles and techniques.

5. Provision of a tool for architects to incorporate Vietnamese heritage into contemporary designs, facilitating both preservation and innovation.

In conclusion, the research bridges the gap between the rich architectural heritage of Vietnam and contemporary design practices, offering a practical and aesthetic framework for incorporating traditional elements into modern buildings. This endeavor not only enhances the architectural landscape of Vietnam but also contributes to the global discourse on cultural preservation through architectural innovation.

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