

European strawbale gathering 2007



Reader ESBG 2007 Sieben Linden/ Germany

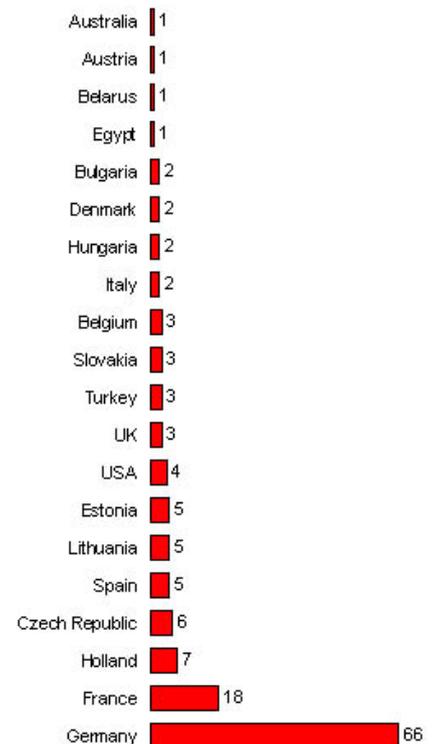
Back home after a week. Back from one hundred to zero: excited, stimulated and rather exhausted. So many people. Hundred and forty people out of nineteen countries. How many people did I talk to? How many did I miss to talk to? How many names do I still remember? Remarkable that there is a topic that can bring together so many people, who did not even know from each other in advance, at least mostly of them. Amazing how an energy field is created where everybody feels comfortable and supported. As Geert Goffin from Belgium said at the end: „ I came out of curiosity to see how other people are acting about this subject. And now I go with the determination to organize the next meeting in two years.“

If this meeting was a success it was above all a success for ourself. Let's think it over. There is the economic side. We do not have the complete overview, but as it seems we are on the positive side, clearly on the positive side. And what next? Will we achieve to hold this energy, this drive? If we want to.....

A lot of fun with reading - yours Burkard Ruger

The practical workshop as start to this event

The workshop started with a great surprise. There weren't 25 participants as expected but 45 (!) for the 5 to 6 building sites. There was a definite preference for the roof and the walls of the new „Club house“ Villa Comunia: inserting the straw bales and plastering them. Besides there were floors to be filled with straw clay mixture and the bathing dome to be plastered inside. Here we used a finish out of white clay mixed with sand. It is finished by now and looks very pretty.



ESBG 07: 130 participants from 20 countries





Yet only fifty people

The European Gathering

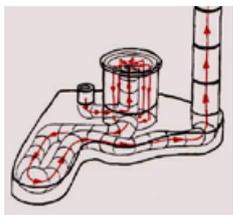
The circle of countries. Reports and presentations of almost all European countries. Some were short others very large and substantial. Some came out of the point of view of a planer or designer, others from the point of view of a businessman, craftsman or contractor. And there was also the chorus of the whole French team making a presentation (almost all of them men, even though there had been a great amount of women)

Belgium

- All houses that are built have official permissions
- The first house is from 1999, the second from 2003, the third from 2005 with a straw roof
- Architect and planer: Peter Voss/ Contacts: Hein Lueg
- A national organisation will be established/ Website: www.casacalida.be

Denmark

- Presentation from Lars Keller
- He presents a comparing Danish study about building physics values of straw bales
- He shows an example of a building out of load bearing big bales, that get piled up on one single day with a crane that puts a prefabricated roof on top of it afterwards
- Example of a self built massive stove: flex oven, see Noé Solsona in „la maison écologique“ and www.lamaisonenspaille.com
- Web site: www.anarchitecture.org
- There is no national organisation, and no overview about the total of straw bale activities in Denmark



Bathing dome gets plastered



In Belgium the work looks much the same as it does with us



self built massive stove: flex oven



building out of load bearing big bales



prefabricated roof

Germany

- Presentation from Fredi Fuchs
- Starting from the nineteen's there have been strawbale buildings in Germany. By now there are about 95 houses. Not all of them are officially approved houses and about 20 are small outbuildings or pavilions: on play grounds, in recreation areas, on experimental locations..... From the load bearing houses only the one of Peter Weber in Trier has an official permission, but there are a lot in the so called grey area.
- Gernot Minke, architect and professor at the University of Kassel accomplished a great number of international projects in clay structures and straw bales. Mainly his domes and vaults are load bearing. He published several books on this topic.
- Different structures have been tested with post and beam constructions. Fill in constructions with flat lying bales are the most popular by now.
- Dirk Scharmer was one of the first to built officially with straw bales. He was the initiator to establish the German strawbale organisation FASBA, with currently 170 members. FASBA is investing a lot of time and budgets to the matter of approvals and has organized a couple of tests. After three years of hard work it obtained a principal approval from the German Institute Of Building Techniques in the beginning of 2006, where straw bales are allowed as insulation material.
- Web site: www.fasba.de with many links to other strawbale activists



