Politecnico di Torino

1859

Honors Thesis

Master of Science in Architecture Construction City

Abstract

H-BIM as a tool for drawing and graphical analysis of the fronts of the Palazzo dell'Accademia delle Scienze and the Collegio dei Nobili. From survey to the reinterpretation of a facade.

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The present thesis is inspired by a research project conducted within the Department of Architecture and Design of the Politecnico di Torino, DAD, and it takes shape following the parametric digital restitution work, performed with the **BIM methodology**, of a historic building located in the center of the city of Turin: the **Palazzo dell'Accademia delle Scienze**, formerly the **Collegio dei Nobili**, which since 1824 housed the **Egyptian Museum of Turin**.

By pursuing the ambitious goal of **digitizing the existing cultural heritage**, this contribution develops a **Heritage BIM** model, H-BIM, of a baroque architecture conceived by the genius of Guarino Guarini, able to survey and reveal the compositional and formal value of the facades, both those facing to the city and the internal ones facing the courtyard of the building.

By reconstructing the events that have marked the appearance of this building through the drawings of the time, from its conception to the planned future extensions, two different approaches to parametric modeling have been defined which have taken as their common denominator **drawing** as a **critical instrument** of **testimony**, **investigation** and, above all, **knowledge**.

Articulated around the **Science of representation**, the thesis, in fact, offers a comparison of the main drawing methods used nowday by architect. This are intended as devices for displaying the model of the architectural artefact, as well as intellectual tools for observation, decomposition and reinterpretation of the seventeenth-century facades.

The treatment, making use of **graphic analysis**, decodes the architectural fronts and creates a semantic structuring of the decorative apparatus that characterizes the building. Geometric-formal-compositional qualities are investigated during the modeling phase and emerged through to the drawing, especially when it makes use of Building Information Modeling.

Although experimental, the research aims to create a BIM model that is dimensionally faithful to reality, intelligent and interrogable thanks to the subsequent information implementation phase.
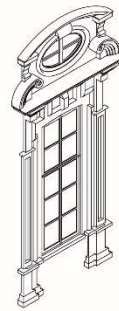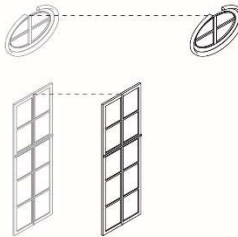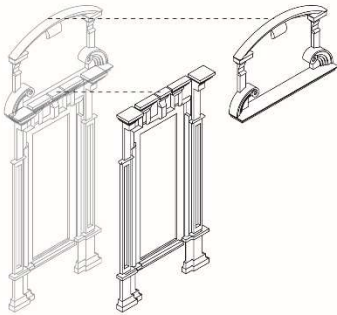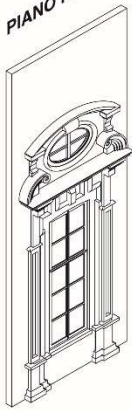
This thesis represents only the first indispensable step that leads to the digitization of the heritage and that continues to use drawing as a critical tool for surveying and re-reading architecture.

