



ESBG 2015

EUROPEAN STRAWBALE GATHERING MONTARGIS | PARIS



Straw-Bale Buildings in Turkey



Straw-bale buildings in Turkey

Outline

Map of straw-bale buildings in Turkey

History of straw-bale buildings (1999 to 2015)

First houses and eco-networks (Hassandede, Buğday derneği, Güneşköy, Kerkenes Eco-center)
Ecological building workshops (Yeniköy Farm) and development of awareness
Self builders and self education
Professionalisation and common work

Specific features for straw-bales in Turkey

Climatic zones
Seismic area
Social conditions and points of view

Case study

Buğday warehouse
Kerkenes stone warehouse
Nazim house
House in Datça
Straw-bale solar passive house

Natural building network, needs, proposal and possible achievements

Straw-bale buildings in Turkey

Straw-bale buildings on the map



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks

First building = empty buildings

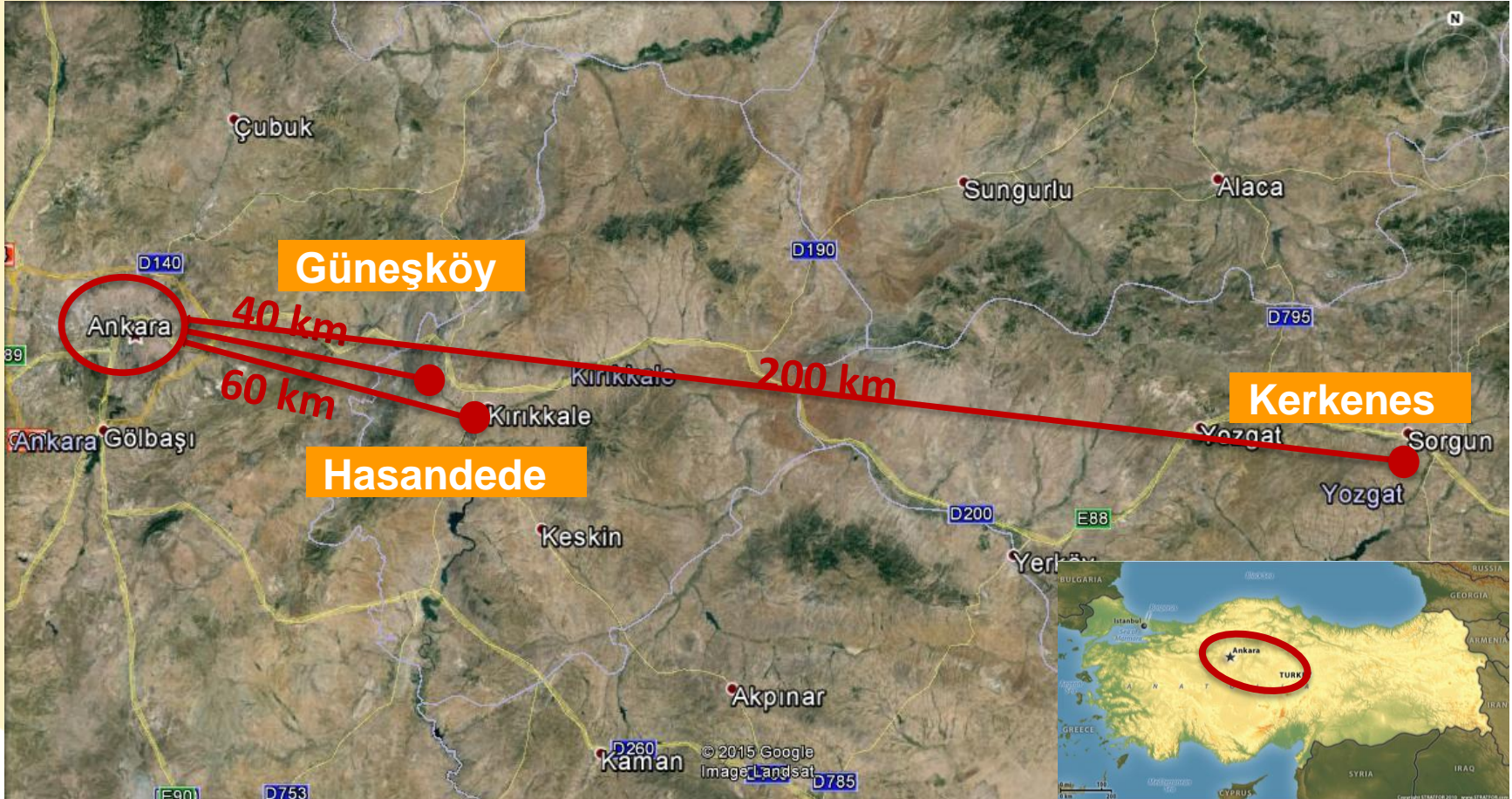
Built by NGO as demonstration buildings

Create and awareness and testing methods/comfort

Around Ankara and Istanbul

History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks

Hasandede and Hocamköy:

1st eco-village experiment in Turkey

1st straw-bale house as an experiment in 1999-2000 (architects and academicians + foreign specialist)

1st community supported agriculture trial and village association office



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks

Kerkenes Eco-center

1st Eco-center in Turkey (2002)

Straw-bale greenhouse and straw-bale house (2002 and 2003) built by villagers + foreign specialist

Innovative stone warehouse with straw-bale insulation (2008)



