



● Complete insulation services



Insulation Products
Roof Insulation
Wall Insulation
Foundation Insulation
Window Replacement

Other Services
Technical Assessment
Energy Auditor's
Certificate Green loan

PROJECT FINANCIERS



This report was produced with the financial support of the European Union. Its contents are the sole responsibility of Switch Off Air Pollution and do not necessarily reflect the views of the European Union.



Content and design by Uulen Bayanmunkh, Geres INGO

Ulaanbaatar city, 2022

About us

Switch Off Air Pollution project was implemented between 2018-2022, with the aim to contribute to tackling the air pollution in Ulaanbaatar city through reducing coal consumption, decreasing heat loss and improving the energy efficiency of the individual houses in the ger areas of Ulaanbaatar.

Sustainable Development Goals



Implementing Partners

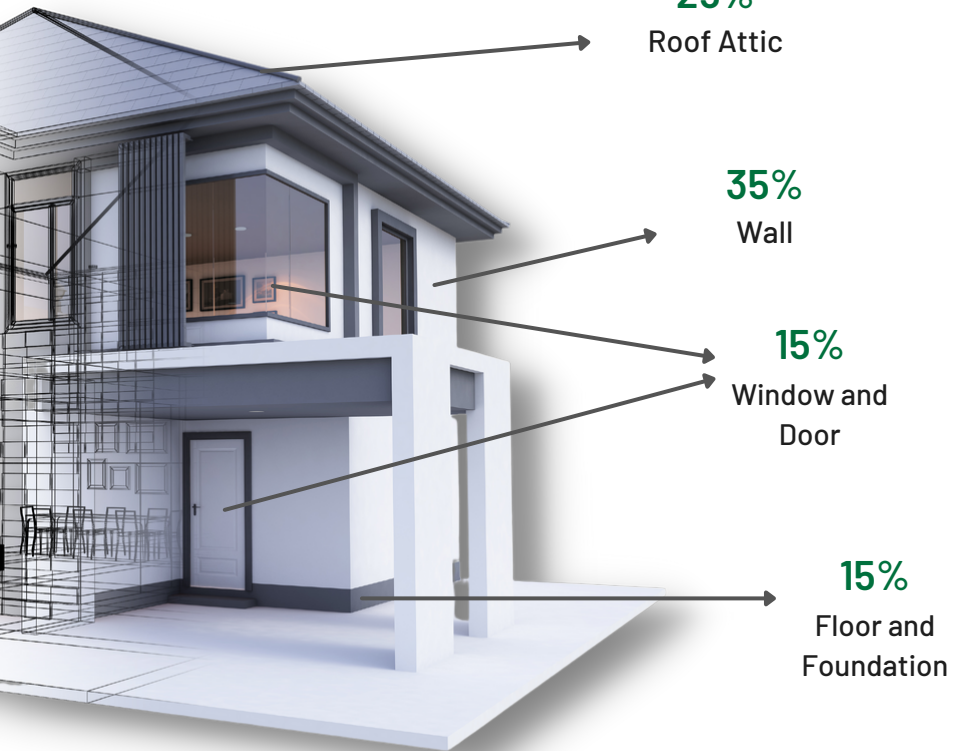


Suppliers



HOW TO IDENTIFY A HEAT LOSS?

*Percentage of heat loss in an uninsulated house



Signs of Heat Loss

- Indoor air is humid when not cooking
- Rapid temperature drop in 2-3 hours after firing the stove
- High electricity bill due to overuse of electric heaters
- Constant window and wall condensation
- Molds and mildews on the ceiling or on the walls

Challenges of Insulating a House

- Lack of knowledge on where the heat loss is in the house
- Chooses poor quality or unsuitable materials
- Does not comply with insulation standards
- Loses time and money, hiring unprofessional people

OUR SOLUTIONS



Energy Advisors define the heat loss through Technical Assessments



Tailor-made and high quality insulation products and services according to the standards



Qualified Materials



Trained Insulation Brigades



Energy Audit Certificate

INSULATION ADVANTAGES

- Reduced consumption of fuel and electricity
- Improved aesthetics of the house, leading to an increased value of property
- Improved indoor air quality, decreasing the health risks related to fume exposure
- Increase in energy efficiency