one of the first, family Warmuth in Oberfranken, Germany



„in fill“ construction of NABU in Leiferde, Germany



details: Strohpolis compression by air, „Bösel, boards between bales“

no fools stuff but foolproof (BUGA Magdeburg)

Estonia

- All buildings are self made houses
- 2003 a load bearing sauna was built
- 2004 another load bearing building
- 2005 a two stories building with post and beams
- 2006 three fishermen's houses
- 2007 another load bearing building 2005
- in 2008 there are two buildings planed in a mixed construction
- Websites: www.savikodu.pri.ee, www.strawberry.sada.ee



Lillerou

France

- Presentation from all French people present
- National organisation: „les Compailleurs“ (word game with „paille“ that stands for straw)
- Members: 5 architects, 17 craftsmen, 20 local organisations, and 120 self builders, 3 times a year there is a news letter published
one full time employee, one half time and 5 volunteers
a couple of training centers: as for example „le Gabion“ (Haute Alpes), „Collectif au pied du mur“...
- Some pictures of the oldest straw bale house in Europe (1921) south of Paris
- The building code in France is very special: Houses up to 120 square meters that are self built don't need an



fraiche en été, chaudes en hiver (newspaper, 1921)

architect and all materials are allowed on own responsibility. This is not interesting for architects and craftsmen who need a high insurances for not approved materials (DTU)

- There are no „Document Technique Unifié“ for straw bales, therefore they are orientated to German, Californian and Belarus regulations
 - Examples of different houses in various styles, including prefabrications, mostly in „Hautes Alpes“
 - Web site of national organisation: www.compailleurs.fr
- Here there is a considerable report on the actual conditions of approvals under: „Telechargement du rapport complet des essais du CEBTP“
- More web sites: www.lamaisonenspaille.com and www.gabionorg.free.fr



Brewery (Algans – Tarn)



Croux – Aude, post and beam system + ladder..... and ready

Elements for roofs prefabricated

Load bearing Igloo, Vosges France (2006)

Great Britain

- Presentation from Bee Rowan
- Together with Barbara Jones (Amazon Nails) they are building load bearing straw bale houses, mixed structures with parts of houses with post and beams or masonry already since a long time. She shows various houses with different building styles and building processes.
- In the North of UK, where it rains a lot, they raised a complete covering to protect the one story schoolhouse while it was built.
- Close to Venice (building site of Stefano Soldati) they built a post and beam structure. They condensed the straw bales up to 10 cm with the weight of the above structure, by leaving a gap of 10 cm between the posts and the beams of the first floor with metal lashes that got removed to give the compression.
- Due to its excellent permeability and weather resistance they use mainly lime plaster on the outside of the walls. Since they mostly don't use machines it is very important to work accurately and carefully. That means to pay a great attention to protection the plaster from wind and sun and to have enough humidity during the process of hardening and setting.
- The British enterprise „ModCell“ has started with the production of prefabricated straw bale houses. „Mod-Cell is a building system that utilises the excellent thermal insulation qualities of straw bale construction to form prefabricated, factory made, panels (ModCell Straw has a u-Value of 0.13). A structural timber frame is "in filled" with locally sourced straw bales, which are stacked to form a wall, compressed and pinned together for stability. The wall is then plastered using a protective lime render. Panel sizes vary to suit project requirements, though at present the most common size in recent projects has been 3 m high x 2 m wide and just over 500 mm thick.“ (Quote from the homepage www.modcell.co.uk)
- There are no regulations for constructions with straw bales. It is sufficient to describe the construction to have it approved by an engineer. There are no national organisations neither for straw bale nor for clay-buildings in the UK
- Websites: www.amazonnails.org.uk, www.strawfootprint.org



Load bearing, self built



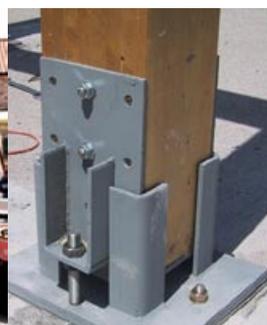
completely covered building lot of a schoolhouse



