



Drugi
ENERGETSKI SAMIT
u Bosni i Hercegovini

*Market Assessment of Currently Available and Potential, Innovative, Locally
Produced, Energy Efficient Materials and Products in BiH
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Implemented by **giz** Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Energy efficiency in BiH

Does it cost more to install scaffoldings and 10 cm of EPS than expected energy savings?



Energy efficiency in BiH

Where do we purchase Styrofoam? How long does Styrofoam last? Is Styrofoam harmful to health?



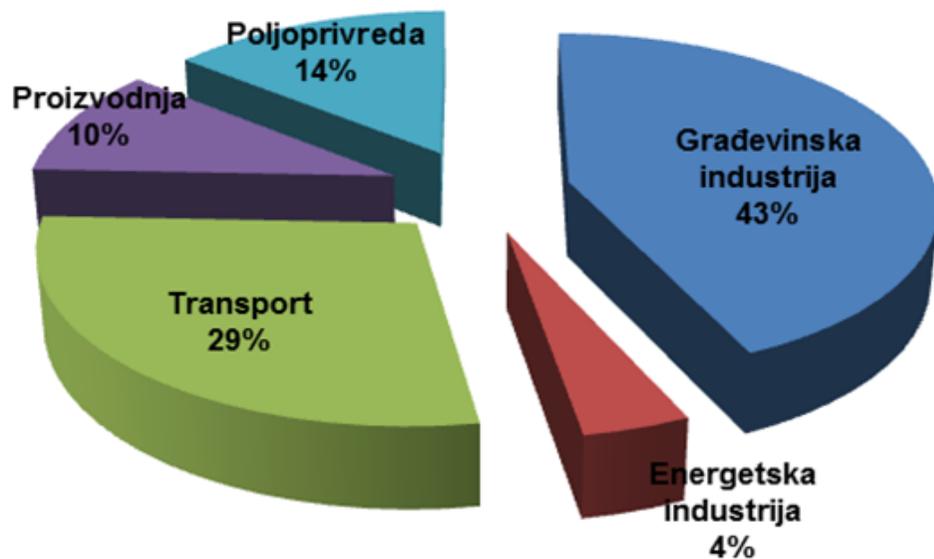
Energy efficiency in BiH

Where do we purchase plastic windows? Is plastic harmful to health?



To what extent do we pollute and consume?

Ukupno količina zagađenja koja dolazi iz pojedinih sektora u EU-27 za 2011. god.



Construction sector consumes:
 50% of all material resources,
 45% of total of consumed energy ,
 40 % of water,
 60% of arable land,
 70% of wood
 on planet Earth.