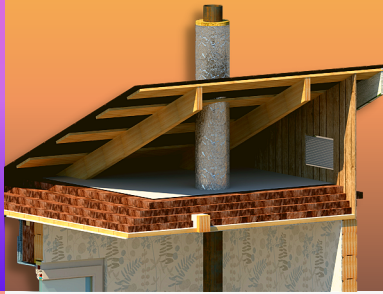


OUR PRODUCTS AND SERVICES

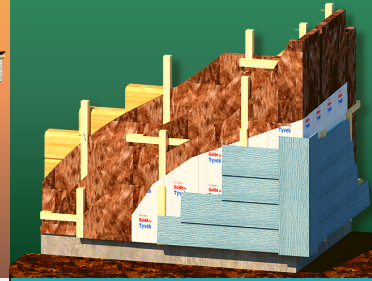
TECHNICAL ASSESSMENT



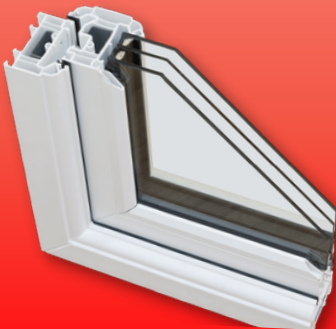
ROOF INSULATION



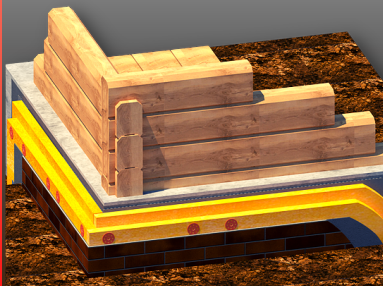
WALL INSULATION



WINDOW REPLACEMENT



FOUNDATION INSULATION



SIMPLE SOLUTIONS CAMPAIGN



Additional services (excluding Technical Assessment and Simple Solutions campaign)

- Energy auditor's certificate
- 1 year guarantee
- Green loan (only select products)

TECHNICAL ASSESSMENT

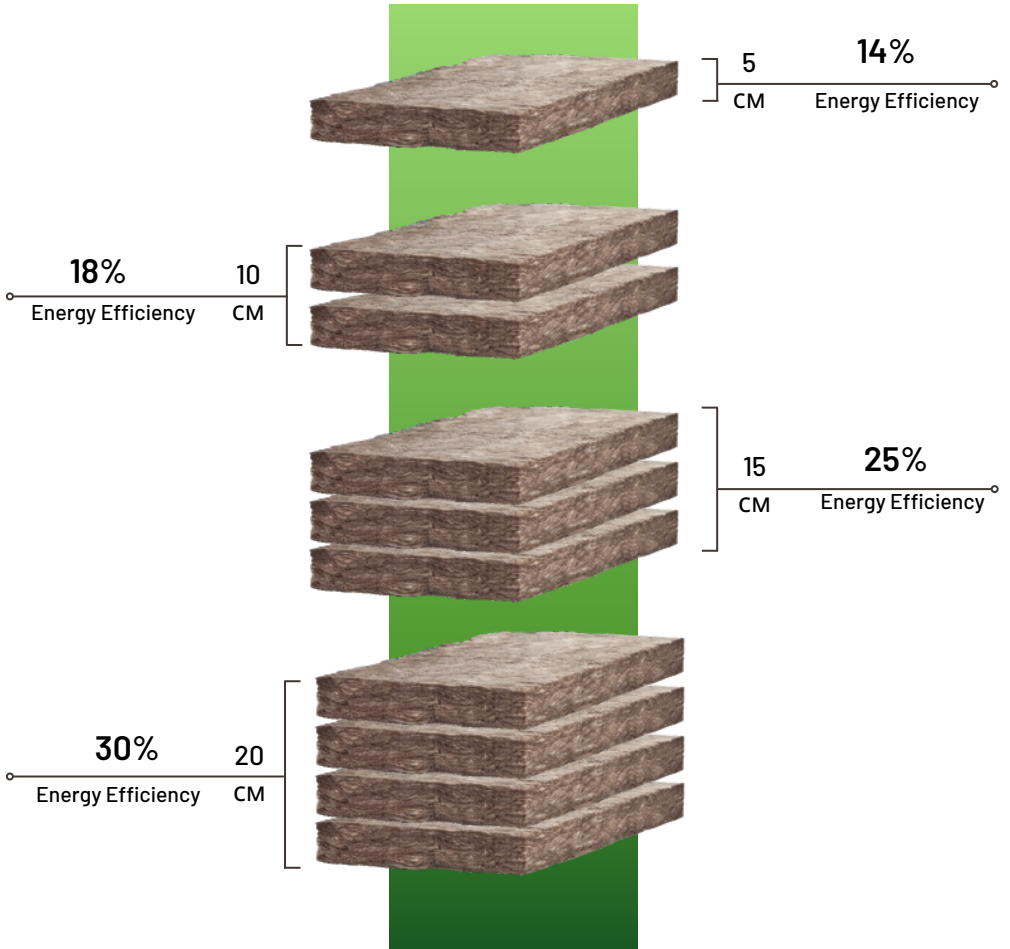
Energy advisors will measure the heat loss of the houses to accurately calculate the price of suitable insulation products

