Transformative Approach to Combat Climate Change through Eco-Housing in Bosnia and Herzegovina and Western Balkan region

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Tiny house for CERD in Laktaši, Bosnia and Herzegovina

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Visegrad Fund

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Pictures

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Visegrad Fund

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Content

Background

Construction industry and households have a considerable effect on climate change and pollution. This problem strongly appears in Bosnia and Herzegovina where air pollution is at critical stage. According to the recent report published by the World Green Building Council , buildings and construction sector are currently responsible for 39% of global energy related carbon emissions. The current conventional construction approach, methods and technologies ignore the significant environmental impact of high embodied energy of the building materials, have a poor thermal performance and result in high operational household energy consumption, which contributes to the greenhouse gas emissions and air pollution.

Low-emission natural building materials like straw and clay are abundant and locally available almost everywhere, used in construction they do not generate waste, hence, have a very low ecological footprint. The passive standard method is known for about thirty years. So, the knowledge and the materials for building eco-houses are available, they just have to be used more and good practices transferred to other regions.

In West Europe thousands of houses are built of straw, also apartment buildings or schools. In V4 countries there are hundreds of family eco-houses built by enthusiasts, supported by civic associations, which educate both the public and the craftsmen. However, expertise and experience are limited in Bosnia and Herzegovina, and this obstacle is directly addressed through this project supported by the International Visegrad Fund.

Photo source: project website

The project aims to build practical skills of craftsmen and public awareness on low-emission natural materials and passive standard based on exchange of experience, initiation and strengthening of partnerships in V4 and West Balkan for sustainable impact to local communities in Bosnia and Herzegovina. Czechia, Hungary, Poland and Slovakia have developed own experience in nature-based construction. Through this project the knowledge and skills existing in V4 countries are gathered and made available for widespread usage in Bosnia and Hercegovina.

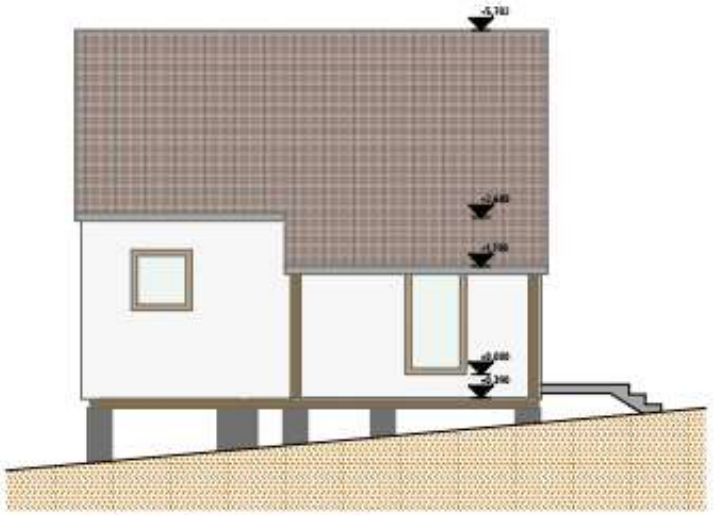
For any further information, please visit the project website:
https://sccd-sk.org/projekty/transformative-approach-to-combat-climate-change-through-eco-housing-in-bosnia-and-herzegovina-and-western-balkan-region/

Introduction

The tiny house is an architectural and social concept that advocates the idea of "living with less".
The tiny house is a dwelling unit with a maximum of 37 square meters (400 square feet) of floor area (excluding attics). It may be suitable as a housing solution for the young people or for vacation as it is intended in this project. The ecological solution for housing presented in the project covers also the idea of smaller house with less material i.e. lower costs. The simple construction is suitable for self-builders. It targets the ecologically aware people and perfectly matches the eco-agrotourism activities of eco-farm of CERD.

