

Internal insulation applied in heritage multi-storey buildings with wooden beams embedded in solid masonry brick facades - DTU Orbit (09/11/2017)

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The use of internal insulation is investigated in a heritage building block with wooden beam construction and masonry brick walls as part of an energy renovation. Measurements were carried out and compared to results from a hygrothermal simulation model. The risk of mould growth in the wooden beams and in the interface between the insulation and the brick wall was evaluated. Three different insulation strategies for applying internal insulation were investigated: 1) insulation applied on the entire interior facade; 2) 200 mm gap in the insulation above the floor; and 3) 200 mm gap in the insulation both above the floor and below the ceiling. The solution with a 200 mm gap in the insulation above and below the floor/ceiling showed that at low rain exposure coefficients (Catch Ratio, $CR \leq 0.1$) and with wall orientations towards west, this solution can be moisture-safe. However, it not recommended to apply internal insulation on north-orientated walls, since the drying potential is reduced. Additionally, caution should be exercised also with west-orientated walls.

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