Types:

- **Without thermal camera-**
Available all seasons
- **With thermal camera -** Only available when the indoor and outdoor temperature difference is more than 15 Celsius
 - Thermal images will be sent by email



4 types of ROOF ATTIC INSULATION (MINERAL WOOL)



Vaporproof

**Additional
materials**



Ventilation

*Roofs with 1.2m height or higher without any water leakage are insulated in all seasons

ROOF INSULATION TECHNOLOGY

1. Place the vaporproof



2. Place the mineral wool on top



3. Finish with another layer of vaporproof on top



4. Install the ventilation



INSULATION REQUIREMENTS

1. Attic floor is not damaged
2. Attic floor is able to withstands the weight of the insulation
3. No damps or rotten parts
4. No rusty nail heads
5. No water leakage
6. Roof must be intact
7. No stored stuffs in the attic



*Unqualified roofs

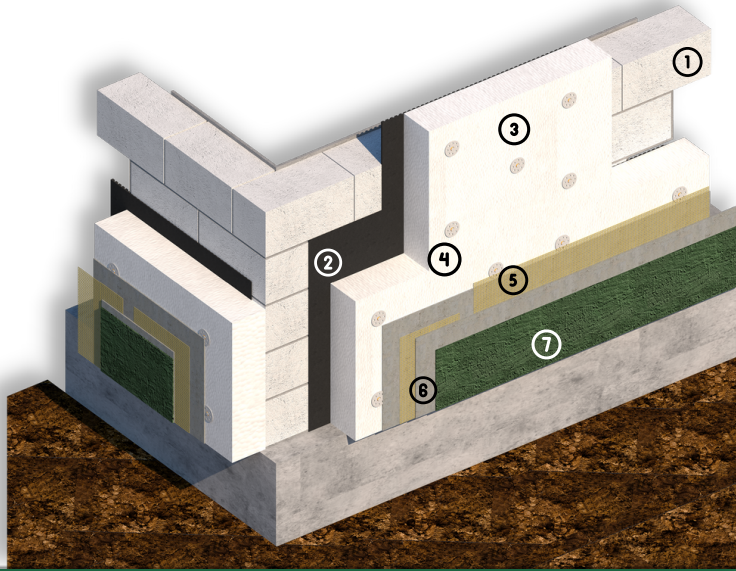
EPS WALL INSULATION

35%

Energy efficiency

04/15 - 10/15

Insulation periods



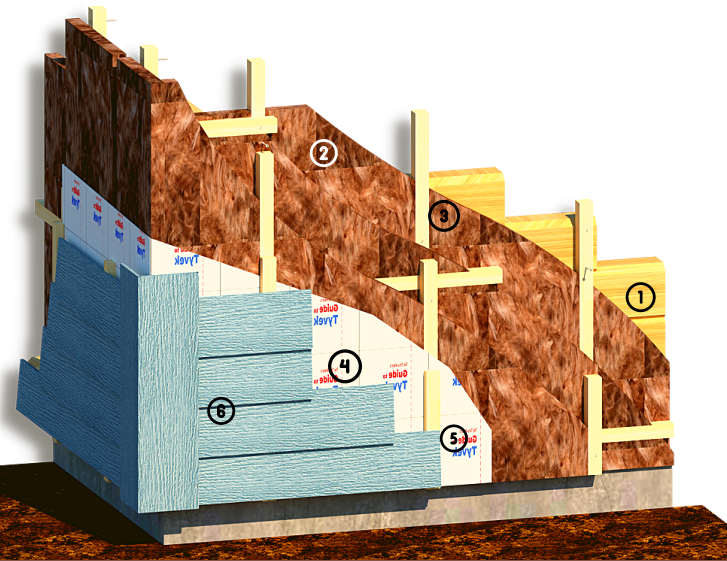
INSULATION TECHNOLOGY

1. Masonry/reinforced concrete wall
2. Interior plastering with adhesive
3. EPS foam board insulation - 15 cm
4. Mechanical fixing
5. Plastic mesh
6. Exterior plastering with adhesive
7. Exterior plaster
8. Metal flashing

INSULATION REQUIREMENTS

1. External walls should be able to withstand the insulation weights
2. Check the quality of the external plastering, add more plastering if necessary
