EUROPEAN STRAW BALE
CONFERENCE

2011










PERMALOT CENTRE OF NATURAL BUILDING
2001 - 2011

Vision without action is
merely a dream.

Action without vision
just passes time.

Vision with action can
change the
world.

EUROPEAN STRAW BALE
CONFERENCE

Friday 26th August 2011

Hotel Bouzov
Bouzov
Czech Republic
www.hotel-bouzov.cz

Sharing the evolution of sustainable construction

The cost of fossil fuels and basic commodities has doubled in 2 years, CO_2 emissions are politically uncontrollable and the weather presents more extremes; colder winters, hotter summers. Population increases. The construction industry will have to adapt and present solutions to these global crises.

This conference is about such solutions

Throughout Europe building with straw bales - a 140-year-old approach to construction - is in a rapid development. Residential housing, multi-apartment buildings, hotels, conference rooms and factory halls made from straw bales are becoming increasingly common.

Simultaneously a new trade is appearing: the adaptation of architects, engineers and building officials, the training of a new generation of construction workers and the development of new techniques and tools for building with straw bales, earthen and lime plasters.

Buildings account for the largest share of the total EU final energy consumption (42%) and produce about 35% of all greenhouse emissions.

- EU Action Plan for sustainable construction

The time has come to take care of our current and future living space

PermaLot Centre of Natural Building hosts of the 7th European Straw Bale Gathering, a biannual 4-day meeting of the straw bale building industry. The conference (simultaneously interpreted into Czech) will present a range of ideas, technologies, philosophies and experience, all working toward the construction of a new generation of human habitats. This is the cutting edge of education, research, entrepreneurship and technique. The event provides space for networking, and each of the 20 participating nations will present a poster detailing straw bale construction in their country.

Learn, Network, Celebrate

Our aim is that this unique event will bridge the knowledge of leading European Straw Balers with professionals and building officials in the Czech Republic and Slovakia.

- On behalf of the ESBG Team, Max Vittrup Jensen

More than 50% of all materials extracted from earth are transformed into construction materials and products.

- EU Action Plan for sustainable construction

Programme

09:00 ***registration*** DragOn & E-mixer show

09:45 ***welcome***

01 EDUCATON

10:00 **Michael Napierzynski** Modern straw bale building in Europe **/ 10**
10:20 **Zuzana Kierulfová, Boris Hochel** European Learning Partnership for straw bale building **/ 11**
10:40 **Stefan Prokupek** Renew Building – sustainable renovation with renewable resources **/ 12**
11:00 **xxx xxx** Xxxxx xxxx **/ 13**
11:20 **xxx xxx** Xxxxx xxxx **/ 14**
11:40 **Noé Solsona** The learning path of one straw bale apprentice **/ 15**

12:00 ***lunch break***

02 ENTREPRENEURSHIP & RESEARCH

12:30 **Domas Surkys, Jonas Kačerauskas** The story of Ecococon.lt **/ 18**
12:50 **Dr. Luc Floissac** Process of including straw bale building techniques into French national building codes **/ 19**
13:10 **Jan Růžička, Marek Pokorný** Current research on the mechanical physical properties of straw bale structures **/ 20**
13:30 **Max Vittrup Jensen** LCA of conventionally built Passive House vs. built from Big Bales **/ 21**
13:50 **Lucy Cartlidge** Social study of Eco-Home residents **/ 22**
14:10 **Xxxx xxx** xxx xxx **/ 23**

14:30 ***break*** DragOn & E-mixer show

03 TECHNIQUES

15:00 **Tom Rijven** Preparation system for owner-builders **/ 26**
15:20 **Gernot Minke** Loadbearing straw bale dome and vauls, covered by a green roof **/ 27**
15:40 **Michael Kallesen** Big Bale Building (BBB) **/28**
16:00 **Stefano Soldati** Lime plasters on straw **/ 29**
16:20 **Paweł Sroczyński** Cohabitat – next-generation open-source living space **/ 30**

