Executive Summary

Challenges
3ENCULT bridges the gap between conservation of historic buildings and climate protection. Historic buildings are the trademark of numerous European towns and will only survive if maintained as a living space. Energy efficient retrofit is important – both for improving the comfort and reducing energy demand (in terms of money and in terms of resources) and for structural protection in heritage buildings.

3ENCULT demonstrates that it is feasible to reduce the energy demand also in historic buildings to 1/4 or even 1/10, depending on the case and the heritage value.

Main features of the project
A core element in 3ENCULT was the multidisciplinary team, who elaborated a comprehensive refurbishment strategy for historic buildings: tools for the diagnosis, passive and active retrofit solutions as well as monitoring and control devices.

The results are demonstrated at 8 case studies and transferred into building practice via diverse channels, including advice to CEN, virtual library on buildup.eu and a handbook with guideline for planners as well as targeted information and training material for education and industry, but also study tours, workshops and e-guidelines for local governments and decision makers and last but not least information for building owners and a wide audience through web and TV.

Results
There is no “one-fits-all”-solution – too unique is each historic building. The project rather proposes a “pool” of solutions and guidance how to find the right one for the specific building:

- a highly energy-efficient conservation-compatible window
- improved capillary active internal insulation
- a low impact ventilation based on active overflow principle
- a LED wall washer for high quality and low impact illumination (e.g. in museums)
- integrated PV solution and guideline on RES integration in Historic Buildings
- the web-based “roombook” integrating conservation and energy aspects supporting the multidisciplinary diagnosis and design
- wireless sensor networks and a BMS system dedicated to Historic Buildings
- adaptation of PHPP and integration of historic buildings in EnerPHIT certification

As regards the impact: 14% of EU building stock dates before 1919, 26% before 1945 – and even if only part of it is listed, most of it constitutes our built heritage and should be treated with care. Reducing its energy demand (~855 TWh) by 75% will result in more than 180 Mt CO2 saved (3.6% of EU-27 emissions in 1990).

For more information, please consult the project website www.3encult.eu

Partnership
Coordinator – EURAC research, Italy. Austria: Bartenbach Lichtlabor, University of Innsbruck.

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