3. Roof pitch should at least be 20 cm
4. Evaluate the wall withstand capacity by a professional
5. External wall thickness should be at least 10 cm
6. External walls should be dry

MINERAL WOOL WALL INSULATION



35%

Energy efficiency

01/31 - 12/31

Insulation period

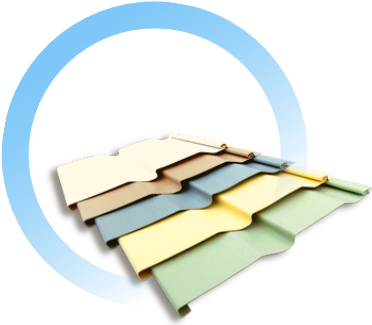
INSULATION TECHNOLOGY

1. Wooden wall
2. Mineral wool insulation - 15 cm
3. Timber frame
4. Waterproof membrane
5. Air layer, timber frame
6. Exterior siding
7. Metal flashing

INSULATION REQUIREMENTS

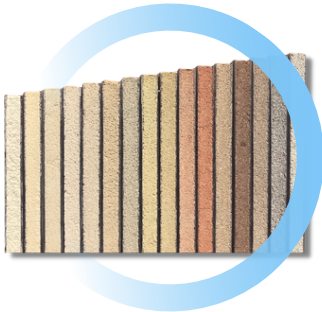
1. Wall exterior should be flat
2. Roof pitch should at least be 20 cm
3. External wall should be able to withstand the weight of the insulation materials
4. No damps
5. Check the if the electrical cables, water pipes, and ventilation openings are intact before covering them with insulation material
6. While the block and brick buildings can be insulation by both foam and mineral wools, wooden buildings should only be insulated by mineral wool due to its high ventilation advantages

EXTERIOR FACADE



Plastic

Metal



Exterior
Plastering



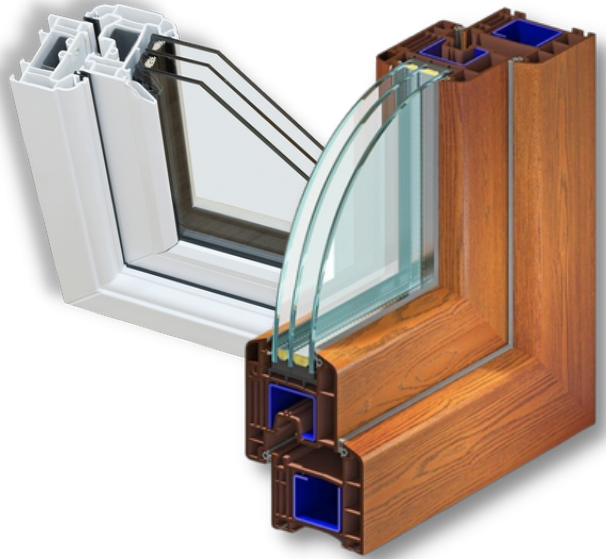
WINDOW REPLACEMENT

8%

Energy efficiency

01/31 - 12/31

Replacement
period



TYPES OF WINDOWS

1. Triple glazed, dual opening
2. Triple glazed, single opening
3. Triple glazed German window

WINDOW BRANDS

- SHIDE (manufactured in China)
- VECRO (manufactured in Germany)