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks

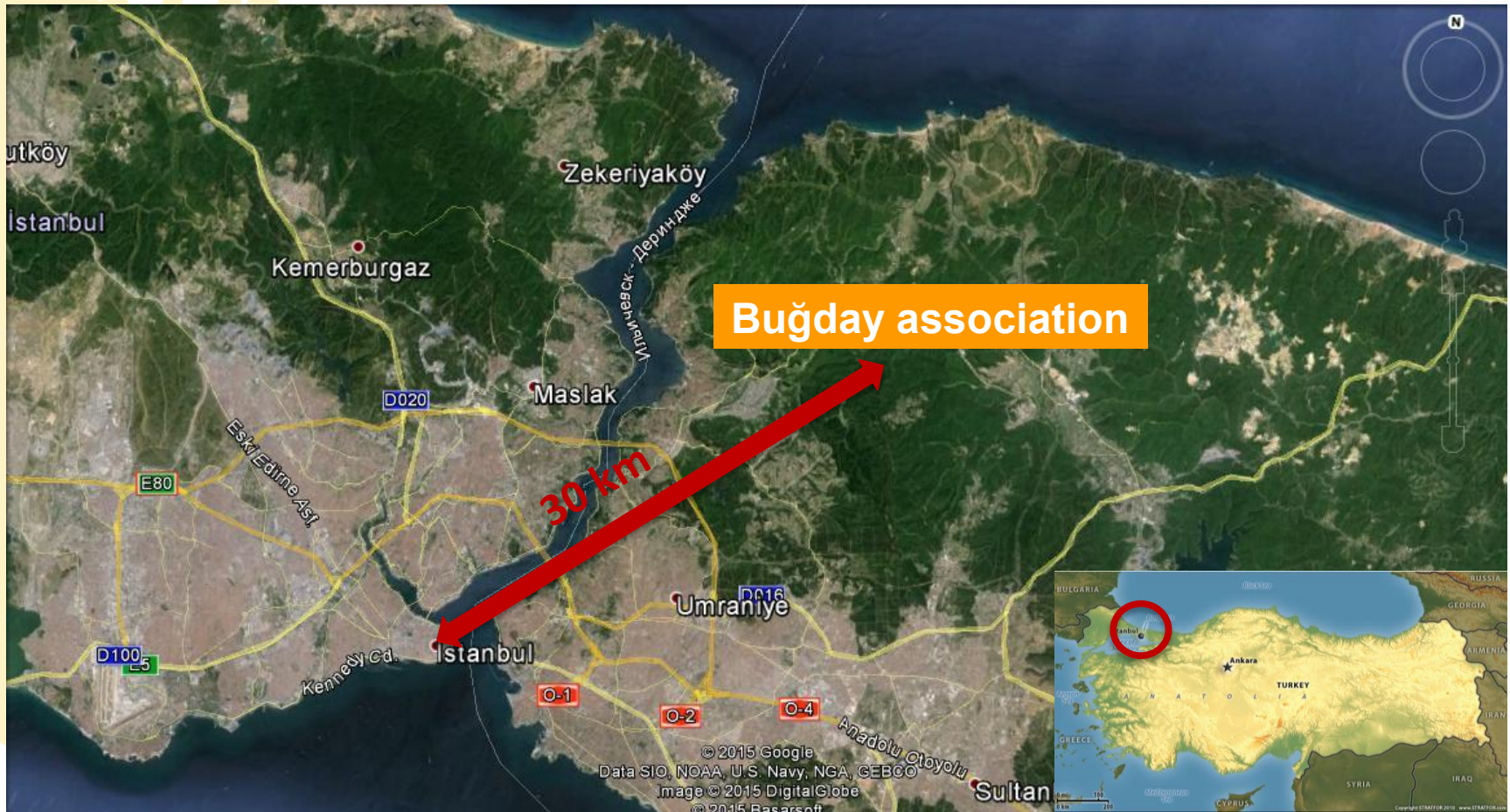
Güneşköy:

Eco-village and community supported agriculture
Round shape straw-bale warehouse



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks



History of straw-bale buildings (1999 to 2015)

First Houses and Eco-networks

Buğday association:

Straw-bale warehouse (workshop + foreign specialist) during the summer 2006



History of straw-bale buildings (1999 to 2015)

Self-builders and Self-education

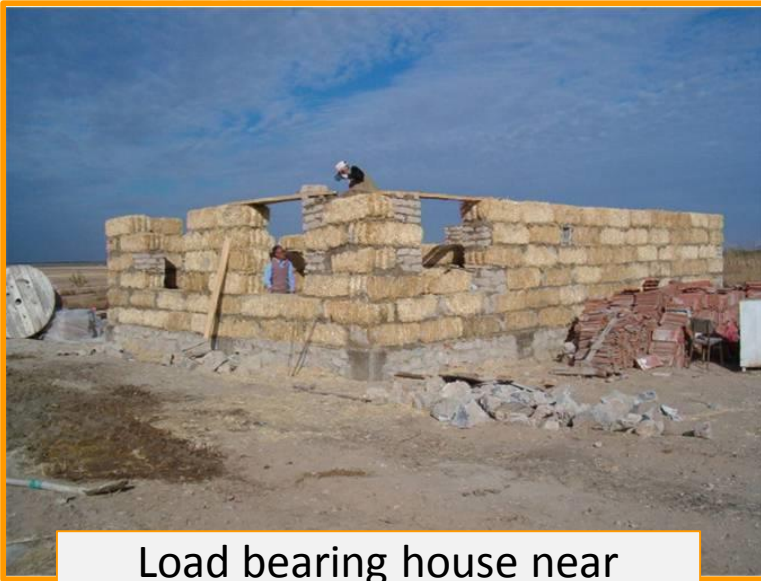
First buildings built by people following books (in foreign language)

Large part of experimentation

Awareness about low cost and energy efficiency

History of straw-bale buildings (1999 to 2015)

Self-builders and Self-education



Load bearing house near
Konya (central Turkey)



2 storey house near Afyon
(central Turkey)

History of straw-bale buildings (1999 to 2015)

Natural Building Workshop

1st Workshop in 2011 in Yeniköy farm and every year since
(straw-bale, earthbag, cob, mud-bricks, slip-straw, plasters...)