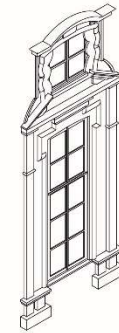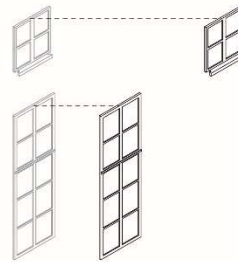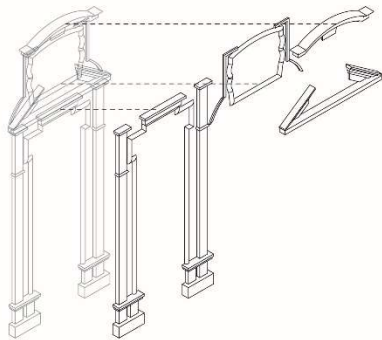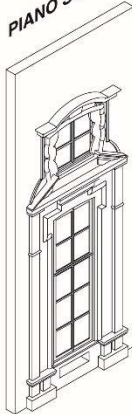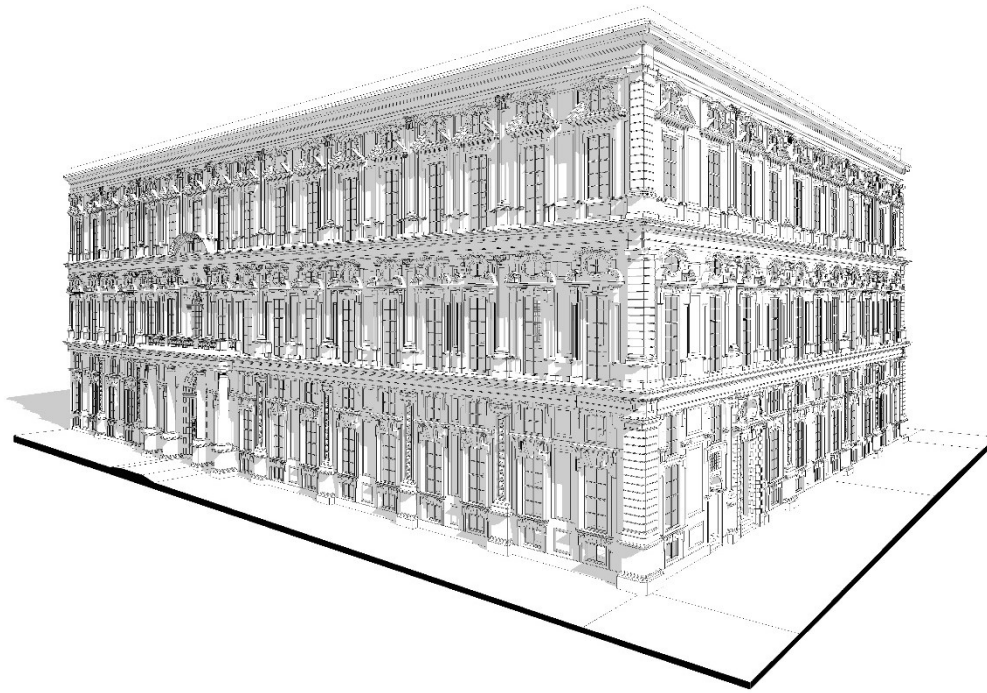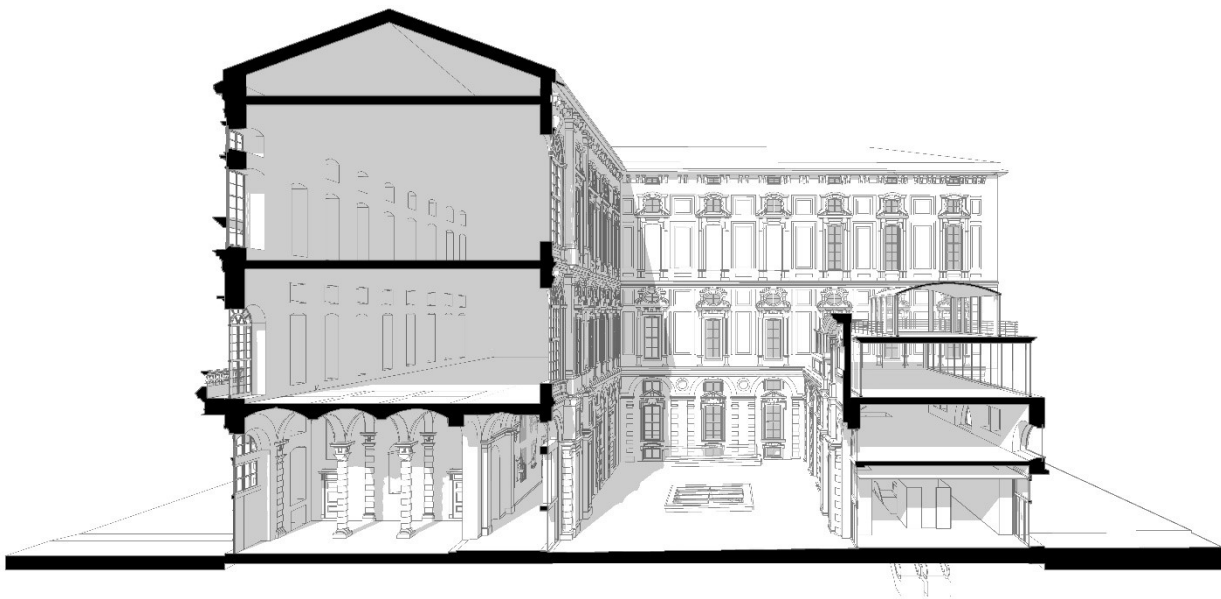—————————
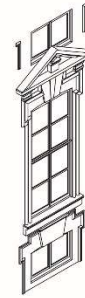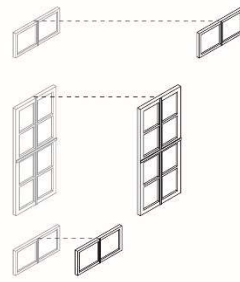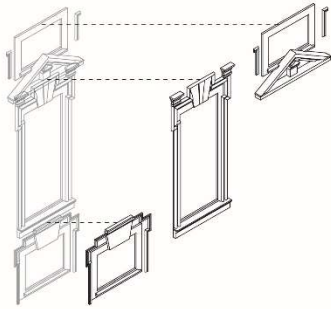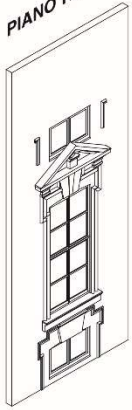
IMG 1.
Synthetic scheme of the nifification used for the different approaches adopted.

IMG 2.

Perspective view of the BIM model of the Collegio dei Nobili showing the main front facing via Accademia delle Scienze and via Principe Amedeo.

IMG 3.

Perspective section passing through the internal courtyard of the Collegio dei Nobili showing the volumetric relationship between the internal facades and the Schiaparelli sleeve.

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