

# Pilot project 'Elmschenhagen', Kiel

## GERMANY



## Implemented measures and their energy saving effect

An alternative external insulation with brick-slip-finish is technically easy to accomplish, while highest efforts are needed to match the colour, size and assembly of the existing bricks. The results for 14 cm insulation finished with bricks slips, achieving a new U-value of 0.20 W/m<sup>2</sup>K, add up to combined energy savings of app. 35% (including windows and door). The visual impression widely differs from the original. Specially designed windows were acquired to allow an installation from the outside as planned for this construction. Water tightness is achieved by compressed foam-tape. In order to optimise the heat performance the existing central gas heating can be replaced by more efficient installations. For buildings containing rental flats with higher energy needs it is recommended to replace the appliances with highly efficient wood-pellet burners. Further measures include the fine-adjustment of the heat valves and a complete hydraulic compensation which also leads to a better comfort.

## Summary, conclusion and lessons learnt

### **The results look promising**

The model refurbishment concept combines aspects of design, refurbishment and energy optimisation. It is an adequate means to consult owners, architects and craftsmen. An independent consultation is necessary to achieve energy optimised refurbishments. In Germany public funding is provided. The subsequent cavity wall insulation in double wall masonry construction is a cost-efficient, competitive and economic procedure. Before insulating the cavity the façade needs to be examined for damages. Brick and joint repair work can be required, especially at weather exposed elevations. After installing a thermal insulation and a condensing boiler system a hydraulic calibration for the heating-water system should be executed.

### **Execution of measures continues**

It is still necessary for planning authorities to give basic and specific information on measures for owners and craftsmen. Individual consultation needs to be given for a long period of time.

### **Governmental assistance mandatory**

The main requests for the future are: The design-guidelines fixed in the binding land use plan have to be adapted to technical requirements, e.g. ridge line elevations when roof insulation applies. Regarding these design guideline, easily understandable and accessible information for owners and craftsmen have to be provided. The model refurbishing concept has to be set up in a way that it can be altered in order to conform to future energy regulations (German EnEV 2014).