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REVIEW

Relocation and Recovery of the Municipal Palace of Acacías: An Integrated Urban Management and Development Project

Reubicación y Recuperación del Palacio Municipal de Acacías: Un Proyecto Integral de Gestión y Desarrollo Urbano

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ABSTRACT

Introduction: the work proposed the recovery and relocation of the Acacías Municipal Palace to its original location in the centre of the municipality. It sought to unify various government offices into a single structure, facilitating citizens' access to public services and promoting administrative efficiency.
Development: the centralisation of administrative offices not only favours public management, but also contributes to the economic development of the surrounding area, stimulating local commerce and improving connectivity by public transport. The Municipal Palace is located in the centre of the city centre, ensuring easy access for the inhabitants of Acacías. At the technical level, the structural design was based on knowledge of basic sciences such as physics, mathematics and chemistry, applying more specialised disciplines such as statics, strength of materials and structural analysis. BIM methodology was also used to optimise the design, management and maintenance of the building throughout its life cycle, ensuring efficiency in each phase of the project.
Conclusion: the proposed relocation and reconstruction of the Municipal Palace not only restores an architectural symbol, but also improves the relationship between citizens and local authorities. Centralisation facilitates access to services and promotes efficiency in service delivery. In addition, the economic and social impact is positive, reactivating local commerce and improving connectivity. Compliance with national and international construction and safety regulations guarantees the sustainability of the project.

Keywords: Municipal Palace; Acacías; Public Management; BIM Methodology; Structural Design.

RESUMEN

Introducción: el trabajo planteó la recuperación y reubicación del Palacio Municipal de Acacías a su ubicación original en el centro del municipio. Se buscó unificar diversas oficinas gubernamentales en una sola estructura, facilitando el acceso de los ciudadanos a los servicios públicos y promoviendo la eficiencia administrativa.
Desarrollo: la centralización de las oficinas administrativas no solo favorece la gestión pública, sino que también contribuye al desarrollo económico del área circundante, estimulando el comercio local y mejorando la conectividad mediante transporte público. El Palacio Municipal se ubica en el centro del casco urbano, lo que garantiza fácil acceso a los habitantes de Acacías. A nivel técnico, el diseño estructural se basó en conocimientos de ciencias básicas como física, matemáticas y química, aplicando disciplinas más especializadas como la estática, la resistencia de materiales y el análisis estructural. También se utilizó la metodología BIM para optimizar el diseño, gestión y mantenimiento del edificio a lo largo de su ciclo de vida, asegurando la eficiencia en cada fase del proyecto.

Conclusión: la propuesta de reubicación y reconstrucción del Palacio Municipal no solo restaura un símbolo arquitectónico, sino que también mejora la relación entre la ciudadanía y las autoridades locales. La centralización facilita el acceso a los servicios y fomenta la eficiencia en la atención. Además, el impacto económico y social es positivo, al reactivar el comercio local y mejorar la conectividad. El cumplimiento de las normativas de construcción y seguridad, tanto nacionales como internacionales, garantiza la sostenibilidad del proyecto.

Palabras clave: Palacio Municipal; Acacías; Gestión pública; Metodología BIM; Diseño Estructural.

INTRODUCTION

This project was mainly based on restoring the Municipal Palace to its original location, reuniting all the offices of the Mayor's Office, the ICT Office, the Secretary for Development and Sustainable Development, the secretary for planning and housing, the secretary for social affairs, education, culture and sports; contracting office; legal office; secretary for government; secretary for health; internal control office; administrative and financial secretary; secretary for infrastructure; private secretary and public employment service, both those that were forced to move and those that were already operating at other addresses.

An alternative plan is being proposed to establish the new Municipal Palace in the central area of the town center (original location), providing easy geographical access for the population. This central location facilitates citizens' access to administrative services, promoting the inclusion and participation of the entire community. In addition, the centralization of offices helps to strengthen the link between residents and local authorities, improving communication and efficiency in service delivery.

The proposed location could generate economic growth in the surrounding area by attracting more people to the center, benefiting small and medium-sized businesses. Furthermore, centralizing the town hall optimizes access via public transport routes, making it easier for citizens to get around, especially those who rely on public transport.

DEVELOPMENT

The area of interest is located at Cra. 14 #13-45 (Barrio Centro), in Acacias, a Colombian municipality in the department of Meta. The city is 28 km south of Villavicencio and 126 km from Bogotá, the capital of Colombia. Its total area is 1 169 km^2, and the capital municipality is 498 m above sea level.

