

## RIBuild guidelines for internal insulation of historic buildings

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Internal insulation is often the only possible solution when improving the thermal performance of solid walls of historic buildings, as many of these have architectural or cultural values. However, as internal insulation is regarded risky from a moisture perspective, guidelines are needed. A new set of guidelines that combine written guidelines, a web-based preliminary assessment tool and a website has been developed in the H2020 research project RIBuild (Robust Internal Thermal Insulation of Historic Buildings), refer to Figure 1.

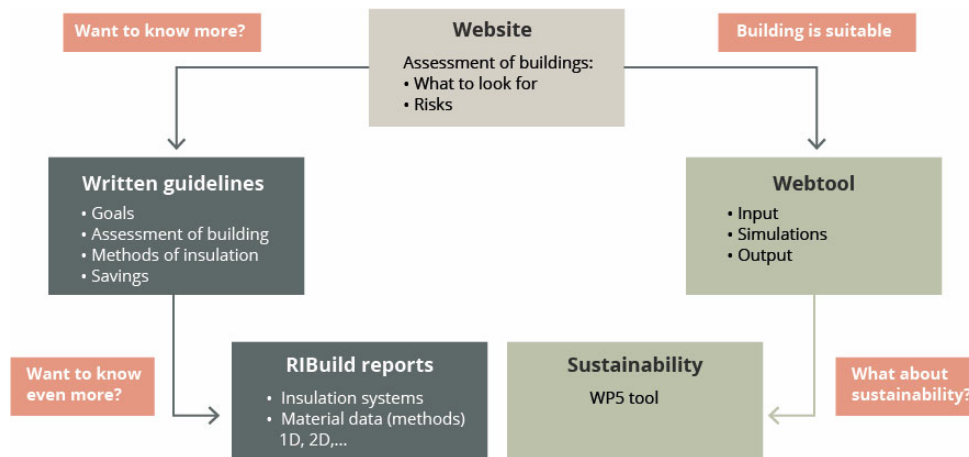


Figure 1. Overview of content of website for written guidelines and web tool for internal insulation of historic buildings. Light grey boxes are interactive web based products, dark boxes describe reports accessible via links on the website, red boxes describe when to move to another product.

The website provides simple ways of assessing the building to determine whether internal insulation is feasible in the specific case and what needs to be done before it can be applied. It also describes different failure mechanisms. The website includes short videos explaining the basic concepts and links to information (written guidelines), described for different types of users, depending on their level of expertise. It also contains a knowledge base including the reports, conference papers and journal papers prepared as part of the project.

The written guidelines consists of four parts forming a step-by-step approach: Setting the goal of the renovation, Visual assessment of the building, Selection of an internal insulation system and Evaluation of the energy saving potential. The visual assessment is given much attention as detailed knowledge about the present condition of the building and its use is decisive for whether internal insulation is feasible, whether



other measures should be carried out before, or whether it is too risky or complicated to apply internal insulation at all.

The web tool is based on simulations of hygrothermal conditions within a solid wall. The web tool determines the risk for mould and algae growth in a probabilistic way and determines heat loss and CO<sub>2</sub> emission before and after renovation through 1 m<sup>2</sup> of the wall. Based on user input about location of the building, wall type, orientation and thickness, and eventually insulation type and thickness, the web tool presents a list of possible solutions. The web tool in its present state does not cover all combinations of locations, wall types and insulation systems but is a first version of such a type of assessment tool, to be further developed in future projects.

A paper about the guidelines will be presented at NSB 2020, 12<sup>th</sup> Symposium on Building Physics, Tallin Estonia, 6-9 September 2020, <https://nsb2020.org/>

More information about RIBuild and the guidelines is available at [www.ribuild.eu](http://www.ribuild.eu)

Blog article prepared for <https://task59.iea-shc.org/>

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