

BIM Models for Information Management and Support for Projects, Works and Maintenance of Built Heritage – Sintra National Palace and Chalet da Condessa d' Edla

Summary

This project developed Building Information Models (BIM) that constitute a resource for the management of the National Palace of Sintra (Figure 1), and Chalet da Condessa d' Edla (Figure 2), Portugal.

The complex geometry of the large National Palace of Sintra, which has heterogeneous modules built in distinct architectural styles, and the geometry of the Chalet were acquired with terrestrial laser scanning (TLS) and unmanned aerial vehicle (UAV) techniques and modelled using Revit software. Decisions on the level of detail and on the application of parametric modelling for the decorated architectural styles were critical to achieve a manageable model.

The requisites for the management model specified the inclusion of historical data, daily activity recording and properties and composition of the constructive and structural elements as attributes, which is possible due to

the capability of the in-built database and its relationship with the individual BIM elements. This way, the developed models simultaneously support the seismic structural analyses by providing key parameters and incorporates their results as attributes, enabling a coherent and seamless workflow, enhancing the capabilities of BIM as a useful decision support tool within the heritage management framework.

This work received the [BIM Excellence Award 2021](#) in the category of Management of the Built Environment (Buildings and Infrastructures) given by the BIM National Standardization Technical Commission, the [BUILT CoLAB](#), the [AEC Cluster](#) and the [PTPC](#) – Portuguese Construction Technology Platform. This work was financed by Parques de Sintra – Monte da Lua SA (Eng. Daniel Silva). This award was presented in the TechOnBUILT, a WebTalk'Series that addressed the topic "[The Obligation of BIM in Construction](#)" on July 28th, 2021.

Project Reference

PSML – Protocolo

Leading Institution

IST – Instituto Superior Técnico (Portugal)

Partners

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Total

135 000.00€

CERIS

135 000.00€

Project Website

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Figure 1. BIM Model of National Palace of Sintra.



Figure 2. BIM Model of Chalet da Condessa d' Edla.