16:40 ***q&a session***

17:00 ***social time***

18:00 ***the end***

20:30 ***concert*** Simcha at Bouzov Castle

The first principle of

true teaching

is that

nothing can be taught

Speakers

Michael Napierzynski

Filmmaker, photographer and enthusiast of natural building, Michael Napierzynski works to popularise ideas of a healthier lifestyle including alternative, ecological ways of building. He runs the online magazine GOOD IDEA (www.dobraidea.pl), aimed mainly at a Polish audience, where among other topics he presents natural builders and pioneers of communities and permaculture movements from around the world. Michael lives in London with his family, where he runs the film/design creative studio www.magicwhitecow.com.

DOBRA IDEA, MAGIC WHITE COW, POLAND/UK
filmmaker, photographer

Modern straw bale building in Europe

A visual feast of state of the art of research and building with straw bales throughout Europe. This film – specially made for the ESBG 2011 conference – builds on the extensive archives of Heidi Snel's firm ECOFILM as well as that of Michael's DOBRA IDEA. It will serve as a foundation and inspiration for the presentations that follow throughout the day.

Zuzana Kierulfová, Boris Hochel

Zuzana has been working as an architect since 1992 for her studio CREATERRA, Boris since 1998 as a freelance and in the NGO HOBLINA, focusing on preserving Slovak vernacular architecture. Searching for alternatives in building and ways of preserving folk architecture and traditional crafts led them to set up ARTUR – a non profit organisation dedicated to promoting sustainable architecture. Both have been voluntarily working for the past four years to inform, educate and train in the fields of natural materials, energy saving houses and Permaculture.

ARTUR, CREATERRA S.R.O., SLOVAKIA
ARTUR, HOBLINA T.C., SLOVAKIA
architects

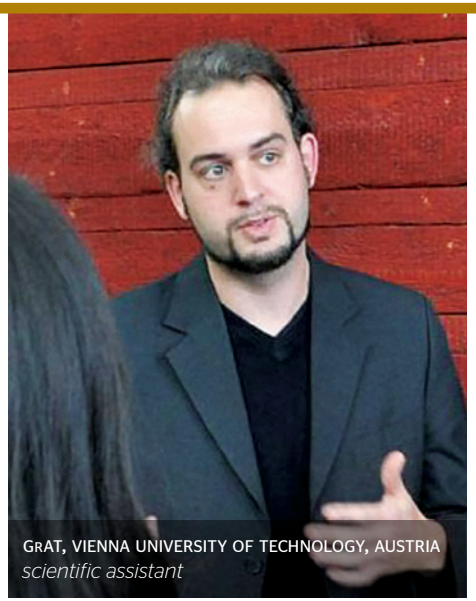
European Learning Partnership for straw bale building

Interest in developing training and preparing European Technical Approval (ETA) for straw bale building led to the formation of working groups at ESBG 2007; during 2009-2011 those working groups came together in the Leonardo da Vinci Partnership. Partner countries in the European Learning Partnership for Strawbale Building were Germany, Spain, France, Slovakia and Belgium (with England as a silent partner).

Partners worked on the project tasks in several groups: the result of the Training group was a structure that was part-trialled in Slovakia in May 2011, with 10 equal units to fit the European Credit system for Vocational Education. The group for Best Building Practice collected techniques from partner countries and evaluated their quality, time consumption, materials, price and detailing. A questionnaire about organisation, building techniques and training was created and answers were evaluated. The group on national building regulations collected information on ways of obtaining permission for straw bale construction and the working group on the State of Science and Technology started to collect details of straw bale tests carried out in Europe.

Stefan Prokupek

Stefan is a Scientific Assistant at GRAT (Center for Appropriate Technology) at the Vienna University of Technology, working on several research and development projects related to sustainable building solutions (including development of an insulation system based on reed). His professional background is in the field of architecture, with studies at TU Munich and TU Vienna. He currently gives hands-on workshops and seminars on sustainable renovation using renewable resources — including straw and clay — for craftsmen and planners.



