



Proposal/Contract no.: FP6-503186

DEMOHOUSE

Design and Management Options for improving the energy performance of Housing

SPECIFIC TARGETED RESEARCH OR INNOVATION PROJECT

Thematic Priority 6

Deliverable 16.1

Report on assessment of environmental, economical and social impacts concerning the pilot project involving the whole life cycle

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Start date of project: October 18th, 2004

Duration: 4 years

Fundación Labein

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Executive Summary

This document presents the information and calculations of the demonstration building (*Pilot building*) to be renovated within the project, and assesses the performance of an improved building renovation intervention. The intention of the document is to demonstrate the potential for environmental improvement and economical feasibility of better solutions in the building renovation field.

In general the results of this assessment have demonstrated very successful interventions in all of the pilot buildings, since they have been extracted percentages of energy savings compared to pre-retrofitting situation from 50 to 85%. This can be translated into two other aspects:

- Reduction of CO₂ emissions, being greenhouse gases emissions a leading problem in environmental programmes and goals.
- Reduction of operational costs along the use phase of the building (space heating, DHW, etc.). From these savings payback periods can be calculated for the evaluation of the feasibility of the projects. In Demohouse payback times ranges from 15 to 35 years, although most common figures are around 25 years.

Additionally all the pilot buildings provide very good sustainable performance, not only in terms of energy savings, but also in many other aspects for the environmental enhancement of the buildings renovations. The overview of the pilot buildings demonstrates that there are many potential actions/measures to be taken when dealing with building retrofitting, addressing and stressing different issues depending on the characteristics of each case. Therefore, further than energy demand reduction, large environmental benefits can be obtained in terms of resources minimization, water savings, waste management, etc.

In general, the results extracted in this stage of the project represents a very promising overview, considering that one of the main objectives of Demohouse should be the transferability of these initiatives to other similar experiences and also to programmes led by public bodies. These demonstration cases permits to have real data on potentiality of sustainable renovations further than other theoretical approaches based only in calculations and estimations. And therefore they should be used as examples to push and promote sustainable building renovation in the large European housing stock that will be retrofitted in the next few years.