Ben Law's House / Footprint Project



Mod Cell - Prefabrication



hardware with a gap for compression



Italy

- Presentation from Stefano Soldati
- There are only few officially approved buildings, up to now only 3
- one in La Boa close to Venice (see Amazonails)
- one load bearing structure of Werner Schmidt and Margareta Schwarz
- one organically formed demonstration pavilion in Venice
- No national organisation
- Website: www.laboa.org, www.atelierwernersdhmidt.ch



load bearing structure of W. Schmidt and M. Schwarz



pavilion in Venice



La Boa - Venice

Latvia

- Presentation from Edita Milutiena, prepared by Kristine Milere and members of the Lithuanian straw bale initiative
- Two houses built, 4 are under construction, 2-3 are going to be built this year and than 3 next year
- Rudolf Steiner School and a Camphill village: architects Rolf Jakobsen from Norway and Meinards Medinski from Lithuania with the help of the „Norwegian Ecological Building School“
- Close cooperation with Lithuania



Rudolf Steiner School

Lithuania

- Presentation from Edita Milutiena
- first house built 1986 with a straw roof
- 20 building projects in the recent year
- Architects: Ausman Skujina and Rolf Jakobsen
- Research center for renewable energies in Vilnius
- Website: www.siaudunamai.lt



Norwegian Ecological Building School



strawbale boat



Jonas Kacerauskas family house



First straw bale building



Netherlands

- The presentation could not give a complete overview about Dutch activities
- Tom Rijven realised 12 buildings there
- Martin Oehlman, a German guy living in Holland built a house in Brittany, France in Plozevet, where there undertake humidity studies in the walls (see the thesis of Jakub Wihan on the website: www.jakubwihan.com)
- Website of the national organisation: www.strowbouw.nl



Austria

- Presentation from Thomas Dimov
- 50 low energy and passive houses since 1998, 49 of these are built in straw bales with post and beam structures and one load bearing. These are 50 % of all low energy houses in the country. A very important example is the „S-House“ (contact Robert Wimmer).
- In the sector of retrofitting straw bales are used with 80 % for the insulation of upper floors, 10 % for the insulation of roofs and 10 % for the facades (especially with small straw bales)
- In prefabrication they use „intelligent“ boards, that have 3 specific functions. They are used for reinforcement, protection against rain and as underground for plastering. Erich Spreitzer: Prefabricated timber frame dry construction.
- Production of CE-approved straw bales in the “Waldviertel”: “Palia Straw Bale Building” have own woods for prefabricated wall elements.
- The national organisation is called ASBN. Contact: Erich Spreitzer, Erwin Schwarzmüller, Herbert Gruber „... we still wait for the first loadbearing house“ (Erich Gruber)
- Websites: www.baubiologie.at, www.asbn.at, www.dieumweltberatung.at



Gym-hall in Allentsteig: bales as insulation between posts and slabs



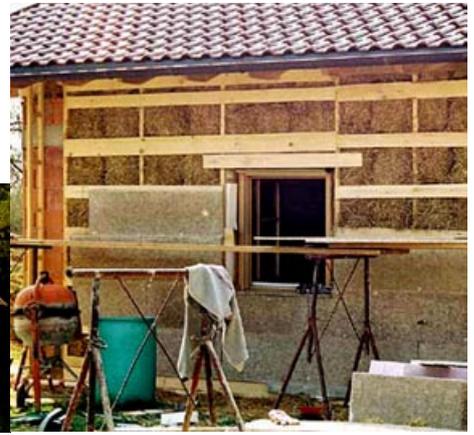
S-House Böheimkirchen, Austria



prefabricated dry construction



Load bearing, self-built



23 cm of insulation with bales, Heraklith and lime plaster

Spain

- 2005 the national organisation has been founded, with Spain, Portugal and Southamerica as members. There are 107 members, 32 of them in Southamerica (Argentina 15, Cile 7,...). Since 2007 the publication of the magazin „Brizna“, 8.000 accesses on the website per month.
- In Saragossa there will a Dome project in the context of the world exposition with a hight of 25 m and a diameter of 35 m, built out of straw bales (architects: Ricardo Higueras & Inaki Urkia)
- The first house was built in 2006 in Galicia, by now there are 60 houses known, about 100 are half legally built
- Website: casadepaja.com