2015 - 5 or 6 workshops in different places of Turkey

At least 4 or 5 houses build by participants of the workshops

History of straw-bale buildings (1999 to 2015)

Natural Building Workshop



First straw-bale house in Yeniköy



2nd straw-bale house in Yeniköy

History of straw-bale buildings (1999 to 2015)

Professionalisation and Volunteering

Creation of the first straw-bale building company

Architect or specialist for design

+

Foundation and carpentry work through local workers

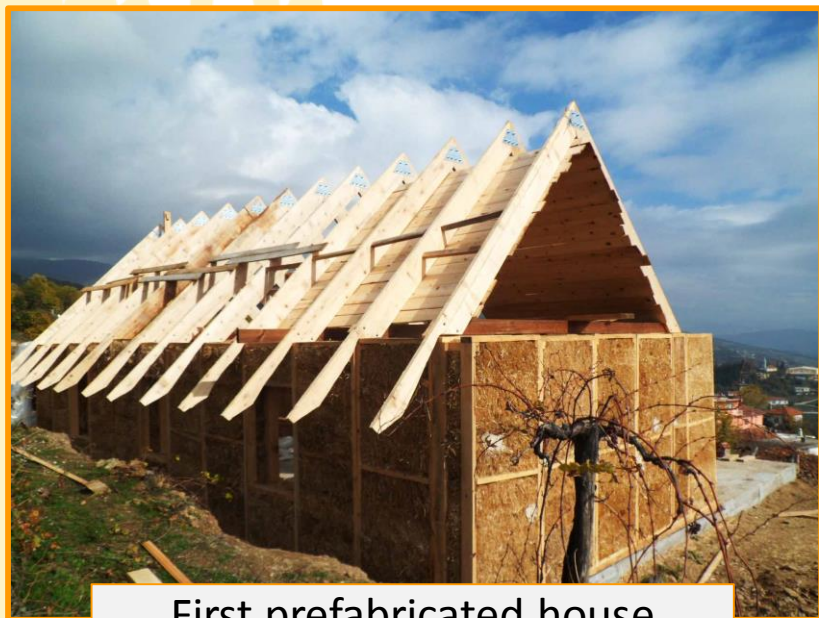
+

Volunteer and community work for walls and plasters

Full volunteer job

History of straw-bale buildings (1999 to 2015)

Professionalisation and Volunteering



First prefabricated house
(Aydin, Ege region)



House fully made by
volunteers (Istanbul)

Specific features for Turkey

To „understand“ Turkey

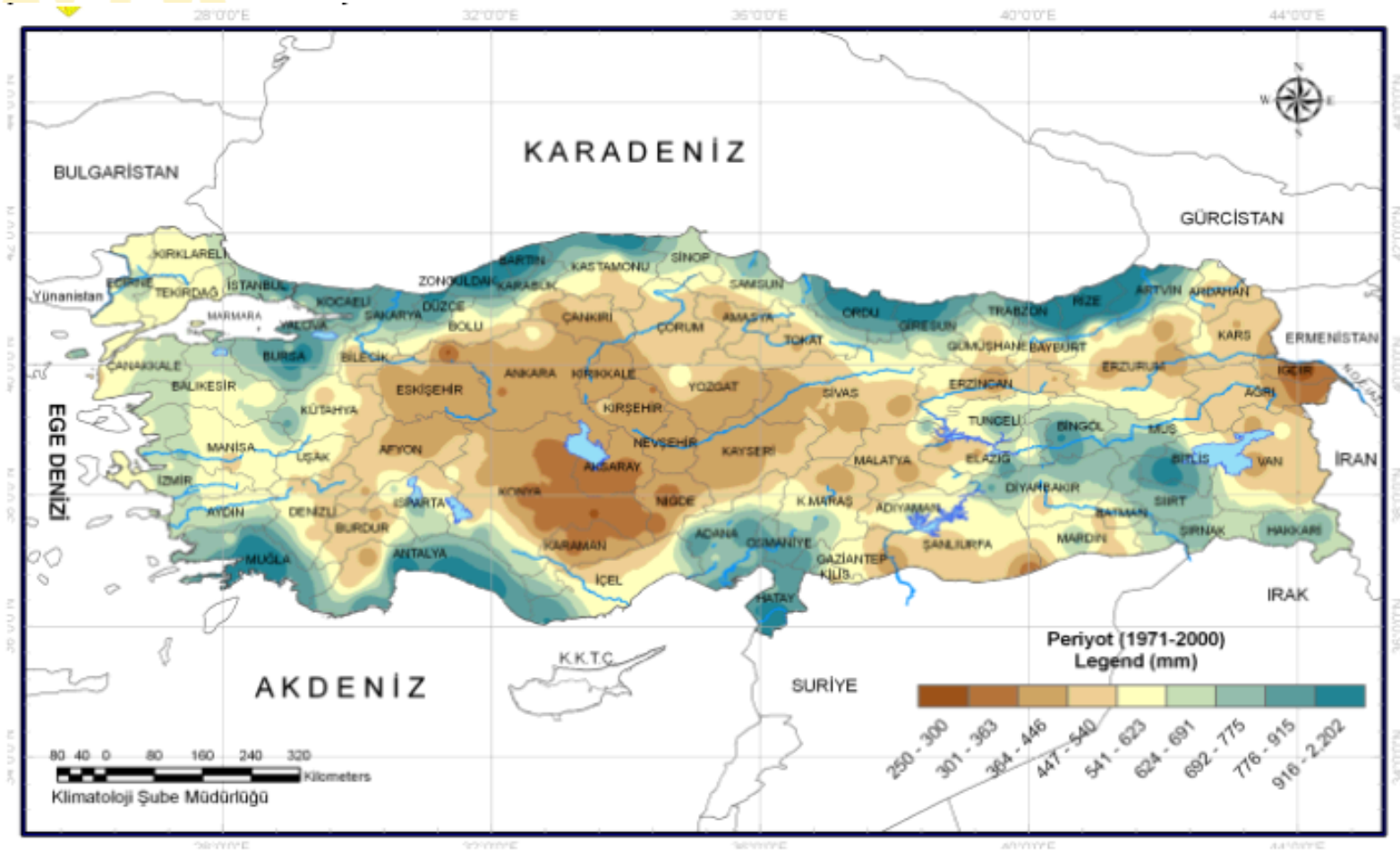
Not only a sunny and hot country (Ankara this winter, 2 weeks at -15°C + snow in may)

