



HOUSING THERMAL INSULATION

Product Catalogue - 2015

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Description and Working Principle

Thermal insulation prevents temperature exchange between the outside and inside of a house. It consists of several elements such as insulation of floor, ceiling, and walls, as well as windows and doors with high insulation properties. The insulation can be performed with various techniques adapted to local conditions and materials available on the market such as industrially manufactured materials as well as natural materials.

Technical Characteristics

Heat loss reduction	Up to 40% - 50%
Examples of possible insulation materials	<ul style="list-style-type: none"> • Straw or wood shavings • Glass wool; sheep wool • Styrofoam • Gypsum
Types of insulation measures	<ul style="list-style-type: none"> • Walls, ceiling and floor insulation • Window replacement • Door replacement
Product lifetime	Up to the lifetime of the building

Ease of Distribution, Installation and Maintenance

Housing insulation consists of several elements that require technical expertise and installation work. Windows and doors must be precisely installed and generally easily maintained. In the case of improper installation or external stresses on the buildings, qualified technicians are required for repair. End-users require very little capacity building for regular maintenance activities.

Insulation of walls, ceiling and floors is more complex, calling for individual approaches and a detailed evaluation for the specific building. Craftsmen must be able to select appropriate materials, calculate price estimates and perform the installation. Once it is completed, good quality work will require a small amount of regular maintenance, such as cleaning and repainting, done by the end-user.

Industrially produced construction materials are readily available in most markets, while availability of local materials differs from region to region. Typical maintenance work is limited to cleaning and repainting coated surfaces every 2 - 3 years in order to prevent corrosion.

Technology Options

A variety of options can be chosen to adapt insulation to local circumstances, such as the possibility to use locally available organic materials such as straw, wool, sawdust, locally available insulating biomass or more modern materials. In addition, one can select between plastic or wooden windows and doors depending on local preferences and availability supply chains.

Price Range

An advantage of thermal insulation is that it can be installed gradually, thus offering affordability to clients with different income levels: from wealthier clients who can afford the whole range of measures to low-income clients who would rather insulate piece-by-piece. Therefore, the price can range from USD \$100 - \$1000.

Type of insulation	Price range USD
Wooden/plastic window	USD \$100 – \$150
Wooden/plastic door	USD \$200 – \$300
Full insulation of 1 room with industrially manufactured materials	USD \$600 – \$800



Source: Ecohouse Agent



Source: Hometone, EcoFriendly Wool Home Decoration

Type of Financing

Microfinance loans can be provided to individual borrowers for housing or building improvement.

Economic and Social Impacts for End-users

Thermal insulation has many advantages for both cold and warm climates. First, it creates more comfortable living conditions by leveling the temperature inside the building. Second, in rural areas where people heat houses with firewood, local vegetation, manure and coal, a better insulated house will cut fuel consumption, potentially reducing expenses by up to 50 percent. In areas with high temperatures, insulation can help to reduce electricity bills for air conditioning. Finally, time spent collecting firewood or any other fuel stock can be spent on other activities.

The payback time of a USD \$500 investment in insulation of ceiling, floor and window is 2 years with an average fuel expense of USD \$200 - \$300 per winter in the case of Tajikistan. Taking into consideration that the expected lifecycle of a window is 20 - 30 years and that of insulation is even higher, the investment will pay for itself at least 15 times over, saving the client USD \$2250 on average.

Benefits for the MFI

By providing thermal insulation loans, microfinance institutions can attract new clients interested in improving their living conditions and reducing costs. Savings on fuel expenses provide clients with increased means to repay loans. Additionally, innovative microloans for thermal insulation can attract attention from donors who are particularly interested in climate change mitigation and adaptation tools. Thus, such a financial product will not only diversify the portfolio of microfinance institutions and reduce risk of non-payment, but may also attract new funding opportunities.

Environmental Benefits

Environment: Thermal insulation contributes to reduce polluting emissions, local deforestation and pressure on natural resources. It can support green jobs if environmentally friendly materials are used for insulation.

Climate change mitigation: Thermal insulation contributes to reduce the emission of greenhouse gases (GHG) thanks to reduction in electricity consumption, reduction in deforestation (if traditional heating is firewood), and use of environmentally friendly materials.

Climate change adaptation: Thermal insulation protects against hotter or colder weather and change in temperature in general. It could reduce the vulnerability to weather shocks due to environmental degradation and deforestation (if it offsets use of firewood for heating), and to energy price volatility.

Synergies with: Efficient Air Conditioners, increase in environmental awareness for energy use¹.

References

HomeTone Ecofriendly Houses <http://www.hometone.com/eco-friendly-home-decorating-tips.html>

Ecohouse Agent Straw Insulation <http://www.ecohouseagent.com/north-kesteven-straw-houses.html>

¹ For further information on potential synergies check the other product catalogues for EE and RE technologies.

European Microfinance Platform

The European Microfinance Platform [e-MFP] was founded formally in 2006. e-MFP is a growing network of 120 organisations and individuals active in the area of microfinance. Its principal objective is to promote co-operation amongst European microfinance bodies working in developing countries, by facilitating communication and the exchange of information. It is a multi-stakeholder organisation representative of the European microfinance community. e-MFP members include banks, financial institutions, government agencies, NGOs, consultancy firms, researchers and universities.

e-MFP's vision is to become the microfinance focal point in Europe linking with the South through its members.

e-MFP Microfinance and Environment Action Group

e-MFP Action Groups facilitate synergies among e-MFP members and encourage them to implement activities together, thus contributing to the advancement of the microfinance sector.

The aim of the e-MFP Microfinance and Environment Action Group is to bring together microfinance practitioners to discuss and exchange experiences in dealing with environmental issues and to create new practical tools to advance environmental microfinance. The Action Group is also intended to act as a think tank that disseminates its results among e-MFP members and the microfinance sector at large with a view to increasing the awareness of and commitment to act on these issues. It is meant both as an internal knowledge-sharing and external awareness-raising platform that serves as a reference in the microfinance sector.

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