model for the world exposition 's project



multifunctional classroom, Carricola, Valencia



budistic centre Keajraland, Granada



load bearing, Community kitchen, Tierra Viva



Casa Ullastret, Girona, earthbricks, in the north sb

Czech Republic

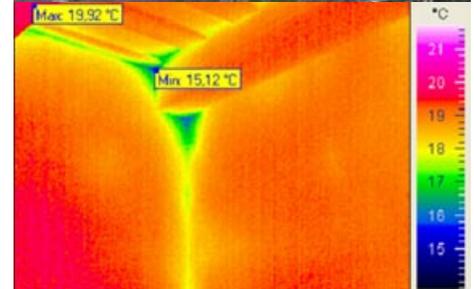
- Presentation from Jakub Wihan, who shows examples dating from 1998 to 2007
- Main actors: Jakub Wihan and Max Vittrup Jansen
- The praxis of legalisation is very restrictive, which makes it difficult to build
- There are new buildings as well as insulation activities on facades of old buildings
- No national organisation
- Websites: www.jakubwihan.com / www.permalot.org



Umbrella House

Hungaria

- Presentation from Attila Mészáros
- There are 3 buildings in Bozsok close to the Austrian border, one in Solymar close to Budapest and one in Buda in the south of Hungaria
- He shows infra red photographs of straw bale houses. These are to be done under special conditions:
- It needs to be windless, the differences of temperature from inside to outside needs to be higher than 20 °C
- That means out side temperatures around freezing point. The best time is 3:00 to 6:00 am before sunrise, ideal in December or January
- Main objectives: Approvals and commercialisation
- There is no national organisation in Hungaria
- Website: www.szamahaz.hu

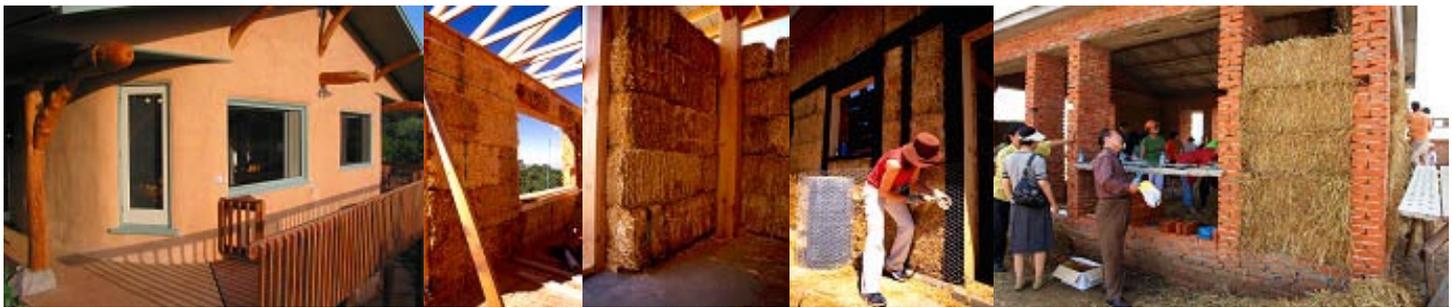


Infra read picture: wooden structures penetrating plaster

USA

- Catherine Wanek makes the presentation
- She is publisher of several illustrated books on the topic of straw bales.
- She presents a great number of American examples. Apart of the well known typical historical buildings and her own house a great number of new ones, as well as houses from Werner Schmidt and from China
- She is just preparing two new publications, that are dedicated to the third generation of buildings and industrial examples
- The next international straw bale conference should be in 2008 in Colorado USA (maybe this is already fake)
- Websites: www.greenhomebuilding.com / www.greenbuilder.com / www.epsea.org / www.strawbuilding.org / www.strawbaleconference.com / www.thelaststraw.org

Impressions of Catherine Wanek from the USA and from China



Finland

- No presentation, amendment from own knowledge
- In southern Finland close to Turku there are strawbale houses with timber structures. There are close relations to Finnish clay builders. In the context of an EU project concerning the usage of reed they pressed waste reed to bales
- For next year there is a little airplane hangar to be built with big bales planed by Paavo Järvinen. So far there was no permission problem

Portugal

- No presentation, amendment from own knowledge
- Close to Lisboa there are a couple of garden houses in strawbale construction. Here too it is mainly the clay plasterers who are engaged in strawbale building.
- www.centrodaterra.org and www.fradical.pt .
- In the south, in Alentejo there is the German group of „Tamera“ (www.tamrea.org) who built some straw bale houses: a hall of 500 m² ground floor with the instructions of Björn, Martin, Burkard, Michael an Stefan from Germany. A hogan and three vaults were both built with the instructions and advices of Prof. Gernot Minke