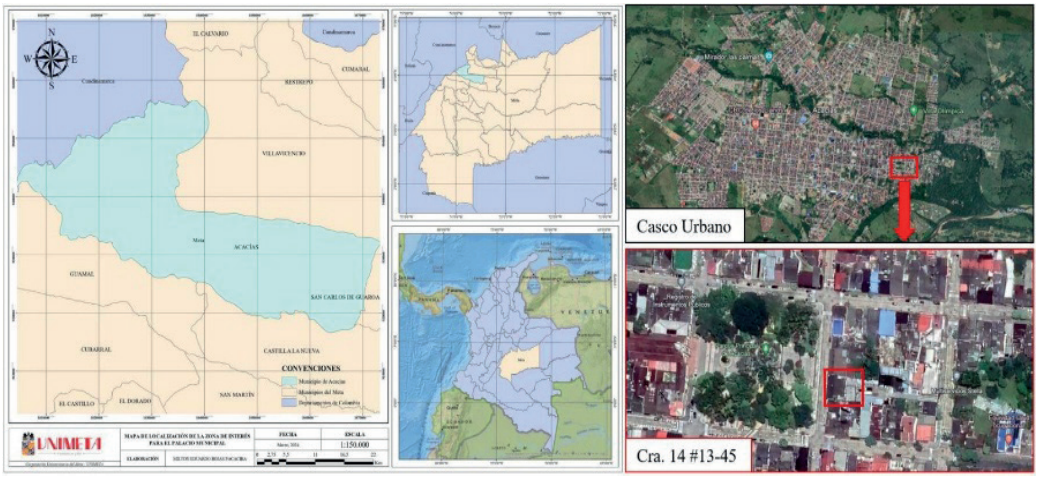

Figure 1. Geographic area
Source: Prepared internally using ArcGIS and Google Maps.

The first step in delving deeper into the structural field is understanding and learning the basic sciences:[1,2,3,4,5] physics, which provides an understanding of the different phenomena that surround us;[6,7,8] and mathematics,[9,10] which is the main tool for solving problems through equations. However, chemistry also plays a role in understanding materials,[11,12,13,14] determining whether they are suitable according to their composition, and detecting possible pathologies they may present.[15,16,17,18]

The application of basic sciences has led to the emergence of other sciences and branches of science, such as statics,[19,20] which studies bodies at rest and the forces acting on them. This science has enabled the application of Newton's laws: Law of Inertia (everybody remains at rest or in uniform motion unless acted upon

by external forces); Law of Force (for the analysis of bodies in equilibrium, i.e., bodies that remain static despite being subject to several external forces that cancel each other out); Law of Action and Reaction (for every action there is an equal and opposite reaction). Statics has been fundamental in determining reactions in supports and analyzing structures subjected to axial forces.[21,22,23,24,25,26,27]

Where statics ends, other more specialized branches of structural engineering begin, such as the strength of conventional materials and structural analysis,[27,28,29,30] where Hooke's law stands out (the unit deformation of a material is directly proportional to the stress applied within the elastic range of the material; equilibrium equations (product of Newton's laws) which establish that to achieve static equilibrium, the sum of forces in 'x,' 'y' and moments must be equal to zero.[31,32]

Eleven the subject of moments, shear forces, axial forces, deformations, stresses, etc. was understood, they were applied to the design of the different elements that make up the structure to be designed (beams, columns, floor slabs, foundations, etc.), all of this added to the criteria that the designer must possess to verify that these designs comply with current regulations (NSR-10 for Colombia), which establishes guidelines and provides methods for the design of structural elements.[33,34,35,36]

It is a distribution of vertical (columns or pillars) and horizontal (beams) structural elements connected rigidly (forming frames or porticos) that can resist bending and shear loads.[37,38] This structural rigidity can resist deformations and displacements, ensuring the stability and safety of the structure [L1].[39,40,41]

BIM

This is a working methodology that allows the creation and management of information throughout a construction project's cycle. Using three-dimensional models, detailed information about each element of the structure can be obtained, which is essential for design efficiency.

Structural behavior

This is the study and understanding of how structures react under the load and environmental conditions they are exposed to. This analysis is essential to ensure the structure meets the durability, resistance, and safety conditions.

Architectural design

This comprises the entire process of creating, designing, and planning a building from its inception to completion. It covers the spaces, shapes, materials, and styles that make up the structure

Table 1. Legal framework

Standard	Category	Description
ACI (American Concrete Institute) [L1]	International	'Establishes international standards for the design, construction, and evaluation of concrete structures; provides detailed technical guidance on aspects of reinforced concrete design.' [L1]
Colombian Regulations for Earthquake-Resistant Construction - NSR-10 [L2]	National	Chapter A.1.2.2 establishes the objective, which is 'To minimise the risk of loss of human life and to defend the property of the State and citizens as far as possible.'" [L2]
Law 1523 de 2012 [L3]	National	It describes the concept of disaster risk management as: a social process aimed at the formulation, implementation, monitoring and evaluation of policies, strategies, programmes, measures and permanent actions for risk awareness and reduction and for disaster management, with the explicit purpose of contributing to the safety, well-being and quality of life of people and to sustainable development. [L3]

CONCLUSIONS

The proposal to relocate and rebuild the Acacías Municipal Palace seeks to restore a symbolic building to its original site. It also represents a comprehensive strategy to improve public management, strengthen the link between citizens and their institutions, and boost urban and economic development in the municipal center. The centralization of the various departments and offices in a single structure facilitates access to administrative services for the population, promotes efficiency in service delivery, and improves coordination between departments. This vision is complemented by a solid technical foundation based on structural and architectural knowledge, which starts with a mastery of basic sciences and advances toward applied disciplines such as statics, structural analysis, and seismic design by current regulations (NSR-10). Integrating modern methodologies such as BIM also optimizes the building's planning, documentation, and maintenance throughout its life cycle. Likewise, the positive impact that this intervention can have on the urban environment is recognized, encouraging the revival of local commerce and connectivity through public transport. Finally, compliance with international and national regulatory frameworks, such as ACI, NSR-10, and Law 1523, ensures

that the project is developed under safety, sustainability, and resilience standards in line with the objectives of responsible urban development and disaster risk management. This proposal thus represents a strategic opportunity for transformation for the community of Acacías.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

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