Regular earthquake – one of the most exposed region of the world and trauma of the 1997 Kocaeli earthquake

Non-acceptance of „natural“ building material

Specific features for Turkey

Climatic zones



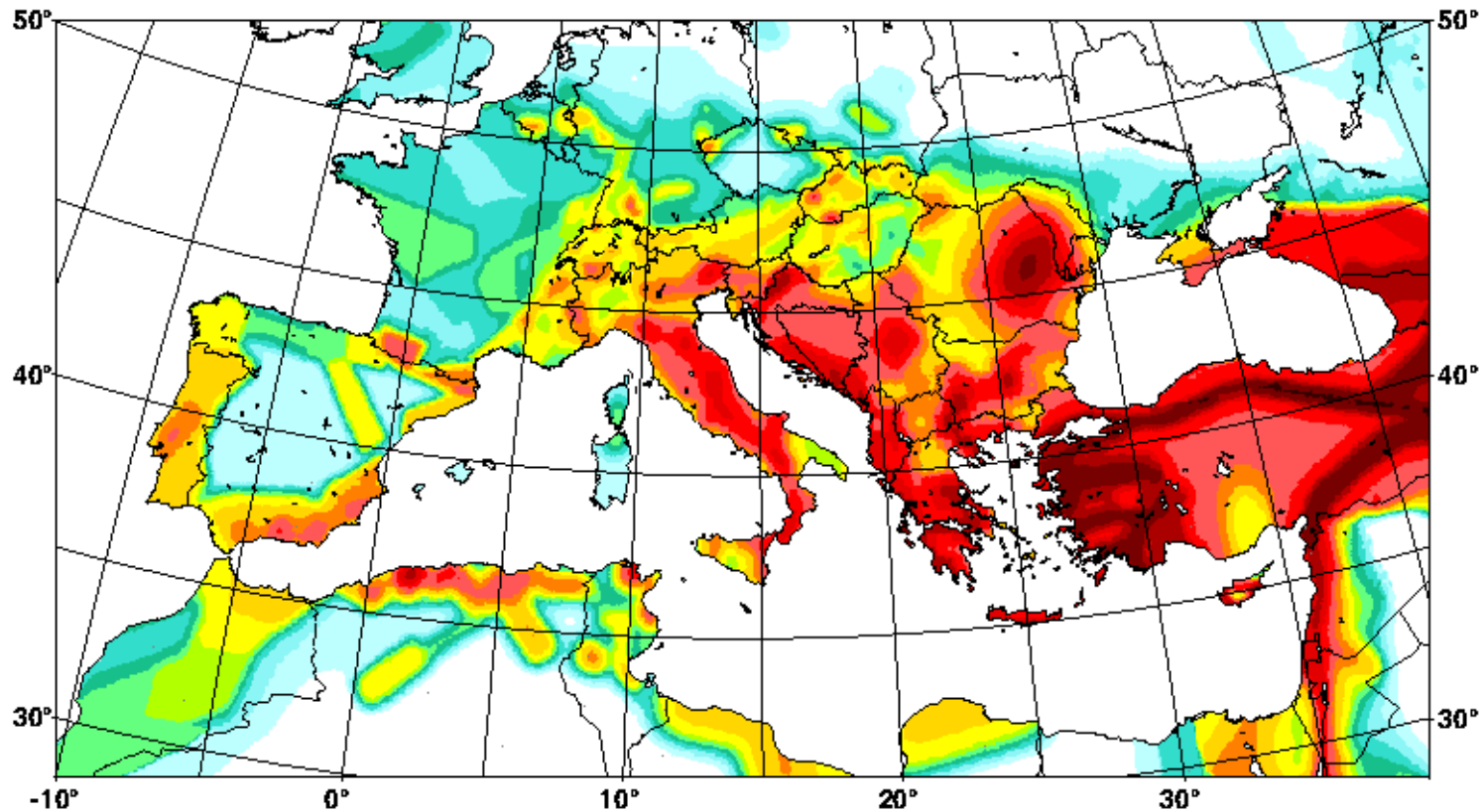
Specific features for Turkey

Climatic zones



Specific features for Turkey

Sesismic area



G. Grünthal, C. Bosse, S. Sellami, D. Mayer-Rosa & D. Giardini (<http://www.seismo.ethz.ch/static/GSHAP/euraf-me/euraf.html>)



Specific features for Turkey

Social conditions and point of view

Poor and rural life = live in tradition + seek for modernity

City educated middle class (secular and mostly from West Turkey)

=

Out of the cities, close to nature, help villagers...