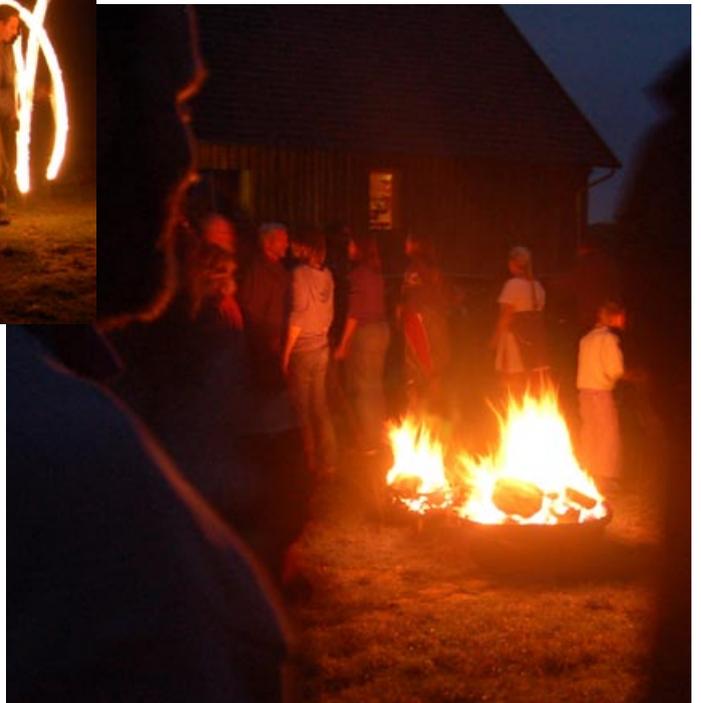
vaults in Tamera



**Birthdayparty-
Five years Fasba!**



**Forward
to the next
five years**

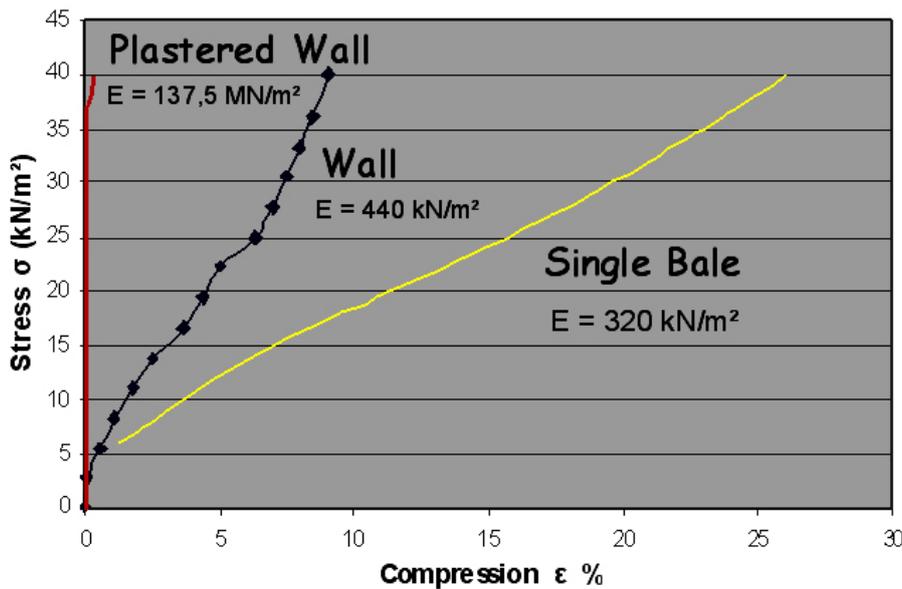


Special presentations

Straw bales under pressure and under load

- There were actually 3 presentations: Prof Minke talked about load bearing buildings (test houses in Kassel, a kindergarten close to Königsberg and a straw bale dome in the Westerwald)
- His straw bale book is already translated in English and French www.gernotminke.de
- Benjamin Krick from the University of Kassel reports of his researches with small bales, deformations, creeping, relaxation with single bales and with plastered walls
- Jan Reinschmidt talks about a similar test program with big bales at the University of Magdeburg (only bales, not walls)
- For practical application there are only limited conclusions.

