

Towards reliable internal insulation of existing solid walls



Timo De Mets | Belgian Building Research
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IraSME & CORNET Partnering Event

The renovation rate of buildings should increase

Directive 2012/27/EU

- (17) The rate of building renovation needs to be increased, as the existing building stock represents the single biggest potential sector for energy savings. Moreover, buildings are crucial to achieving the Union objective of reducing greenhouse gas emissions by 80-95 % by 2050 compared to 1990.



When energetically renovating exterior walls,
internal insulation might be the only solution

- ~~Cavity wall insulation~~ ——— Solid walls, limited thermal upgrade, ...
- ~~External insulation~~ ——— Worth-preserving façade, strict building lines ...
- Internal insulation

Internal insulation introduces some hygrothermal risks

~~Cavity wall insulation~~

~~External insulation~~

Internal insulation →

Internal condensation

Thermal bridges

Mould growth

Wood rot of floor beams

Frost damage

...

Some uncertainties hinder a large scale application of internal insulation

Wood rot of wooden floor beams



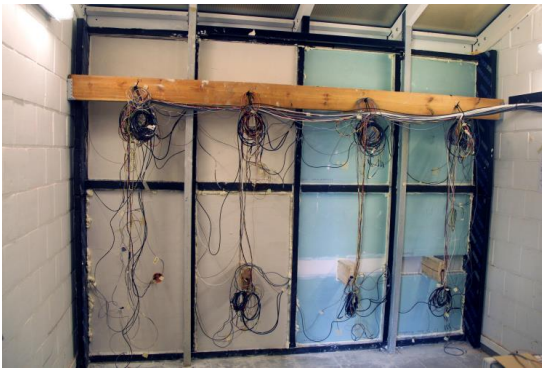
Frost damage



Different kind of wall types

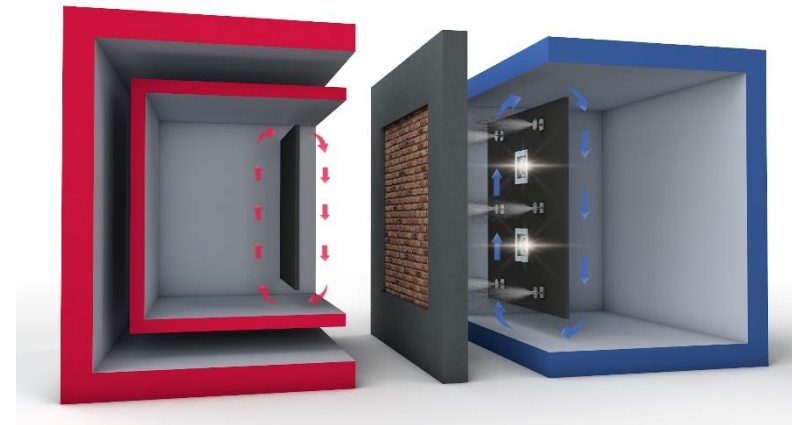


Increase knowledge with: laboratory measurements



“Twin Cells”

Tests on wooden floor beams on real exterior climate



“HAMSTER equipment (2020)”

New test facility for combined heat, air and moisture tests with fully controlled interior and exterior climate

Increase knowledge with:
on site measurements

Measurements on large number of buildings
Supported with numerical simulations

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