GRAT, VIENNA UNIVERSITY OF TECHNOLOGY, AUSTRIA
scientific assistant

Renew Building — sustainable renovation with renewable resources

Building with straw, reed or hemp is hardly a well-known standard for craftsmen and planners throughout the European Union, especially when it comes to renovation and retrofitting with the aim of a high-efficiency standard relating to heating demand. The use of so-called 'alternative materials' is often considered a high-risk solution: this is not the case however if the materials being used are applied correctly.

Both this missing knowledge of application and existing prejudices are targeted within the EU-LIFE project RENEW BUILDING. Using various teaching methods — both theoretical and practical — different target groups (craftsmen, planners etc.) are trained in sustainable renovation solutions, starting with planning and covering all aspects of construction and quality management measures. Additionally, a knowledge database with dozens of 'best-practice' examples (constructions, buildings, materials) is being made available not only to the trainees, but to everyone.

Training will take place on two 'apprenticeship building sites', in Lower and Upper Austria, over the course of 2011 and 2012.

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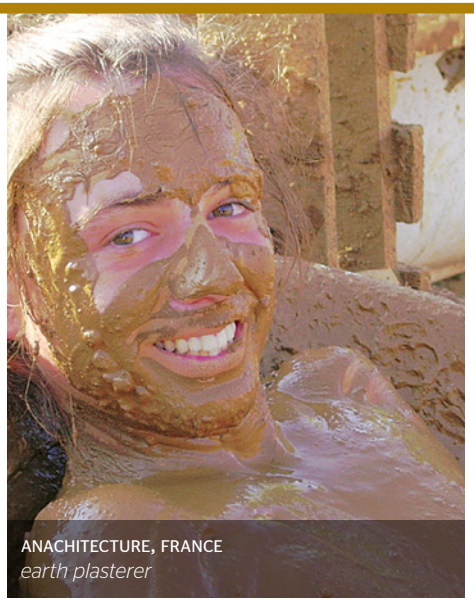
Noé Solsona

Noé Solsona is one of the few very experienced big bale builders in Europe, with projects ranging from residential houses to factory halls and a governmental building. He is an expert in earthern plasters and the inventor and developer of the PROJECTERRE *plaster machine. Noé has worked and taught in numerous European countries and recently became an author, writing about rocket mass heaters/flex ovens. Noé's aim is to become commercially successful in spraying local accessible earthen renders onto straw bale buildings. He is 25 years old.*



ANACHITECTURE, FRANCE
earth plasterer

The learning path of one straw bale apprentice

As I was always passionate about building practices and attentive/sensitive to our impact on the Earth and its people, I always knew my place would be somewhere in the field of construction.

At 15 I entered a French school with a civil engineering option, which unfortunately was far from what I was looking for. I endured one year before deciding instead to learn carpentry during a short 8-month stay at a traditional French Carpenter's school. Following this I definitively left the conventional educational system.

I entered into a series of informal apprenticeships with different masters in the amazing field of straw bale building and earth renders, apprenticeships which greatly empowered me and helped create my future path. Seven years later I am certified in earthen construction and rendering through various EU educational programs in Germany and France and the experienced manager of a construction company.

I always consider that life was made to do the things we enjoy, and that there is clearly a different intention when we think we do an 'activity', as opposed to a 'job'.

Ecology and economics:

both origins from
oikos, the Greek word for

house

Speakers

Domantas Surkys, Jonas Kačerauskas

Domantas Surkys is Chairman of the STRAW BALE BUILDER'S ASSOCIATION OF LITHUANIA and founder of INDIGAS (producers of natural plasters, oils, paints and more). He founded ECOCOCON to produce high quality straw bale panels and promote effective and easy straw bale building.