Generally non concerned by ecology or energy efficiency

Specific features for Turkey

Social conditions and point of view

„we are going on the moon and you play with mud like a kid“ (you stupid foreigner that is lucky enough to do a PhD in the best university of Turkey)

„Cows will eat your building!“

„My neighbour will burn it down!“

Case study

Diversity of construction in Turkey

1. Buğday association building near Istanbul

2. Kerkenes Stone Warehouse (Central Anatolia)

3. Prefabricated house near Aydin

4. Catener vault house near Bodrum

5. Two-family solar passive house near Çanakkale

Straw-bale buildings in Turkey

Case study on the map



Case study

Buğday association building

Construction: 2006

Location: *Istanbul*

Size: +/- 100 m²

Usage: *Educational building for small conference and workshop*

Builders: *Foreign architect and builder + turkish students + volunteer*

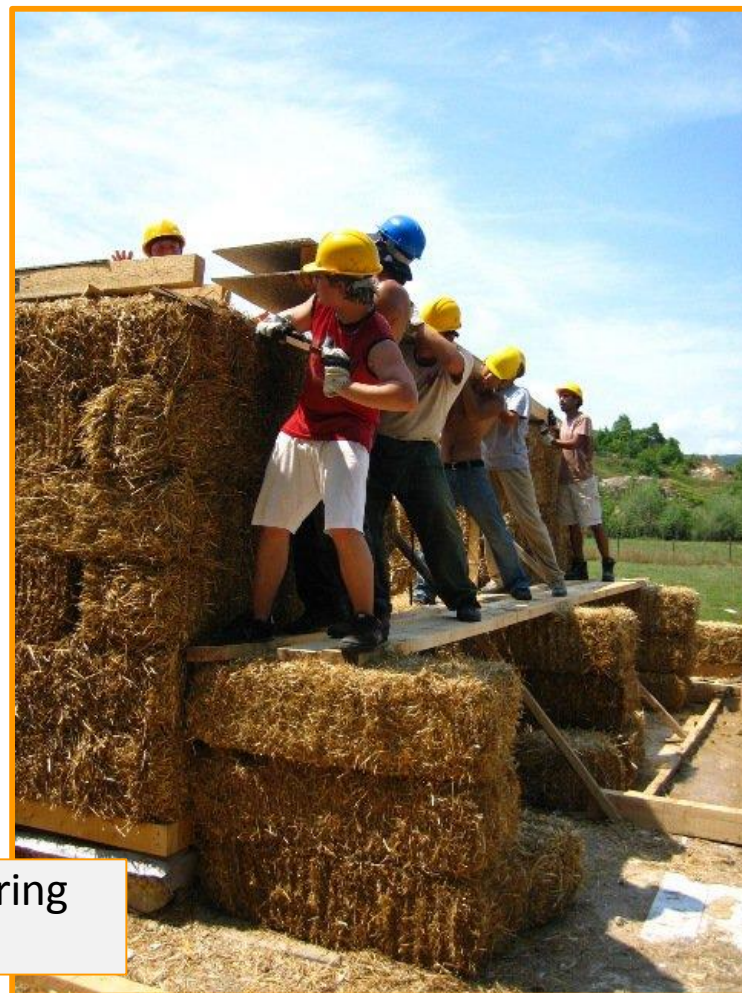
Special features: *conventional load bearing building (first in Turkey)*

Case study

Buđday association building



Bottom plate on the
foundation wall



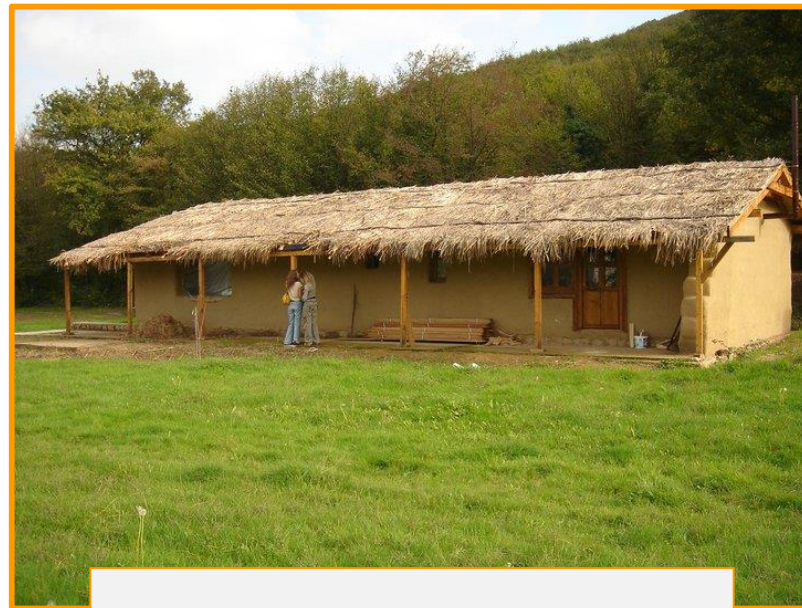
Implementation of the ring
beam assembly

Case study

Buğday association building



Walls under compression with straps



Building in its finished state

All images from
<https://www.facebook.com/media/set/?set=a.10150133063955031.336447.281826545030&type=3>

Case study

Kerkenes Stone Warehouse

Construction: 2008

Location: *Yozgat (Central Anatolia)*

Size: *+/- 200 m²*

Usage: *Warehouse for preservation of stones from the nearby archeological excavations*

Builders: *Contractor for the structure and villagers for the walls and plasters*

Special features: *AAC post and RC beams
Exterior lining with AAC*

Case study

Kerkenes Stone Warehouse



Roof build before the walls



Building in its finished state

Case study

Kerkenes Stone Warehouse



Ring-beam and moisture protection



5cm thick AAC as a external facing

Case study

Kerkenes Stone Warehouse



External facing ready to receive the insulation



Internal plastering with cement/lime plaster

All images and information from <http://www.kerkenes.metu.edu.tr/keco/index.html>