WINDOW COLORS AND MATERIALS

- White uPVC window
- Brown uPVC window

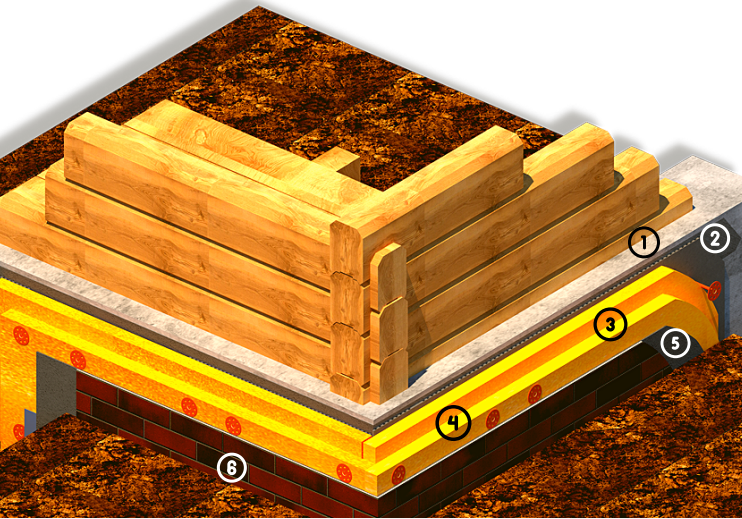
FOUNDATION INSULATION

10%

Energy efficiency

04/15 - 10/15

Insulation period



INSULATION TECHNOLOGY

1. Concrete foundation /applied waterproofing coating
2. Interior plastering with adhesive mortar
3. XPS foam board insulation 10cm
4. Mechanical fixing
5. Exterior plastering with adhesive
6. Ceramic tile
7. Metal flashing



SIMPLE SOLUTIONS CAMPAIGN

DIY (Do It Yourself) insulation solutions, using affordable and easy to access materials. The total energy saving of all Simple Solutions is approximately 8%.

ADVANTAGES OF THE CAMPAIGN



Window, door, floor, chimney, and wall insulations



Instruction videos and manuals of DIY insulations



Daily advice and suggestions for decreasing the heat loss



Platform to exchange ideas and experiences of insulation

*Join the "Simple Solutions Campaign" group on Facebook for more detailed information.





Insulation Brigades

Mongolian National Construction Association NGO's "Trained insulation brigades" are completing the insulation works of the project.

Insulation advisors: Conduct Technical Assessments of detached houses and provide a price offer of insulation options.

Insulation Brigades: Micro, small and medium enterprise completing the insulation work.

Insulation technology: Insulation techniques and technology prepared by the Building Energy Efficiency Center of the Mongolian University of Science and Technology

*If you are interested in cooperating with the project as an Energy advisor or an insulation brigade, kindly contact Mongolian National Construction Association NGO's phone at 7016-5055.

INSULATION MATERIALS

MINERAL WOOL



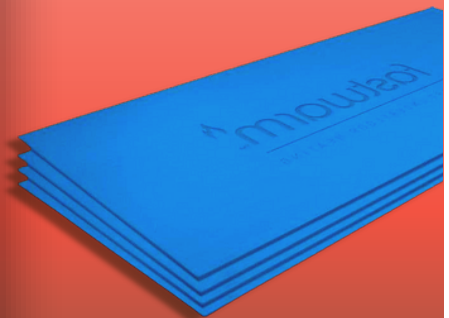
ROCK WOOL



EXPANDED
POLYSTYRENE /EPS/



EXTRUDED
POLYSTYRENE /XPS/



*SOAP project only uses high quality insulation materials that meets the international standards and have official energy efficiency certificate.