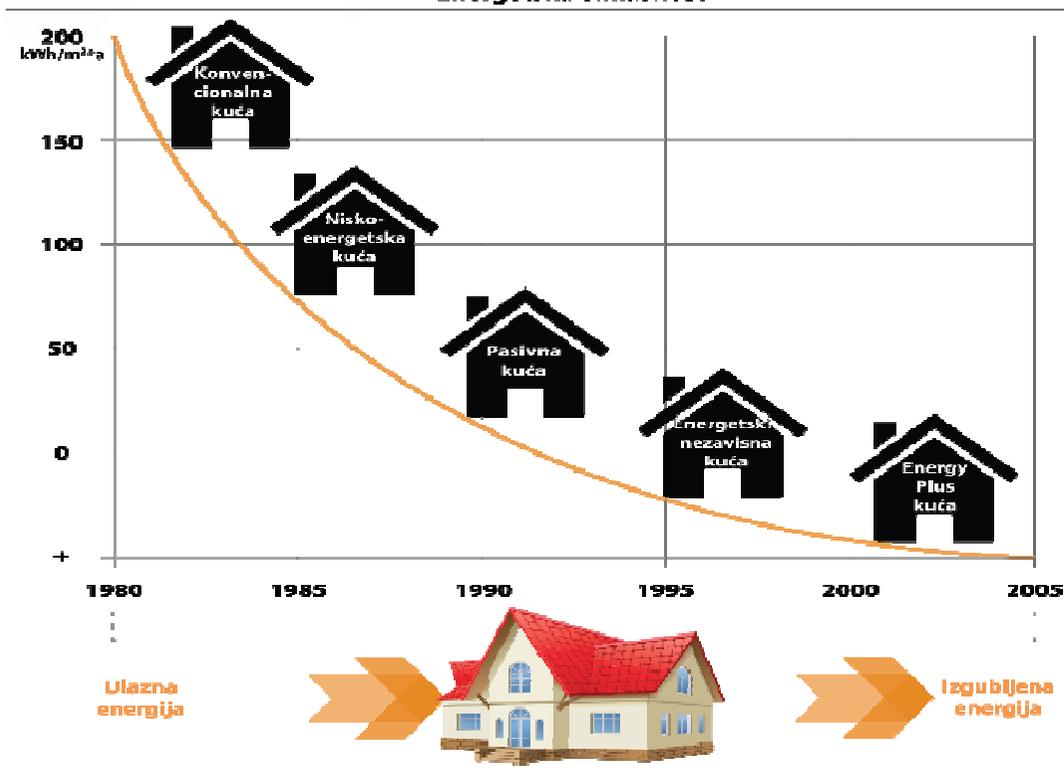


Sustainability is an old philosophy of care and logic that maintained harmony with nature.

It is necessary to insulate our facilities?

By using what and how while supporting local economy, reducing expenses and preserving environment?

Energetska efikasnost



Since 01.01.2012, EU has introduced new categories of certification into certification process.

- **Total consumption of primary energy** which is necessary for each individual material or element that is installed in facility from the moment of extracting the same from the nature, transporting it, processing it to the moment of using and recycling.
- **CO2 emission** during processing, installation and use and recycling of materials.

It is necessary to insulate our facilities?

By using what and how while supporting local economy, reducing expenses and preserving environment?

EU countries pay a lot of attention to life quality in insulated facilities.

A human being spends 90% of life indoors

Internal space: warm during winter, fresh during summer – with minimal use of energy!

Relative humidity: 40 - 60%

Temperature: 18 - 26 ° C.

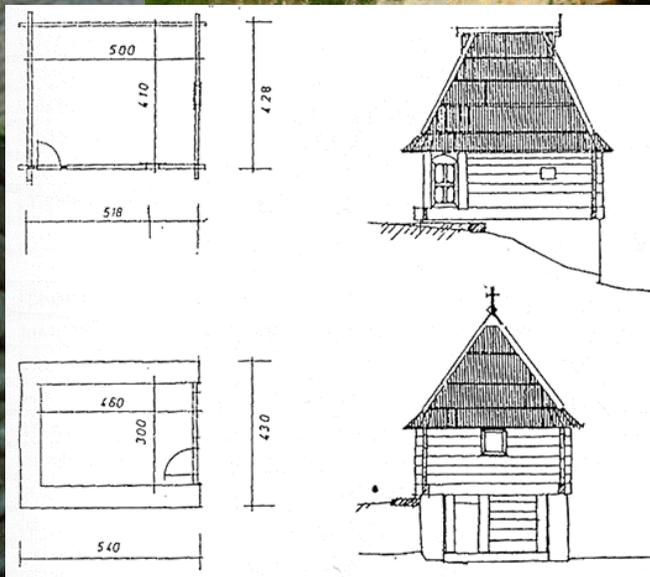
Wind speed <0.15 m / s

Lighting 100 - 500 lux

CO₂ content in air <0.1%

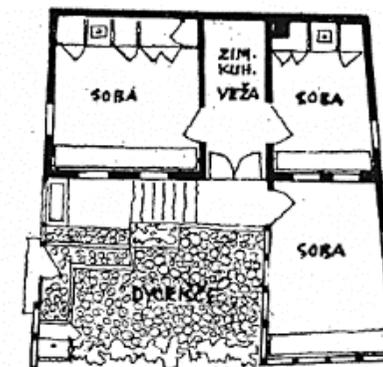
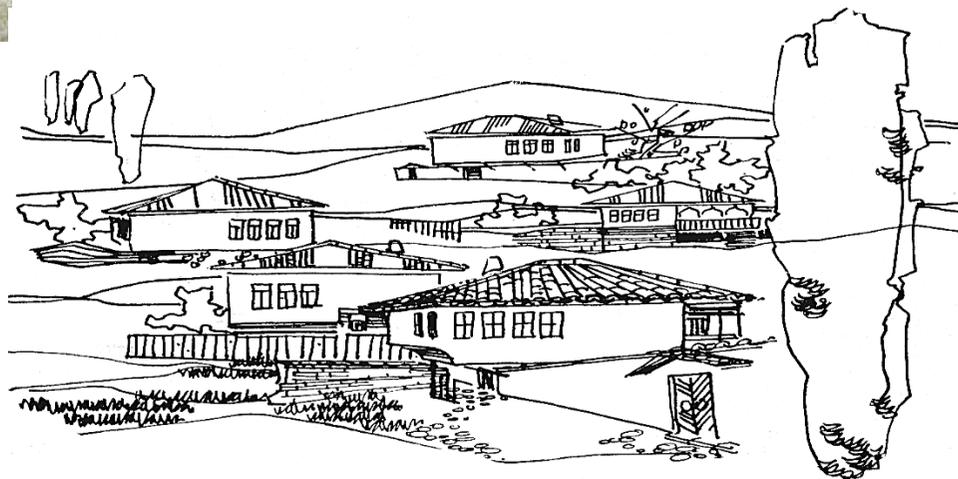
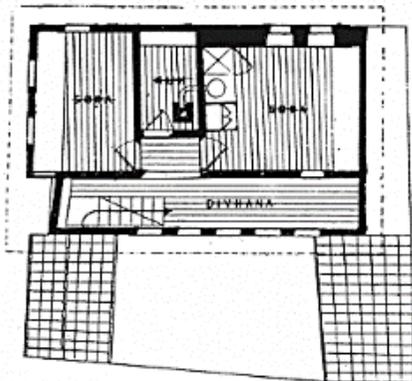
Tradition in BiH