Case study

Nazim House

Construction: 2014

Location: *Aydın (Aegean sea region - inland)*

Size: +/- 150 m²

Usage: *3 rooms guest-house*

Builders: *Contractor for the prefabricated structure and plaster, architect for the design*

Special features: *prefabricated wooden structure + straw roof insulation*

Case study

Nazim house



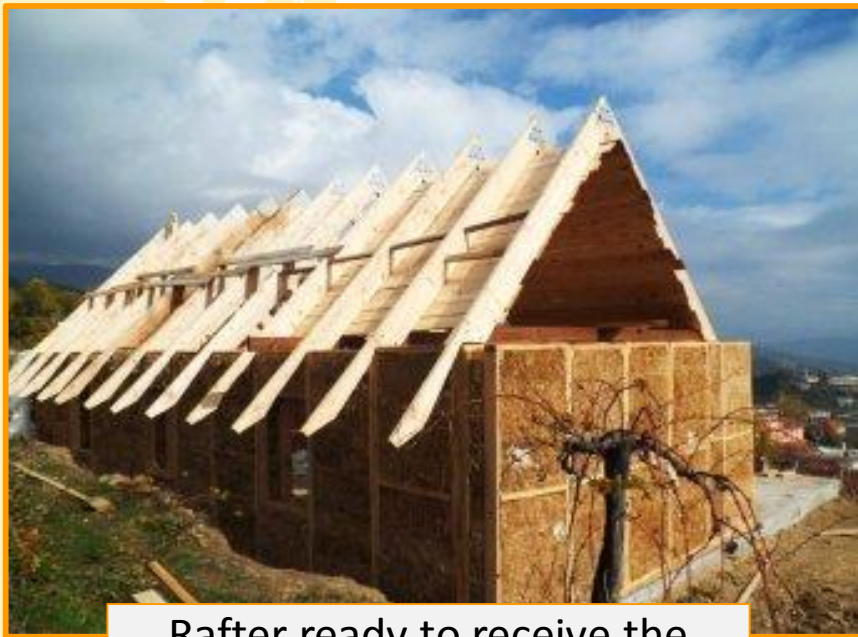
Panels on the site



Wall construction with man power sized panels

Case study

Nazim house



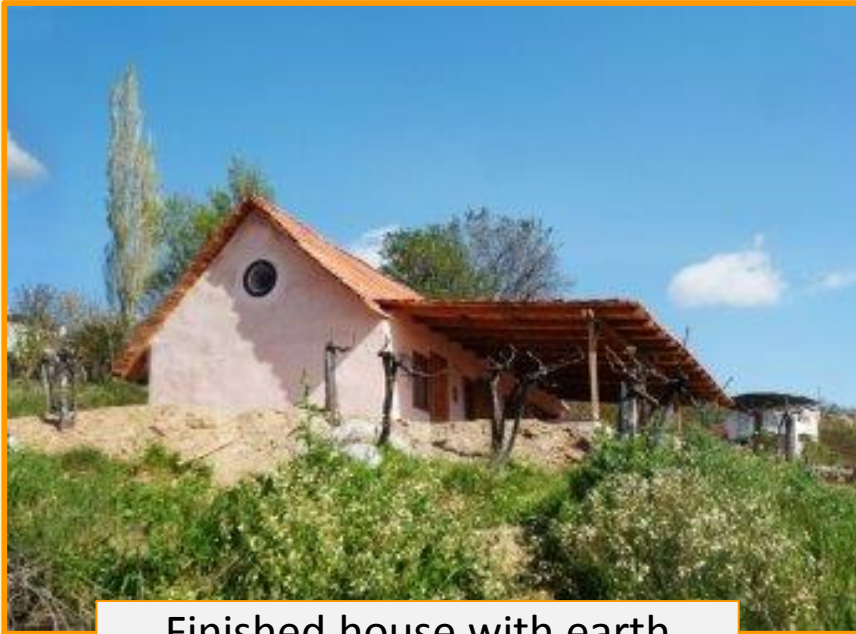
Rafter ready to receive the straw insulation



Loose straw between rafters

Case study

Nazim house



Finished house with earth plaster



Porch on the south facing side

All images and information from <http://www.samanevim.com/>

Case study

House in Datça

Construction: 2014

Location: *Datça (Aegean sea region – south cost)*

Size: +/- 2x60m²

Usage: *house*

Builders: *Owner + volunteers*

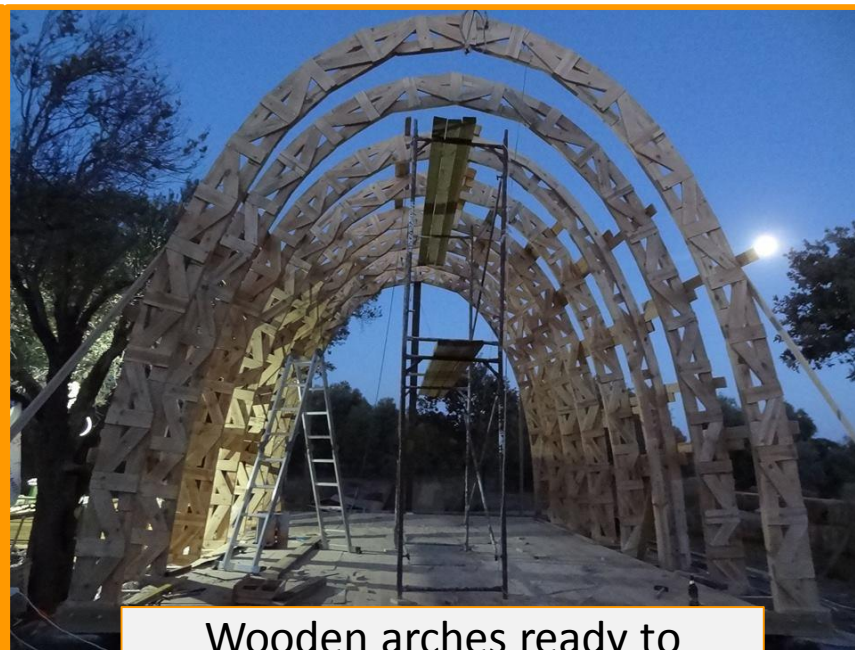
Special features: *wooden structure with catenary arch shape + wooden cladding*