MINERAL WOOL

Overview

Consists of 98 percent mineral and 2 percent resin. It is widely used in all sectors of industry, transport, and building for thermal, acoustic, and fire-protection purposes.

Advantages

- Fire resistant
- Broad range of application
- Good air ventilation
- Immune to molds

Applications

We offer wall and roof attic insulation with mineral wool. However, foundation and floor insulations with mineral wool are not suggested due to its high moisture absorption.

Disadvantages

- Might cause allergies if in contact with skin
- Inhaled slivers of mineral wool irritate the alveoli and can cause lung disease
- High moisture absorption



ROCK WOOL

Overview

Rock wool insulation originates from a volcanic rock melted at a temperature around 1,600 °C. Afterward, it is spun into a package of wool. The rock wool insulation is bound together using resins and oils, which give the material waterproof qualities.

Advantages

- Fire resistant
- Does not lose its form
- Good air ventilation
- Hydrophobic
- Immune to molds

Application

Practically all parts of a building can be insulated with rock wool. However, we strongly suggest mineral wool over rock wool due to its high health risk.

Disadvantages

- Might cause allergies
- Inhaled slivers of rock wool irritate the alveoli and can cause lung disease
- Heavy weight, difficult to shape and place



EXPANDED POLYSTYRENE INSULATION /EPS/

Overview

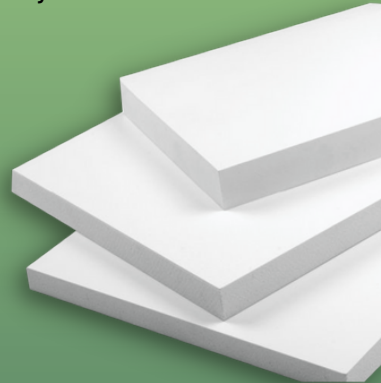
Expanded polystyrene insulation or EPS insulation is manufactured using a mold to contain small foam beads. Heat or steam is then applied to the mold, which causes the small beads to expand and fuse together.

Advantages

- No negative impact on health
- Low thermal conductivity
- Hydrophobic
- Immune to molds
- Recyclable

Disadvantages

- Flammable
- Susceptible to UV rays
- Low sound proof



Application

Practically all parts of a building can be insulated with EPS foam: walls, roof, and floors. However, we do not suggest roof attic insulation with EPS due to its high flammability.

EXTRUDED POLYSTYRENE INSULATION /XPS/

Overview

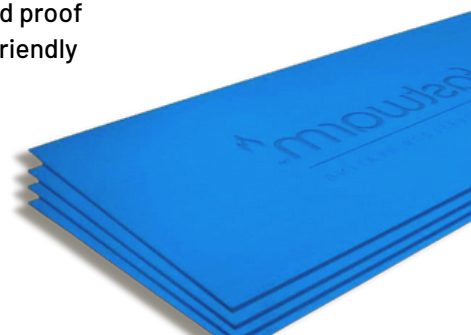
Extruded polystyrene insulation or XPS Insulation is manufactured through an extrusion process. This manufacturing process involves melting together the plastic resin and other ingredients. The liquid formed is then continuously extruded through a die and expands during the cooling process.

Advantages

- No negative impact on health
- Low thermal conductivity
- Hydrophobic
- Immune to molds
- Recyclable

Disadvantages

- Flammable
- Susceptible to UV rays
- Low sound proof
- Not eco-friendly



Application

We only offer foundation insulation with XPS due to its high resistance to moisture and mold.

ECO GREEN LOAN

**UP TO 50 MILLION
30 MONTHS**





KHAN BANK



Loan Terms

- 3% interest rate
- Up to 40 mln MNT
- 30 months

Pension loan:

- Up to 15 million MNT
- Up to 6 months

Green Loan Distributing Branches

- Police Academy
- Nisekh
- Doloon Buudal
- Bukhiin Urgoo
- Songinokhairkhan
- Yarmag
- Da khuree
- Ikh Tsaiz
- Tolgoit
- Bayankhoshuu