Jonas Kačerauskas is Chairman of the NGO ŠIAUDINUKAS and one of the main straw bale experts in Lithuania. His consultancy work is often focused on promoting owner self-building and he organizes workshops, seminars and exhibitions on straw bale building.

INDIGAS, ECOCOCON, LITHUANIA
ŠIAUDINUKAS, ECOCOCON, LITHUANIA
XXX, XXX

The story of Ecococon.lt

With a background in conventional construction, Domantas Surkys first discovered straw bale building in 2006. A few very modern and professionally built luxury straw bale houses rapidly gained the attention of the media; however, Domantas felt there was a need to make straw bale building more affordable and possible over a longer building season, while still ensuring its quality.

This led to the founding of ECOCOCON, in 2008. The company's main activity is the production, trade and export of straw panels. These panels are of high quality and avoid the usual time-consuming process of having to pack straw into timber constructions. This allows for much easier construction methods, both for professionals and self-builders.

Though relatively new in the straw bale business, ECOCOCON now has available facilities, unique mechanisms and a great team, providing a product which is comparable to that of the best straw bale builders in Europe.

Dr. Luc Floissac

Dr. Luc Floissac is the French straw bale building rules Coordinator. His main fields of work and research are in constructive solutions for buildings with low energy requirements and low environmental impact, the evaluation of technical and environmental performance in building and renovation, rehabilitation of buildings and sustainable development. Luc is also the author of the COCON software for the comparison and assessment of buildings and construction methods, levels of comfort and CO_2 emissions.

SCHOOL OF ARCHITECTURE, TOULOUSE, FRANCE
researcher, author

Process of including straw bale building techniques into French national building code

This presentation covers the main fields of work and research of the RFCP (French Network of Straw Bale Constructors) and its involvement in gaining accreditation for straw bale techniques in French building legislation. So far we have successfully had straw bale thermal insulation values included in new national thermal regulations (*RT 2012*), and some straw bale physical parameters have been obtained (others are planned to be measured according to European standards). In addition, a national straw bale construction training reference is in preparation for September 2011 and an evaluation of the environmental performance of straw bale building will be available at the end of 2011.

Prepared over 4 years and with 30 contributors, a 110 page document has been written concerning straw bales as an infill insulation material and plaster support. This data is currently being verified by the French AQC (Quality Construction Agency) and should be validated during summer 2011. Following a successful review, straw bale construction would be considered a normal building method in France.

Jan Růžička, Marek Pokorný

Jan Růžička is a senior lecturer in the Department of Building Structures at CTU in Prague. His research focuses on environmentally compatible structures, the mechanical and physical properties of earthen structures and environmental assessment. He runs an architecture studio based around sustainable, low energy and passive design.

Marek Pokorný is a senior lecturer and PhD student, also based at the Department of Building Structures. His research focuses on fire modelling and fire safety solutions in building.

CZECH TECHNICAL UNIVERISTY, CZECH REPUBLIC
lecturers

Current research on the mechanical physical properties of straw bale structures

Our presentation deals with current research undertaken at CTU on the fire resistance, load bearing capacity and thermal insulation properties of load bearing and non-load bearing straw bale structures.

Three test specimens of 3.0 x 3.0m external walls differing in structural and technological design were tested for fire resistance according to Czech National Standards. The mechanical properties of load-bearing straw bale walls were also tested, and stress-strain diagram will be carried out on fragments of 1.8 x 2.6m load-bearing external walls.

The thermal properties of straw bales — especially its thermal conductivity coefficient and specific heat capacity according to fibre orientation and compression value of straw bales — is determined in special testing box.

This project is being undertaken with the financial support of the EFEKT Program of the Czech Republic's Ministry of Industry and Trade, as part of Project 1221420507: *Selected Properties of Natural and Other Structural Materials, Structures and Buildings.*

Max Vittrup Jensen

Originally from Denmark, Max holds a B.Sc. in Human Ecology and a M.Sc. in Environmental Management. He spends most of his time within the field of Natural Building and Permaculture Systems Design, be it as educator, consultant, builder or visionary. In 2001 he initiated the NGO PermaLot, which manages an organic land trust of 17 hectares and education centre in the Czech Republic. He is the lead organizer of the European Straw Bale Gathering 2011.