Tiny house in Hrubý Šúr, Slovakia, NGO ArTUR

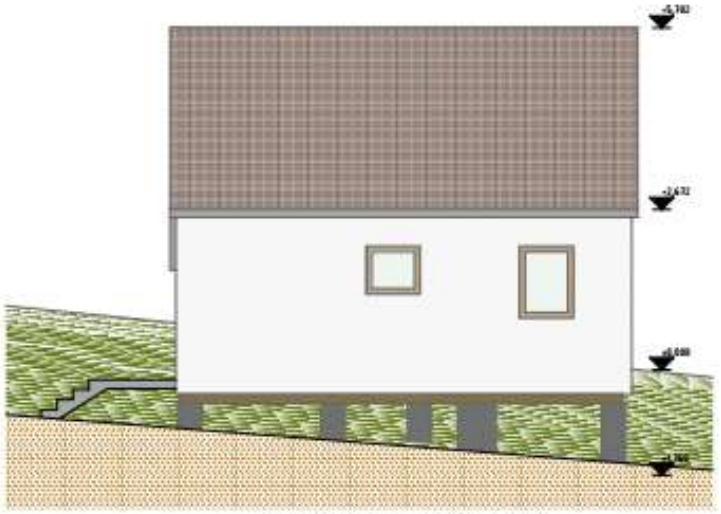
1. Elevations



NORTH ELEVATION 1:100

EAST ELEVATION 1:100

WEST ELEVATION 1:100



SOUTH ELEVATION 1:100

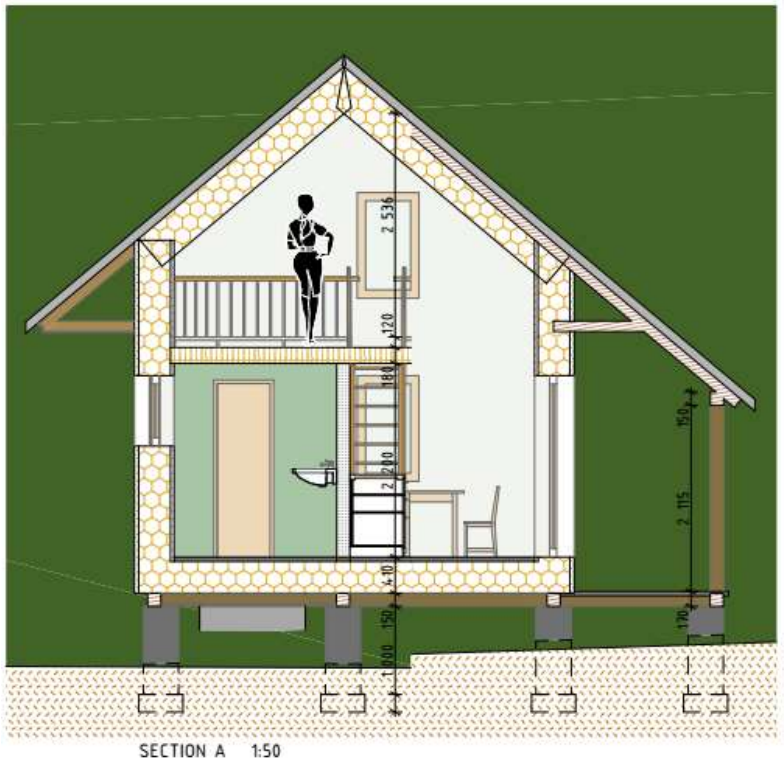
Built-up area: 44,16 m^2
house - 36,79 m^2,
terrace 7,37m^2

