



POLITECNICO  
DI TORINO

# Honors thesis

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Architettura per il restauro e la valorizzazione del patrimonio

## *Abstract*

Energy efficiency of the architectural heritage and evaluation and sustainability protocols  
A critical revision of "*Direttiva tecnica edifici esistenti & risanamento CasaClima R*" and  
application to case study of "*Villa Loschi Zileri Motterle*"

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The sustainability field in architecture is nowadays pursuing a functional connection with restoration; the ultimate aim of this desired synergy is to intervene in the historical architectural heritage exploiting the synergy between conservation and energetic efficiency. The writers had the opportunity to approach the topic after having an internship in Bolzano at "Agenzia per l'Energia Alto Adige - Casa Clima".

During the internship, they had the possibility of understanding the problematic issues and the focus points of the relationship between technical physics and restoration applied to energetic efficiency in warded buildings. This thesis proposes itself the aim of drawing up a hypothesis of sustainable and sensible protocol, which could add dictates of restoration to the ones already contemplated by the Agenzia. The undertaken path had provided the analysis at the state of the art of the critical points and the current legislation about energy efficiency and, above all, it had taken into consideration how the warded architectonic heritage is handled. After that, the attention was focused on the "Direttiva tecnica edifici esistenti & risanamento Casa-Clima R" and "GBC Historic Building" that, nowadays, among the current, are the only two that show not only the attention for the "environmental sustainability" but also for the "cultural sustainability".

This last discipline holds the objective of passing on the artistic-architectonic values to the next generations.

To better define the difference between the two papers, it was necessary to proceed with a comparison of certified interventions, evaluated through the parameters proposed by "Linee di indirizzo per il miglioramento dell'efficienza energetica nel patrimonio culturale" published by the MiBACT in 2015.

The final aim of this work, on the base of the comparison had with Agenzia CasaClima, was to elaborate the basis of a brand new protocol, "CasaClima H", structured in three different aims who synergically cooperate to the equilibrium between conservation and efficiency analysing cases taking the load of historical, energetical and comfort issues. "CasaClima H" certifies a more sensitive process - it helps to overcome a restrictive vision typified by limits that, in the case of historical buildings, lead to a loss of the testimonial and artistic values of the good - not in adjustment but in improvement philosophy. Our protocol hypothesis, developed with the direct support of Agenzia CasaClima, was to apply, to the case study of "Villa Zileri Motterle - La Loggia" (already certified as "CasaClima R) to test its adaptability in the reality.

At the end of the test, it gave back a pleasant result as well as a satisfying score.

The intern challenge the protocol carries with itself is the sensibilization directed to an integrated approach between architectonic restoration and technical physics in order to reach the best cultural integration between historical building and energetic efficiency.

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