PERMALOT, CZECH REPUBLIC/DENMARK
consultant in sustainable construction

LCA of conventional-build Passive Houses vs. building with Big Bales

While international trends promote passive house standards (based on 4 energy saving parameters), little attention is paid to the actual life cycle impact of such construction: frequently the materials chosen represent a very high degree of embodied energy.

Recent developments in straw bale construction include using rectangular big bales (BB) with dimensions of about 1.0 x 0.7 x 2.2m. The environmental impact of building with big bales is very limited, which in effect makes it fully possible to construct a Big Bale Building as a biodegradable house, depending on the overall design and choice of additional material within the building. The naturally occurring CO_2 is simply stored in the building during its lifespan.

Our research has found that in fact the majority of passive house construction is only offsetting the environmental impact onto society at large, while saving energy costs for the home owner. Using environmentally sustainable local materials would solve this problem.

Lucy Cartlidge

Lucy is a Lecturer in Sustainable Design and Programme Coordinator for the MSc in Sustainable Architecture Studies at the SCHOOL OF ARCHITECTURE, UNIVERSITY OF SHEFFIELD. *The MSc has a broad range of modules including Parametric Architectural Modelling, Building Environmental Simulation and Analysis and Interactive Urban Visualisation Modelling.*

Lucy leads three course modules: Climate Sensitive Environmental Design, Renewable Energy and Applied Design. In 2011-2012 she hopes to introduce a new module with practical workshops in straw bale construction.

UNIVERSITY OF SHEFFIELD, UK
lecturer

Social study of Eco-Home residents

The majority of research and published material relating to straw bale building tends to focus on performance, testing or improving construction techniques. I would suggest however that there is more going on when choosing to use straw bales than simply learning a new method of construction: those commissioning and building with straw bales are learning new ways of 'being' and are involved in 'becoming' part of an alternative, low-carbon future.

My research focuses on what I call the 'pioneer mentality' – the change in thinking that takes place when we decide to consider an alternative future, and act upon it. This builds upon my PhD studies, which used case studies of three projects to help understand the making of an 'eco-home' as not just the making of an object, but of a new relationship between a home and its inhabitant. The session ends with an overview of projects conducted by students under my supervision, asking questions such as: what barriers exist to straw bale construction becoming a mainstream technique?, what are conventional builders' attitudes towards using straw bales?, and are deeper meanings evoked in the use of straw bale construction?

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Rebuild

Natural Capital

Speakers

03 Techniques

Tom Rijven

Tom and his partner Sophie are nomadic straw bale Ambassadors, conducting inspiring workshops wherever they travel. Their building experience ranges from a huge conference hall made of jumbo bales to numerous houses and cottages throughout Europe and Australia. Tom has developed the C.U.T technique (Cell Under Tension), French Dip and is an eager promoter of fermentation in natural plasters.

The evening of the conference will be a celebration among the international straw bale family of Tom's 65th birthday; many more years before he reaches retirement age!

HABITAT VEGETAL, FRANCE/NETHERLANDS
straw bale promoter extraordinaire

Preparation system for owner-builders

Straw bale building has a strong appeal to owner-builders: however, many would appreciate some practical help in the initial phase of their project. The majority of our work over the past years has been in facilitating hands-on workshops that train volunteers to become builders and help the future home-owner acquire basic skills and an overview of the building process. We leave the site with a building well under way and many enthusiastic hands able to complete it.

To aid this process I wrote the book *Between Earth and Straw*, which serves as a manual for straw bale building in general and the C.U.T. technique in particular. C.U.T uses a lightweight wooden construction to create a matrix embedded within the straw bale wall. This allows the strings of the bales to be cut once construction is complete, and the straw to expand and fill any potential cold bridges.