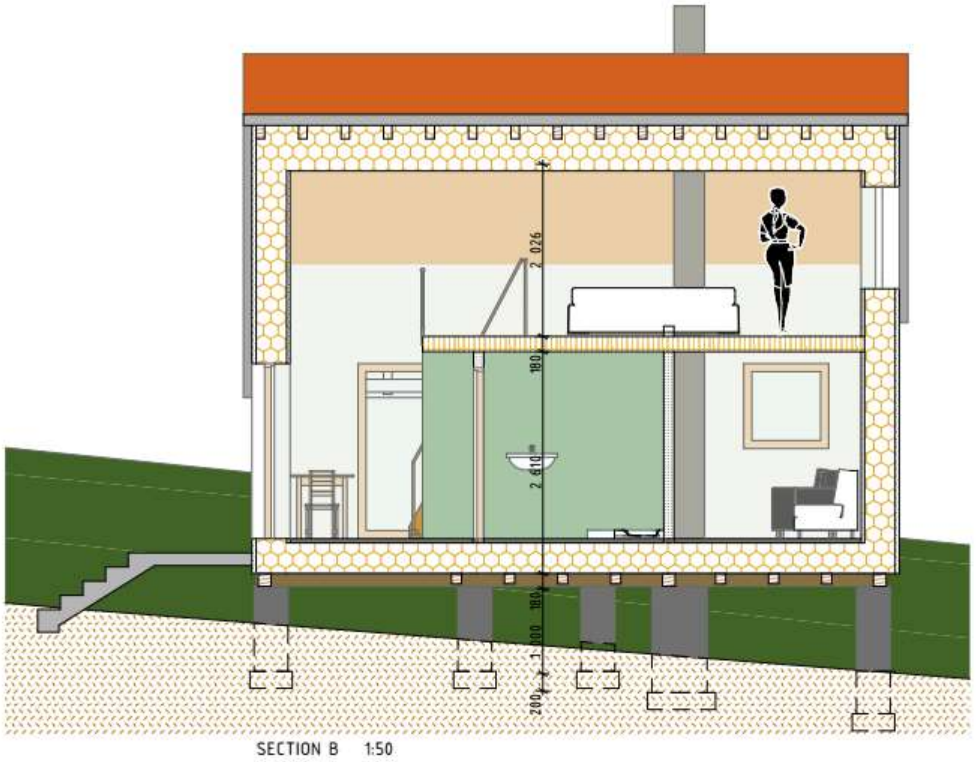
Usable area: 26,3 m^2

External dimensions: L: 7,625 m, W: 4,990 m

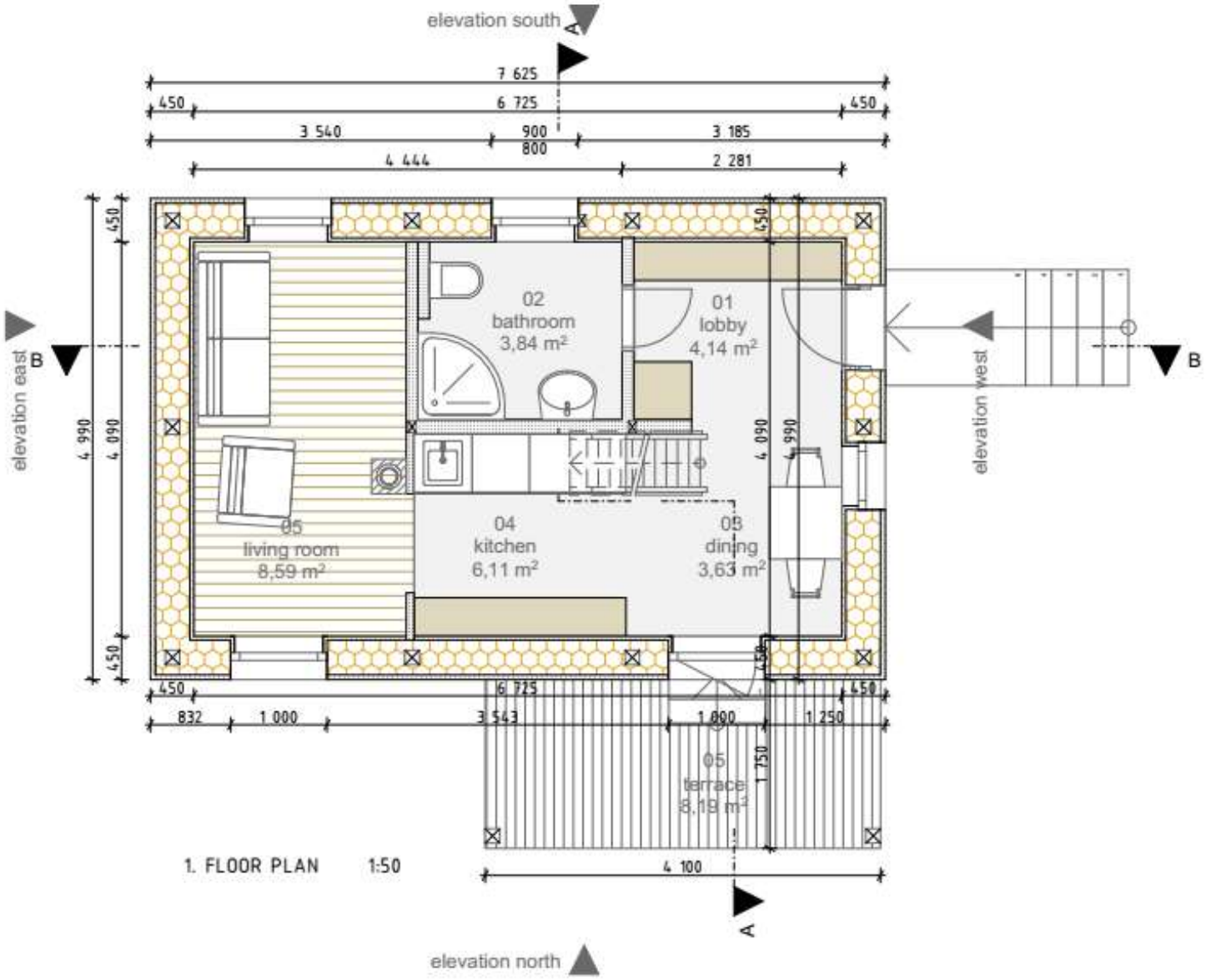
Ridge height: 5,702 m

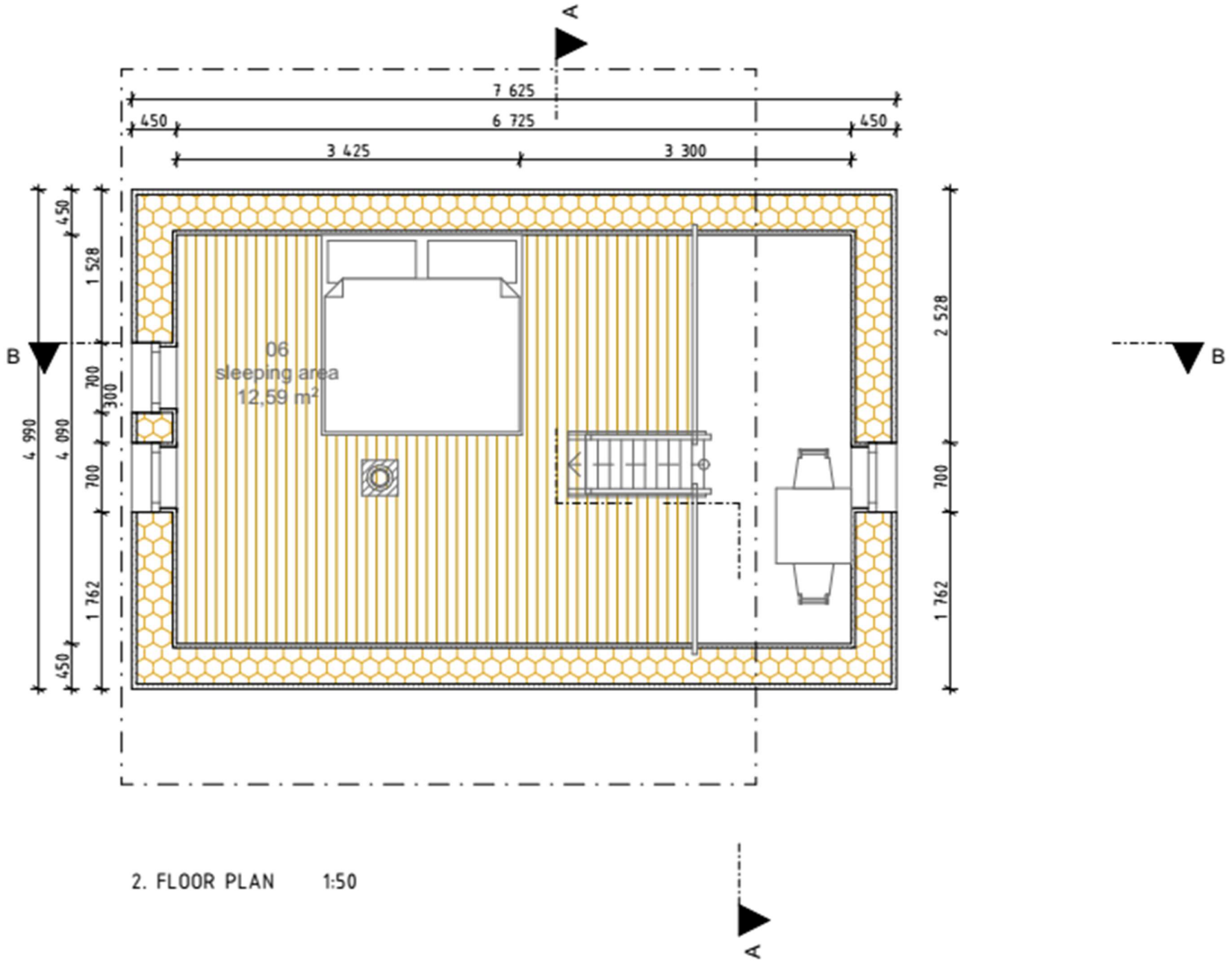
2. Sections


2 536
120
180
2 210
2 115
150
1 000
150
170
SECTION A 1:50


2 026
180
2 610
180
1 000
200
SECTION B 1:50

3. Floor plan


elevation south
A
7 625
450
6 725
450
3 540
900
800
3 185
4 444
2 281
450
450
02
bathroom
3,84 m²
01
lobby
4,14 m²
B
elevation east
B
elevation west
4 990
4 090
4 090
4 990
05
living room
8,59 m²
04
kitchen
6,11 m²
03
dining
3,63 m²
450
450
6 725
450
832
1 000
3 543
1 090
1 250
05
terrace
6,19 m²
1 750
1. FLOOR PLAN 1:50
4 100
A
elevation north



2. FLOOR PLAN 1:50

4. Recommendations for the tiny house design and construction

For the design of the tiny house, concrete column foundation is proposed. As there are no solid rocks in the area, this is the easiest possible solution. For the wooden construction it is proposed to use the old chestnut-wood that is available on the property, using as minimum wood as possible. Strawbales will be used as infill between wooden posts by CUT technique. That way the requested straw density can be secured, as not enough dense bales are available. The outside wall will be plastered with lime plaster, the inside wall with clay plaster from the property. For the roof the recycled tiles can ube used, which are also available form old school renovation.

Type micro-house Ark, Atelier Archa




About the author

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An architect who deals with natural materials in construction, especially straw, energy efficiency and regenerative architecture. Vice-President of NGO ArTUR (association on sustainable architecture). member of TAG Living Future Europe. He leads workshops and lectures in Slovakia and EU. Contributed to the development of the online learning platform on natural materials https://acteco.eu/straw-bale-building-courses/ .

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