Stress-Strain Relationship

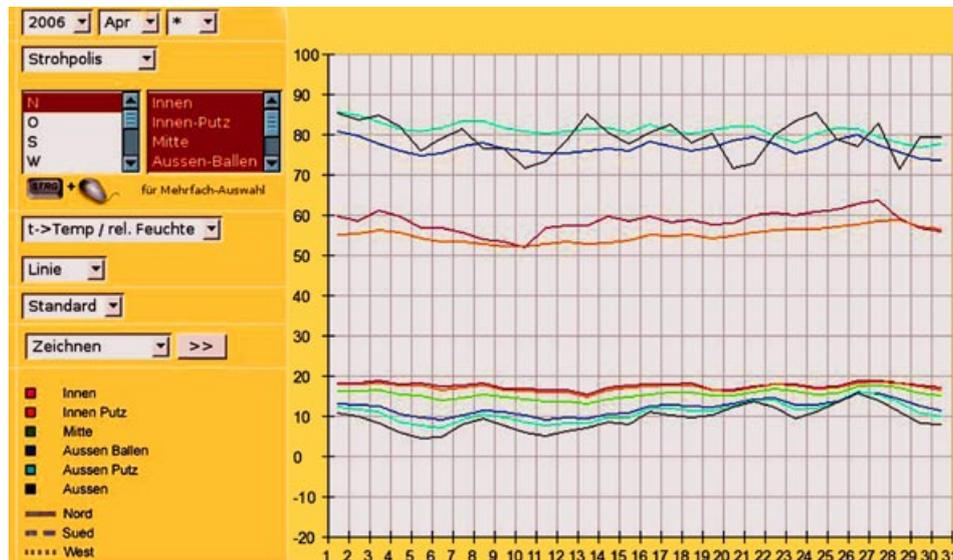


Benjamin Krick, small bales

Measurements of humidity

- It is a good feeling to sit at home cosy and warm and to look at the test results (in the computer program) of the straw bale walls where we measured temperature and humidity. Ingo and Ralf have inserted all necessary techniques (www.behrens-krause.com).
- A system of climate data, that can be used and managed easily. The price for the sensors that are to be installed in series, is 140 € per piece. The station with internet connection costs about 700 €. To be able to analyze the data from afar, you only need a connection to the internet and the correct password.
- Ingo Behrens and Ralf Krause made the presentation.

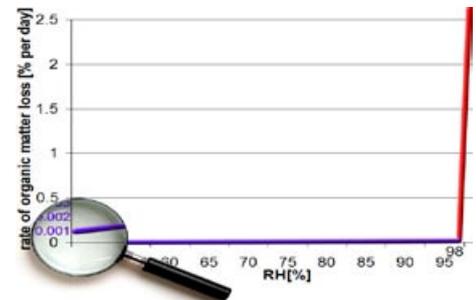
Test report of Strohhpolis (April 2006), standard positions and sensing devices



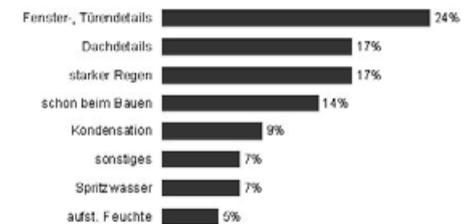
Der Reader zum Europäischen Strohhallenbautreffen im August 2007 im Ökodorf Sieben Linden

Humidity in straw bales

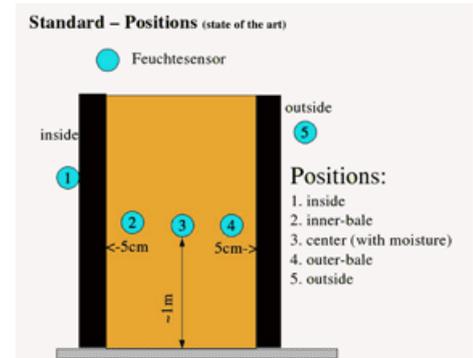
- Jakub Wihan presents his thesis from the "University of East London School of Computing and Technology" about „Humidity in Straw Bale Walls and its effect on the decomposition of straw“ www.jakubwihan.com
- The origin of his thoughts is connected to the house of Martin Oehlmann, that lays exactly on the shores of the Atlantic Ocean and has to bear heavy storms and rain. At some moment it happened: the rain went through the lime plaster and through the straw bales and humid spots showed at the inside of the plastered wall.
- When do straw bales fail? His answer is: with 98 % of relative humidity in the air
- In Germany failure is approved (according to Sedlmeyr) when mould is growing in the straw bale, depending from temperature and time with 80 % of relative humidity of the air (RH). This is the important parameter that does not describe the humidity inside the strawbale but inside the air.