Case study

House in Datça



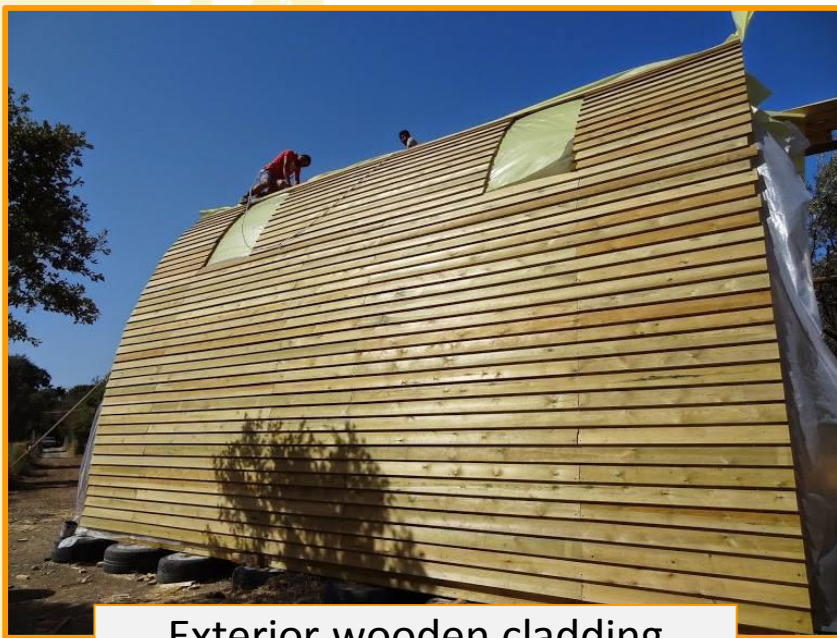
Wooden platform on tyre foundations



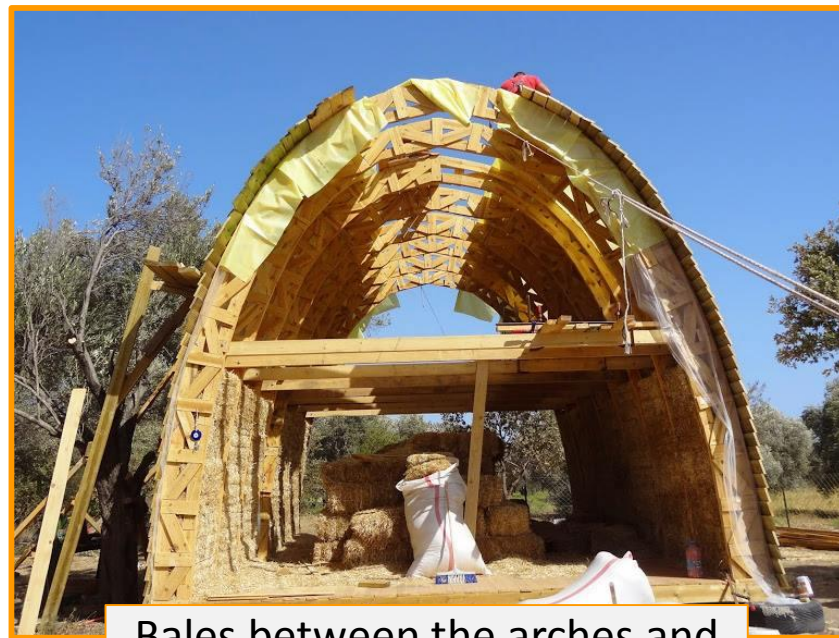
Wooden arches ready to receive the bales

Case study

House in Datça



Exterior wooden cladding before installing the bales



Bales between the arches and implementation of 1st floor

Case study

House in Datça



Interior wooden cladding



All images and information from <https://www.facebook.com/datcasaman/>
and <http://www.datcasaman.blogspot.com.tr/>

Case study

Solar passive house

Construction: 2014

Location: Çanakkale (Marmara sea region - mountain)

Size: +/- 250 m² in 3 buildings

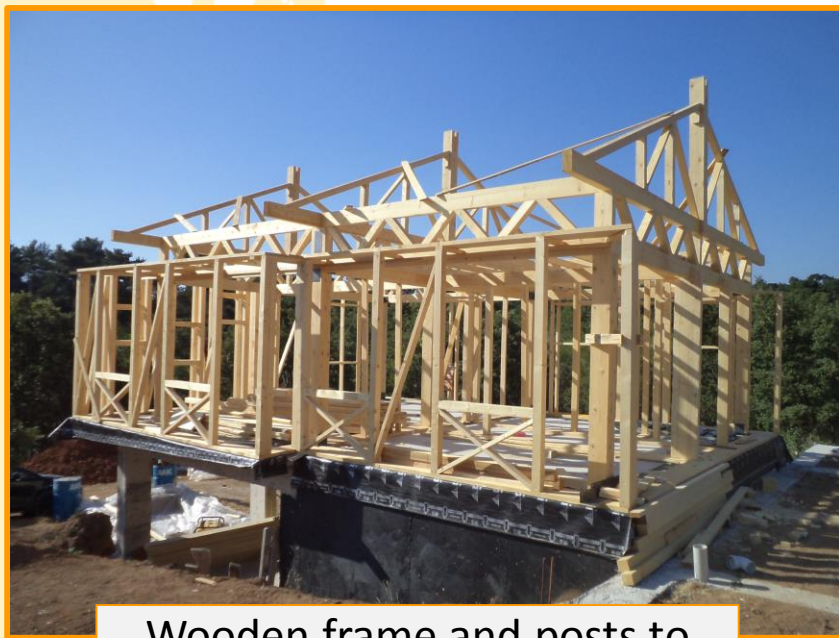
Usage: two family house

Builders: Architect + Owner + volunteers

Special features: post and beam structure with composite mud bricks and straw-bale walls + straw-bale roof