Lately we have developed a new system for making hexagonal C.U.T. wall segments, allowing for the construction of a modular house with the potential for ever-increasing expansion.

Gernot Minke

Gernot is an architect, scientist, experimenter and professor at the UNIVERSITY OF KASSEL, *where he directs the Experimental Building Laboratory.*

Author of over thirty books and 200 scientific articles on the innovative use of traditional building materials, he began his career working alongside Frei Otto, designer of the light membrane roofs built for the Munich Olympics. Since the 1970s his main areas of research and design have been in natural and affordable building techniques.

KASSEL UNIVERSITY, GERMANY
architect

Loadbearing straw bale dome and vaults, covered by a green roof

Straw bale construction and green roofs are two leading topics for anyone following the development of eco-architecture. It is less well known that these two areas can be combined in the search for the ideal 'green' building: not only in one lecture, but also on the construction site. Why should one try?

Straw bale building has rapidly gained popularity since the seventies. One key to its success lies in the proprieties of straw as a building material: natural, renewable and highly insulating with low embodied energy and cost that makes it a perfect choice for the challenges of sustainable design.

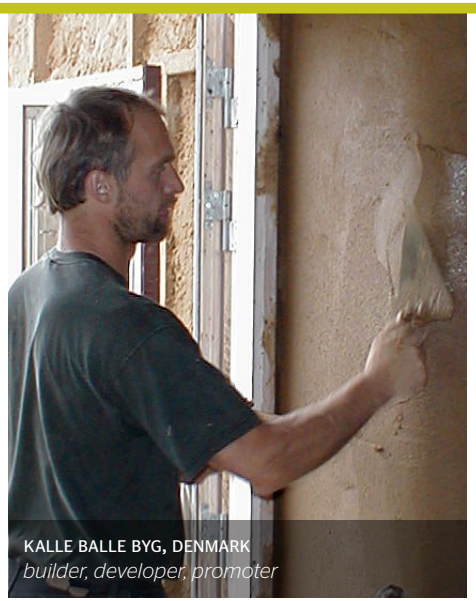
The advantages of green roofs have been known in Scandinavia for centuries: they protect buildings from both winter cold and summer heat and they absorb rainwater... and they are beautiful.

The modern development of thin earth roof systems allows for easier application, at a reduced cost. Recent research also shows evidence of green roofs absorbing high-frequency electromagnetic waves, thus reducing adverse effects of the built environment on human health.

Michael Kallesen

Michael Kallesen has been involved in straw bale building since 1989 and is one of about twenty Danish professional straw bale builders. His company KALLE-BALLEBYG *specialises in building with big bales and since 2007 has made 15-20 residential houses, several of them with two stories.*

Michael ensures the quality of his straw from the field to the press, the indoor preparation of each bale and the final house. He gives a lifetime guarantee on his buildings; at least as long as he continues to live!



KALLE BALLE BYG, DENMARK
builder, developer, promoter

Stefano Soldati

Stefano trained in the UK with Barbara Jones and Bee Rowan from AMAZONAILS*, studied clay plastering in Germany and has taught at the Faculty of Architecture in Venice and the Centre for Alternative Technology in Wales.*

Now a 'Straw Bale Ambassador,' he pioneers straw bale and low impact building in Italy, and currently teaches at the School for Sustainable Practices in Milan and at the Ecovillage GAIA in Argentina. Stefano was the first President of the Italian Academy of Permaculture and has taught Permaculture courses for many years.

LA BOA, ITALY
teacher

Big Bale Building (BBB)

Recent developments in straw bale construction include the introduction of rectangular big bales (BB). In Denmark we use bales stacked on edge, measuring either 0.6 x 0.9 x 2.2 m or 0.5 x 0.8 x 2.0m, and weighing between 120 and 150 kg.