At 98% RF bgins microbial growing and the compost starts



To the request to quote the reasons of humidity damages, straw bale builders in the whole world answer....



Dirk's approach is to create a common understanding, to share the knowledge to be able to avoid building damages and to combine all necessary activities concerning approvals, especially in respect of the fact that European regulations will surpass the importance of national ones.

Dirk gives an overview about German research. More international studies exist in all areas. A good source is the actual book of Bruce King 'Design of straw bale buildings', 2006. It seems to be a good approach to 'Common Understanding'.

Load:

Elasto-mechanical characteristics: deformations, creeping (constant load), relaxation (constant load), studies of big bales by Prof. Dr. Danielewicz, Dipl.- Ing. Reinschmidt, Hochschule Magdeburg- Stendal 2006/7. Promoted by the Deutsche Bundesstiftung Umwelt (DBU). Tests on single bales, plastered and non plastered walls. To this topic there are also great numbers of studies.

Thermal qualities:

Calculation value of the thermal conductivity λ_R (called „Lambda“ as material property (λ_{\perp} crosswards, λ_{\parallel} parallel to the straw shaft), coefficient of thermal conductivity U and thermal resistance $R = 1/U$ Measurements with straw samples (λ_R) and whole structures (R) Measured Lambda- values are different according the direction of the straw and of the type of corn and lie between 0,0387 und 0,072 W/mK (according to DIN EN 12667). With a straw bale wall plastered with 3 cm on both sides a U-value of $U = 0,178 \text{ W/m}^2\text{K}$ was measured (according DIN EN 1934).

DIN = German Industry Norm

Fire resistance

The class of the material of straw is „normally inflammable“ this is „B-2“ according DIN 4102-1 or class „E“ according DIN EN 11925 Fire resistance of 30 to 90 minutes depending of the covering -timber frame construction, 48 cm straw bale plastered both sides with 3 cm clay F-90 (92 minutes achieved) -timber frame construction, 36 cm straw bale plastered both sides with 3 cm clay F-30 (38 minutes achieved) -load bearing, 48 cm straw bale plastered both sides with 3 cm clay F-30 (38 minutes achieved)

Humidity and mould:

Humidity and mould problems are also examined in the context of the DBU project by the Fraunhofer Institute in Munich. There is a great discrepancy between the assumed predictions and the real results as you can see on the graphics table.

Permissions: see the graphics table.

Acoustics:

Here only some sources: for example, Rene Dalmeijer in Bruce King's 'Design of straw bale buildings', 2006 Denmark in 2001



Research Institute For Thermal Protection Munich: straw bales on edge, plastered on both sides, research of thermal conductivity

DEUTSCHES INSTITUT FÜR BAUTECHNIK

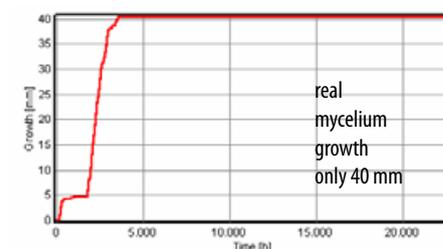
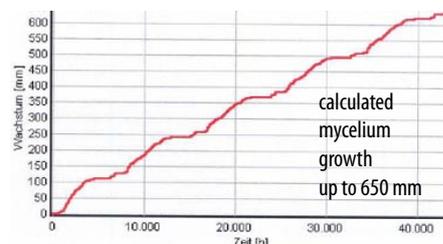
Anstalt des öffentlichen Rechts

10279 Berlin, 10. Februar 2009
Königsplatz 20/1
Telefon: 030 24720-332
Telefax: 030 24720-320
Geschäft: 030 24720-11568

Allgemeine bauaufsichtliche Zulassung

Zulassungsnummer: 2.23.11-1989
Antragsteller: Fachverband Strohballenbau Deutschland e.V. Sieben Linden 1 39468 Sieben
Zulassungsgegenstand: Wärmegämmstoff aus Strohballen 'Bauhofbälen'
Geltungsdauer bis: 28. Februar 2009

Der oben genannte Zulassungsgegenstand wird hiermit allgemein bauaufsichtlich zugelassen. Diese allgemeine bauaufsichtliche Zulassung umfasst sieben Seiten.



In Memory to Milan -Our special thanks to Ökodorf Sieben Linden!!