Traditional Bosnian house

- playful facades,
- cubic forms, arched porches,
- full boards without decorations,
- open chatting rooms with fine wooden details,
- wide eaves
- connection with nature
- natural materials

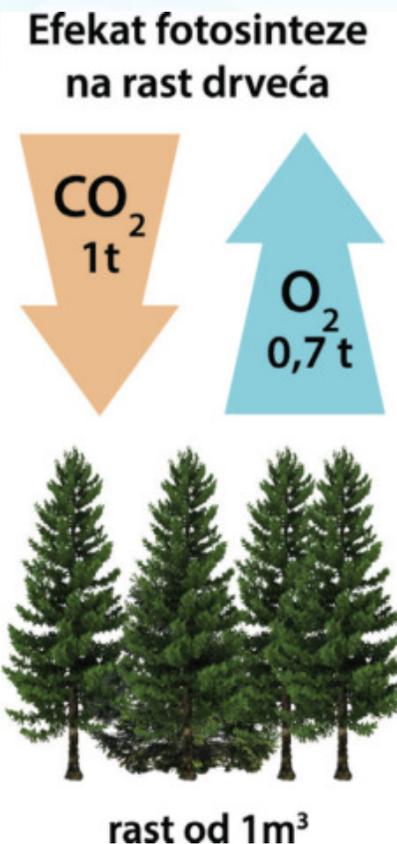


Traditional Bosnian house represents a value.

Traditional, local, renewable, biodegradable, eternal materials

Sustainable use of wood positively influences forest growth and their renewal and maintenance.

Every year, European forests, without Russia, grow by 346 million m³ = every second there is growth of sufficient wood substance necessary for construction of one house without cutting existing forests.



Wood represents 29,6 % of all natural resources on Earth.

Izvor: Guy-Quint C. (2006); „Tackle Climate Change: Use wood“, European Parliament Brussels



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Traditional, local, sustainable, biodegradable, eternal materials.

Wood is a good insulator that absorbs CO₂

It is necessary to know properties of wood and to protect it

Wood is a healthy material

Wood is a material that burns but remains stable

Wood has a wide range of applications

Wood products

Prefabricated wooden structures

63% of total BiH surface is covered by wood

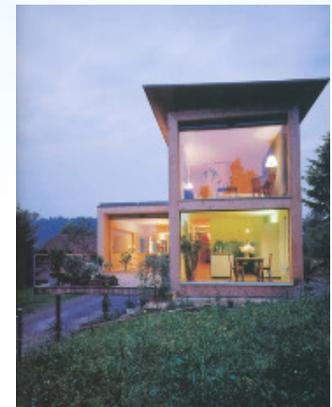
BiH is rich – has high-quality raw materials,

BiH has a long tradition in wood processing,

Wood sector in BiH has great potential for global competitiveness.

Geographically, BiH relies on European market

Legal and regulatory systems should be adapted to EU requirements



Traditional, local, renewable, biodegradable, eternal materials

Every autumn, while seeding grains on his fields, the man obtains, beside the grain that he used as food, also a by-product – straw.

Building by using straw is utterly simple, and workers on site do not need any special skills and knowledge.

