

## Reducing the energy consumption and carbon footprint on historic buildings

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Energy efficiency and Carbon dioxide (Co2) level reduction has been in the past decades a worldwide concern. This has been undertaken by many international and national authorities mostly in developed countries. According to specialists, cities have caught the attention in many regions (e.g. in United States, Europe, and eastern China) positioning themselves as one of the main focus of Co2 emitters. Historic protected buildings cover an important area in many European cities, becoming an increasing energy demanding factor in urban areas.

Energy efficiency (EE) in cultural tangible heritage has become a challenge for the authorities as well as for the site managers. The adequate use of energy in new buildings has been long considered as part of the overall plan project. On the contrary, practical interventions on this matter are not frequently seen on historic buildings and have not yet been fully studied as require a holistic approach. The complexity of intervention in these cases, demands a balance between the incorporation of new technologies and the safeguarding of the buildings integrity regarding their particular values.

The research at IAS STST aim to reveal the gaps in the state-of-the-art of Energy Efficiency in Historic Buildings and will focus mainly on those historic protected buildings with public ownership, due to the scale and significance that they possess. A case study in the city of Graz will be analyzed, illustrating the techniques applied towards energy efficiency on buildings with historic significance along with a description of the main stakeholders involved in the process.