

# Fixit 222

## **Aerogel High-Performance Insulating Plaster**

Information for Building Owners and Contractors

## What is Aerogel Insulating Plaster?

The raw material used to manufacture aerogel is a silicate compound which consists of 90 – 98 % air. This pure mineral substance forms the basis of the best insulating material in existence. In combination with limestone, a binding agent used since historic times, the high performance insulating plaster is ideally suited for the energy efficient renovation of old buildings. It is the first insulating plaster on the market worldwide which is designed to make use of aerogel. Fixit 222 has been commercially available since 2012 and already boasts a collection of 400 references detailing its use in historically important buildings. Mineral-based Fixit 222 Aerogel High-Performance Insulating Plaster is ideal for applications involving the energy-efficient renovation of old building with solid masonry walls.

Aerogel insulating plaster achieves a thermal conductivity coefficient,  $\lambda_D$ , of 0.028 W/mK, three times better than the values achieved by conventional thermally insulating plasters. This means that the application of even a thin layer, just 3 cm (replacing a conventional plaster surface of the same thickness), results in a halving of the energy consumption.



To the references



Evaluation of the Fraunhofer Institute

### Where is insulating plaster used?

The number of old buildings requiring renovation in Switzerland is very high. Approximately two thirds of all existing buildings were built before 1970, and have no thermal insulation. Aerogel insulating plaster is used on buildings where the appearance of the façade after renovation must remain the same as before, ensuring that the identity of the residential area and its inhabitants remains intact. In the case of historically protected buildings, which are exempt from energy efficiency regulations, the cantonal energy authorities will facilitate planning permission.

Total renovation makes sense for buildings which are not of historical significance in order that the U-value for the walls can be freely chosen, thus not impacting on the façade. But even in the case of buildings which have existing insulation on external walls, the aerogel insulating plaster finds use. Here, it is simply applied over the existing layer, with the added advantage that - even with a layer thickness of just 3 cm - unsightly anchor bolt markings are rendered invisible. Aerogel insulating plaster can also be used on single layer brickwork in newly constructed buildings, resulting in a gain in living dimensions of 11 cm per side or up to 4.5 m<sup>2</sup> per floor.

### Advantages for Building Owners and Contractors

The outlay involved in using Fixit 222 Aerogel insulating plaster for energy efficient renovations is technically justified and makes economic sense. A layer thickness of just 3 cm means a halving of heating costs after a complete renovation. If an 8 cm thick layer is applied, the energy saving rises to about 2/3.

Further advantages:

- No cold air downdraughts down external walls and therefore no draughts in indoor rooms
- Reduced humidity on walls, thereby avoiding mould attack
- Rooms can be fully heated in a very short time
- Individual layer thicknesses are possible depending on requirements and feasibility
- Low maintenance and running costs



## Outdoor applications

Fixit 222 Aerogel High-Performance Insulating Plaster is primarily used for the complete renovating of old buildings. Its great advantage lies in the fact that only a thin layer need be applied, thereby leaving the original appearance of the building practically unchanged whilst simultaneously providing unrivalled thermal insulation. The high degree of porosity and capillarity of the mineral based ingredients of the aerogel insulating plaster prevent algae or fungal attack. This obviates the extra work needed to apply biocides, whilst also averting the growth of mould and mildew in indoor areas.



## Indoor applications

Since a render-based outdoor thermal insulation layer is not always feasible on technical or aesthetic grounds, indoor wall insulation is sometimes the sole, and correct, solution. Indoor thermal insulation using Fixit Aerogel High-Performance Insulating Plaster can be applied significantly faster and more easily than fitting thermally insulating panels. In addition, the plaster is in intimate contact with the masonry substrate, leaving no gaps or spaces where moisture can condense, thus avoiding long term damage. The insulating plaster also contributes towards creating a pleasant and comfortable indoor climate.



In addition, you as a house owner are living up to your responsibility to lower CO2 emissions. The following generations will be thankful for the resulting cleaner air and consequent reduction in environmental damage.



before and after

the introduction of energy consumption surcharges, St Gallen

## The next steps

- Contact the authorities responsible for the preservation of historic buildings in your area (if your building falls under their remit)
- Talk to your regional Energy Consultant and arrange a consultation session
- Arrange for the planning and execution of the work with an architect or designer, together with your regional Fixit partner



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