1800 - 1917

Loan Terms

- 3% interest rate
- Up to 50 mln MNT
- 30 months

Green Loan Distributing Branches

All branches of Ulaanbaatar city



1800 - 1888



TRANSCAPITAL

N B F I

Loan Terms

- Switch off Air Pollution project's support: 30% of interest rate payment up to 3 million loan
- Loan Amount: Up to 200 million
- Term Length: 24 months
- Monthly Interest Rate: 2.4-3%

Branches

All branches of Ulaanbaatar city



11 - 332255

GREEN LOAN PRODUCTS

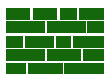
ALL PRODUCTS

20%

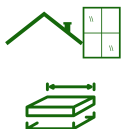
with energy
efficiency



15, 20 cm Roof insulations



Wall insulation



Roof, window, and foundation
package insulation



Full insulation

*NBF loan is applied for all products regardless of energy efficiency percentage

How to collaborate with SOAP project?

1

Technical Assessment

Book a Technical Assessment through our call center to receive an estimated insulation cost sheet.

2

Green Loan

Submit the technical assessment sheet to the bank to request a green loan.

3

Contracting the Brigades

When the loan is issued, sign a contract with the brigade and receive the insulation materials.

4

Insulation Job

After the material delivery, the brigade will complete the insulation work within 3-5 working days depending on the complexity of the job.

5

Auditor's Certificate

After completing the insulation work, an Energy Audit Certificate will be issued.

Personal Finance

If the household finances the insulation work, skip step 2, sign a contract with insulation brigades, and transfer the payment amount according to contract terms.

Хэрэглэгчийн сэтгэгдэл



House structure: Block

Insulation: Roof, wall, foundation

Energy efficiency: 70%

Customer comments: "It's much cleaner and more comfortable to live during the winter now. We used to have colds and flus as our babies are still young but after the insulation, our living condition improved significantly and we don't get colds often. Also, we used to burn at least 10 sacks of coals a week but now 3 is more than enough."



House structure: Wooden

Insulation: Roof, wall, foundation

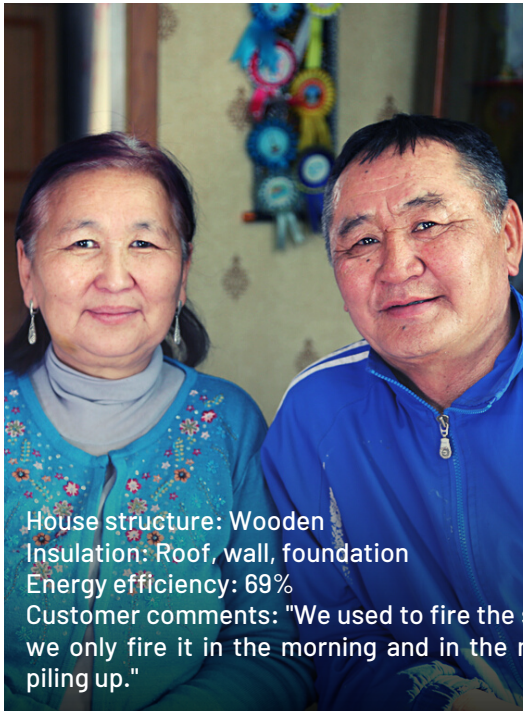
Energy efficiency: 69%

Customer comments: "We used to fire the stove 6-7 times before insulation but now we only fire it in the morning and in the night. Unused sacks of coals are already piling up."

Хэрэглэгчийн сэтгэгдэл



House structure: Block
Insulation: Roof, wall, foundation
Energy efficiency: 70%
Customer comments: "It's much cleaner and more comfortable to live during the winter now. We used to have colds and flus as our babies are still young but after the insulation, our living condition improved significantly and we don't get colds often. Also, we used to burn at least 10 sacks of coals a week but now 3 is more than enough."



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Insulation: Roof, wall, foundation
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STAY WARM

*Switch off air
pollution*

If you have any comments, feedback or complaints, please kindly contact the Switch Off Air Pollution project through below channels:

- Call us at 7505-2000
- Facebook page: "Дулаан шийдэл төсөл"
- Email: dulaanshiideltusul@gmail.com
- Website: www.dulaalga.mn





ДУЛААН ШИЙДЭЛ
SWITCH OFF AIR POLLUTION



Дулаан шийдэл төсөл



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