Big bales lend themselves towards the original 'load-bearing' construction, with unsupported bale walls being topped by a bond beam dimensioned to hold either an additional story, or simply the roof. Big bales allow for fast, mechanized construction of exterior walls and constitute a complete wall with inner and outer skin, plus insulation.

Costs are reduced considerably as wall raising takes only a couple of days, with a roof (that may be pre-constructed) being lifted onto the building by crane. Modular window and door cassettes are mounted by crane as we erect the house, and rendering is also predominantly mechanized.

The Danish climate and the size of the bales being used means that a large part of our work is logistical; securing storage of the bales and indoor facilities for trimming and special sizing, with the emphasis being on working with a high quality building bale.

Lime plasters on straw

Lime is a durable and very resistant material. It is permeable to water and much less rigid than cement. The Romans perfected the use of lime two thousand years ago but we know that it was being used long before this, to make buildings that are still standing today.

The historical use of lime, the making of lime, its environmental footprint and why lime is superior to cement in every sense will be covered in this presentation. Quicklime, putty, hydraulic lime, hydrated lime and pozzolana lime are all terms that produce great confusion: we will explore the differences between them and look at which is most appropriate for use on different supports. We will learn about lime application techniques, different uses and types of lime, and their maintenance requirements.

If we do not use the right kind of lime we can compromise the vapour permeability of our walls: learn the characteristics of various types of lime in order to emphasise the potential of a wonderful material.

Paweł Sroczyński

An architect utterly devoted to the enterprise of constructing autonomous next-generation human settlements — Cohabitats — Paweł is the founder of COHABITAT GROUP *and originator and co-organizer of* COHABITAT GATHERING 2011.

Author of pioneering projects on natural building technologies, organizer of workshops and lectures, since 2008 he has constantly supported the development of the Polish movement for this new paradigm.

NATURAL ARCHITECTURE ATELIER, POLAND
architect

Cohabitat - next-generation open-source living space

We entered the age of information. The old methods of activity based on industrial models are going to fail us in the present. We need the re-evolution! The new awareness, new ideas to re-unite us with the systems that support life on Earth. We need the solution that will enable us to continue to follow the path of evolution, to use the potential resulting from a synergy between human beings and nature.

By the end of this decade the COHABITAT GROUP wants to offer people an opportunity to live in habitats — natural settlements that are able to generate the basic resources essential for living (water, food, energy) — based on the working rules of ecosystems. These aims will be accomplished through education and the use of open-source technologies.

This presentation will detail the history of the COHABITAT GROUP, their achievements and their unusual plans for the nearest future.

concert –

Sunday the 27th of August will mark the official re-opening of the synagogue in Lostice, arranged by the local organization 'Respect and Tolerance'. We are happy to pay tribute to this event by inviting you to join us on the evening of the European Straw Bale Conference at Bouzov Castle, for a sampling of modern Czech Klezmer music performed by the talented Ostrava group Simcha.

The name 'Simcha' originates from Hebrew and means 'joy'.

4th national celebration

PermaLot celebrates it's 10th anniversary and invites you to join our public celebrations in the grounds of majestic Bouzov Castle.

The 4th National Celebration of Natural Building includes workshops, presentations and films by some of the leading European straw bale builders. In addition a large range of companies involved in environmentally healthy construction, living and lifestyle will be participating with stalls, displays and exhibits promoting a sustainable future.

This family event has free entry and coincides with the annual 'Balloons over Bouzov' festival, with 20-30 hot air balloons taking off in the morning and evening. On Saturday evening you can enjoy seeing them lit from within at the nearby football field.

We look forward to introducing you to the magical world of Natural Building at Castle Bouzov.

PERMALOT CENTRE OF NATURAL BUILDING
2001 - 2011

open door event at

go to www.slamenedomy.cz/navsteva
to visit the house of your choice

Get involved: www.slamenestavitelstvi.cz

hats off to:

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