“factor 10” – houses made of straw consume 10 times less energy in relation to conventional construction.



Traditional, local, renewable, biodegradable, eternal materials

BiH has about 200,000 tons of straw per year which can be used in clean construction industry.

BiH can make 10,000 passive houses of straw with surface of 150 m²

Facilities made of straw easily achieve properties of passive houses thanks to thermal values of this material.

CHALLENGES AND OPPORTUNITIES :

- Education and association of farmers
- Adaptation of standards
- Innovations and knowledge transfer
- Raising awareness
- Association of actors
- IPARD funds
- State support



Traditional, local, renewable, biodegradable, eternal materials

Primary energy for production of insulation made of sheep wool is 7,5 times less than primary energy necessary for production of glass wool.

- Reduces danger of climate changes
- Has thermal properties that are in the same rank with conventional insulation materials
- Has acoustic properties and protects against noise
- CO₂ emission in processing, installation and recycling at lowest level in comparison with other insulation materials
- Can absorb up to 40% of humidity, without changing its thermal properties



Wool is natural material that has been around human being for centuries and has helped preservation of his health.

Traditional, local, renewable, biodegradable, eternal materials

- **FAO 2012, total number of heads in BiH 1,515 000**
- **80% belong to local breed “pramenka”**
- **On average, 1-1,7 kg of wool can be obtained per head, which is in total about 2,500 tons per year**
- **While ago, there were five plants for processing and production of wool in BiH, nowadays there is one wool washing plant in Visoko**
- **Currently, in BiH, there is one small factory of insulation panels made of sheep wool.**



Upoređivanje vrijednosti koeficijenta provoda toplote i

Can we do it too?

Can we do it too?

Can we do it too?



Know Your Plastics



PET

Polyethylene Terephthalate

Releases endocrine disrupting chemicals like acetaldehyde over time, as well as toxic antimony, use once only.

Most commonly made into polyester fibres, also used in bottles for water or soda



PE-HD

Polyethylene (high density)

Additives & softeners used in this plastic have never been tested for safety. Do you feel lucky?

Milk & detergent bottles, bottle caps, food storage containers, plastic bags and even plastic surgery



PVC

Polyvinylchloride

The most toxic plastic, leaching phthalates, carcinogens, dioxins & more, linked to reproductive problems, diabetes, organ toxicity and cancers.

Water pipes, siding, signs, insulation, clothing, furniture, pleather, shower curtains and yes, even toys



PE-LD

Polyethylene (low density)

Relatively chemically non-reactive, these plastics degrade very slowly and present a burden to the environment for centuries.

Laminates, disk drives, snap on lids, six pack rings, playground slides and plastic wraps



PP

Polypropylene

Additives & softeners used in this plastic have never been tested for safety. Do you feel lucky?

Packaging, textiles, carpets, stationary, laboratory & medical equipment, molded shapes & diapers



PS

Polystyrene

These plastics leach extremely toxic brominated flame retardants over their entire lifespan.

Packaging, foam drink cups, insulation, rigid shapes like DVD cases or frames, and packing peanuts



O

Bisphenol A and others

Bisphenol A mimics the effects of the hormone estrogen and is linked to infertility & developmental damage.

A catch-all category for all other plastic types, includes bioplastics & multi layered resins, toxic bisphenol A may also be in other plastics



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How harmful is plastic?

3 PVC Polyvinylchloride – **THE MOST TOXIC**

The most toxic plastic that releases phthalates, carcinogens, dioxins etc., all of them are related to problems with reproduction, diabetes, carcinomas and toxicity in organs.

We find it in water pipes, **insulation, plastic windows**, clothes, furniture, shower curtains, toys

5 PP Polypropylene

Safety of additives and softeners that are used in this plastic has never been tested.

We find it in packaging plastic, textile, carpets, office equipment, laboratory and medical equipment, diapers.

6 PS Polystyrene

This plastic releases very toxic brominated flame retardants during the entire existence life.

We find it in plastic for packing, plastic foam, water cups, insulation, solid plastic such as DVD cassettes and frames.



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Docent dr.

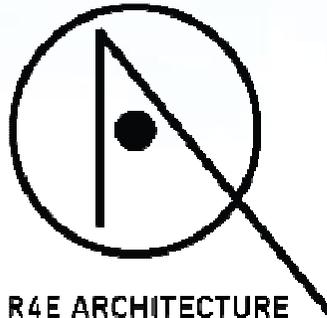
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