Case study

Solar passive house



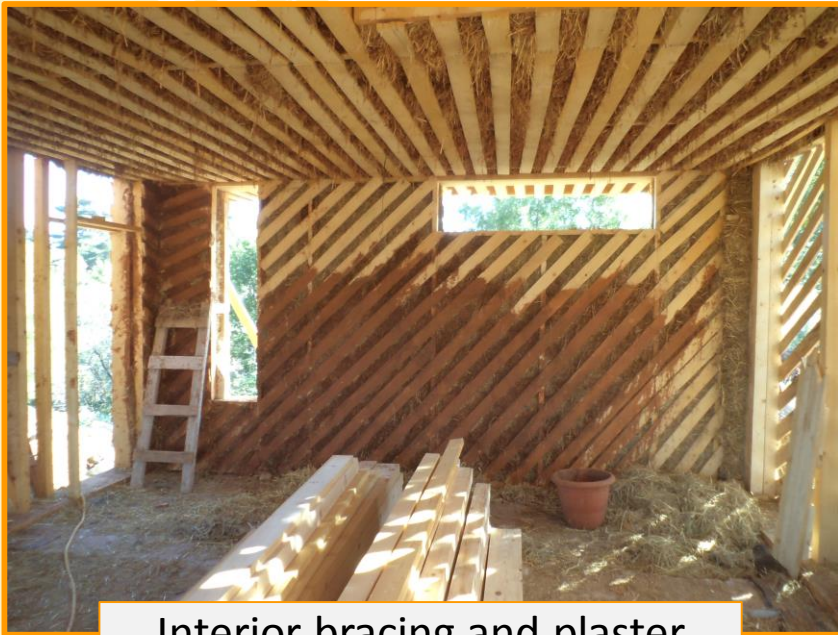
Wooden frame and posts to receive the bales



Roof insulation and beginning of the central wing

Case study

Solar passive house



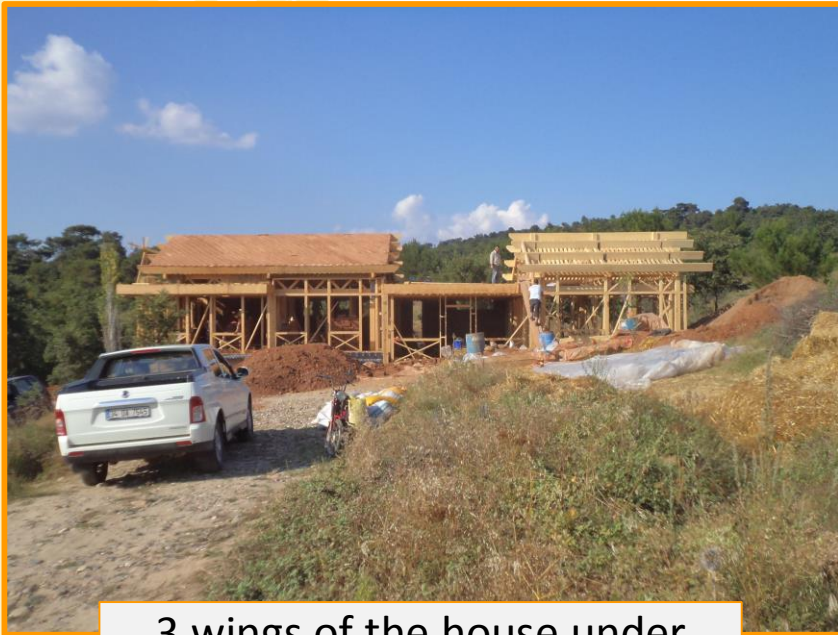
Interior bracing and plaster supporting system



Mud-brick south wall

Case study

Solar passive house



3 wings of the house under construction



State of the house after 1 winter

All images and information from the author

Straw-bale building network

Conclusions

27 straw-bale buildings in Turkey (at least)

Recent development (last 3 years) but no link between actors

**Problems due to poor knowledge of the construction
(no documentation in Turkish, no Turkish straw-bale builders)**

**Large demand for ecological buildings but mostly mud-brick or wooden building
(traditional techniques) – Fear of the material and its behaviour**

Straw-bale building network

Needs, proposal and possible achievements

Creation of a network:

- Internet website in Turkish + forum for help to builders*
- Meeting and awareness of existing buildings*
- Straw-bale registry*

Diffusion of knowledge:

- Translation of books in Turkish*
- Visit of existing buildings*
- Organisation of technical workshop*

Research and acceptance of straw-bale buildings:

- Examples of good practices*
- Involvement of local authorities*

Straw-bale building network

2015-2019 timeline

Improvement and translation of my website on straw-bale in Turkey + opening of a forum in Turkish and English (<http://samanbalya.wordpress.com>)

Organization of the first natural builder workshop in Ankara
+
Scientific conference on natural building material

Translation/adaptation of 1 book on straw-bale buildings

Thank you for your attention

More information

<http://samanbalya.wordpress.com>

(website on straw-bale construction in Turkey)

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