World Café Results

International / EU Website

- Links to all national websites, other sites, Wikipedia
- Search by profession, region, technique, material, tool, associations, etc.
- A standard information form to be filled out by organisations and individuals
- List of workshops and current projects
- List of published books and videos/ online book store
- Collect research results
- Collect best practices for quality construction
- Database of "failures"/ surprises/ unexpected results
- Create a book/source: things not to do
- Database for professionals
- Database of farmers producing straw bales
- Database of certified strawbale buildings (insurance/ blue prints/ calculations, etc.) translated and scanned, made publicly available
- Translations!
- Forums for specialists/ different circles ?

European Strawbale Building Association

- other names: European Eco-Material House-building Association
- 2-yearly conference, office, homepage
- Permanent Working Groups on EU-level
- Specialists exchanging their knowledge
- Common research
- "Embassy" in every country

Fundraising

- Office? (On European level)
- Who can research and apply for funding from EU?
 - Eva Mondeel might know someone?
 - Thomas (036450-44057) knows someone: Dr. Frank Augsten (Thüringen)

Promotion

- EU or national-wide Open Strawbale Day: strawbale houses opened up to the public
- EU-competition: "The Golden Strawbale"
- House of the year
- Student competition
- Sponsor local eco-movements, support grassroots movement
- Lobby Group for ecological building
- Get celebrities to build a straw-bale house and then win them to make promotion
- Create a Strawbale-home exchange network on the internet: You stay in my home, I stay in your home for a vacation . . .

Der Reader zum Europäischen Strohballenbautreffen im August 2007 im Ökodorf Sieben Linden

Education/ Training/ Experience

- Training Centres: workshops, public, professionals, cooperation with architects and craftsmen
- Building Sites: volunteers, students, schools
- Circles of Experts
 - Building Codes / Standards / Certification
- On EU-level
 - Develop a common European building code: international Group harmonizing/ synthesizing national building codes
 - Preparing for European Technical Approval
 - Pro's and Con's of European rules: Danger of more limitations (based on theoretical parameters without relevance to reality)
 - Certification
 - Certification of the quality of the bales
 - Certification of Architects and Builders (with continuing education)
 - Certification of load-bearing techniques
 - Health Aspects of building:
 - Awareness around dust
 - PVC, etc.

Gatherings

- More international meetings!
- Regional meetings
- European Straw bale Gathering each year/ every two years visiting different countries (2009: Lethuania)
- Professional meetings on specific topics

Possible Workgroups

- Fundraising
- International / EU Website
- Next Gatherings
 - Next European Straw bale Gathering
 - Professional meetings on specific topics
- Promotion
 - Open Straw bale Day
 - Golden Straw bale Award
- Network of educators: Training Centres
- Network of people working on research / tests
- Network of experts



Czech Slovakian group



Dank vor allem an Koscha

“Strengthening our visions” and “Creating Centres of experimental Learning” these were the main objectives of the ESBG and of the meeting of the European straw bale activists

Planned Activities

- Founding a European associations
- Research of founding options on European level
- Creating a European Website to promote straw bale building and for the exchange of information about European activities
- Organisation of a European architecture contest of straw bale buildings
- Establishing a European workgroup to develop training activities
- Establishing a workgroup to develop official approvals and promote technical solutions

sponsored by:



Stiftung Umwelt, Natur- und Klimaschutz
des Landes Sachsen-Anhalt SUNK

Main working activities

- Exchange and discussions on the topic of plastering
- Development of a European vision to building with straw
- Realization of official approvals for all different building types (especially for public buildings)
- Creating an overview about precise solutions and functioning constructive details
- Working on an ethic code for ecological building
- Connection of low budget solutions and qualitatively sound (valuable) constructions
- Exchange of experience
- Special exchange between experts
- Exchange and considerations about prefabrication

Working groups

Preparation of the next ESBG

The next ESBG should take place 2009 in Belgium close to the border to Germany and Holland. Max Vittrup Jansen also shows his interest
responsible: Geert + Hein Lueg, Peter Voss, Sissy Hein

Realisation of a European Approval

Gathering all available information: Next meeting on 24 th of November in Verden, Germany
responsible: Dirk Scharmer, Luc Floissac

European Website

Meeting on 24 th of November in Verden, Germany
responsible: Christine Büttner

Establishing and coordination of trainings for trainers

Meeting around the 6 th of December close to Venice at Stefano's place
Responsible: Bee Rowan, Burkard Rüger, Stefano Soldati

