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AlpHouse Alpine Building Culture and Energy Efficiency



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and by the Working Group of Alpine Regions (ArgeAlp)



PROJECT PARTNERS:



Handwerkskammer für München und Oberbayern (Leadpartner)



ТШП

BAUakademie Lehrbauhof Salzburg

Bayerische Architektenkammer, mit Technische Universität München



Chambre de Commerce et d'Industrie de la Drôme, avec Neopolis



Energieinstitut Vorarlberg



ERSAF Ente Regionale per i Servizi all'Agricoltura e alle Foreste, Regione Lombardia



Région Autonome Vallée d'Aoste – Regione Autonoma Valle d'Aosta avec - con COA Energia Finaosta



Regione del Veneto, Direzione Urbanistica e Paesaggio



Research Studios Austria ForschungsgesmbH, Studio iSpace

CONTENT

Idea and Messages

- 4 The AlpHouse Fair Stand
- 6 Creating Awareness of Alpine Building Culture
- 8 Working with Spatial Strategies
- 10 Utilisation of Vernacular Intelligence
- 12 Combining Material Culture and Technology
- 14 Fair Stand Tour Plan
- 16 Facts and Figures
- 18 Instructions for Assembly
- 20 Adaption and Activities for Regional Installations



THE ALPHOUSE FAIR STAND

Alpine Building Culture and Energyefficiency



The AlpHouse Fair Stand informs about the transnational project AlpHouse, running from 2009 – 2012. The stand focuses on the analysis work of the project partners in 9 Alpine regions that aims at identifying challenges and chances for a new combination of Alpine building culture and energy efficiency.

Further project steps of AlpHouse in view of communication and training will be implemented during the tour of our stand throughout the regions of the project partners and on fair trades; the stand itself will accompany a number of events.

AlpHouse Project Aims

The Alpine Space comprises unique natural and cultural landscapes. These have produced a wide range of characteristic building types, which emerged out of a long-term adaption to climatic and geographic conditions. Today they form an important element of the attractiveness of the Alps as a space for living and recreation. If we want to preserve and use this cultural heritage, we must bring it into alignment with the challenges and needs of today. We should try to understand the principles of traditional alpine architecture, integrate them in present-day construction, and develop them further. In this way traditional architecture can also be combined with modern technologies and requirements for energy efficiency.

AlpHouse aims at promoting such a farseeing approach to renovations in the Alpine Space. The project explores and collects knowledge and skills in the various regions and passes them on to craftsmen, architects, planners, and decision makers – so that they can develop individual local solutions oriented towards a common understanding of quality.

The 4 fields of topics:

1 Alpine Building Culture

2 Spatial Strategies

4 Material Culture and Technology

³ Vernacular Intelligence



AlpHouse Fair Stand

Education

Crafts

CREATING AWARENESS OF ALPINE BUILDING CULTURE

9 Pilot regions | 15 Pilot villages | 30 Pilot buildings



Pilot buildings

The alpine space as field of action of alpine building culture is marked by great differences and is formed by buildings, settlements and land use. The term Alpine Building Culture does not dissociate building in the Alps from the adjoining regions; it is about mutual challenges, lying in the geographical escalation of trends and a possible transferability of ideas and procedures.

Similar requirements in extreme climatic and topographic situations and a limited area for settlement have always marked alpine building. Because of cultural factors, micro climates, social and economical conditions, regionally distinct forms of building have arisen: this variety is an essential part of the Alps.,

Material and immaterial values are attached to the existing buildings and settlements and are decisive for local identities and economies, for tourism, and for the ecologic conversion of the Alps as settlement area.

Given that 90 % of the building stock in the Alps has been erected before the introduction of energetic standards, it plays an important role when it comes to introducing renewable energies, in view of generation of energy and energy savings. Nonetheless, AlpHouse emphasises that old buildings have always been orientated to energy questions; and proposes to rediscover this knowledge.

The illustrated pilot buildings are categorized in four groups:

Vernacular buildings, intensive use

Buildings of different ages, temporary use

Buildings of different ages, often post-agrarian, partial use of large volumes

Residential buildings from the 1950s to the 1970s, intensive use

above: Scale of Pilots and transferability

To the right: 15 PILOT VILLAGES Situational challenges and chances for alpine villages

30 PILOT BUILDINGS Regionally varying focuses of renewal show the differences of the building stock





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WORKING WITH SPATIAL STRATEGIES

Settlement Development and Energy | Postagrarian Buildings



Houses and settlements in the Alps are complex bodies, formed by utilisation, design, construction and infrastructure. Frequencies, intensities, types and forms of their use will play a more significant role in the future given the demographic changes. Exposition, orientation and compactness will be identified as main subjects for buildings and settlements. Detecting potentials and limits of the building stock and its context is the basis of spatial concepts on different levels: from construction components and their combination, layouts and sections of buildings to villages and valleys. AlpHouse elaborates spatial strategies as a procedure to harness potentials of the existing buildings and settlements and sees at its basis a planning necessity.

The interfaces between planning disciplines, such as architecture, settlement planning, urban and rural development, energy expertise, regional development and also monument preservation have not yet been designed for a coherent operative approach the building stock. The analysed pilots reveal gaps between the procedures on different levels of measures (regions, towns, buildings, and details). AlpHouse proposes to optimise interaction between the actors of building culture as well as a crossscale planning approach.

Above:

1 Spatial Strategy (C+apacity of existing architecture, Context of place, Alternative Concepts)

2 Costs and Timeliens

3 Use; Intesity, frequency and modes

4 Rules, Laws, Incentives

5 Natural Factors (climate, Topography)

6 Construction Material, Processing Factors

To the right:

SETTLEMENT DEVELOPMENT AND ENERGY In the village Fläsch a new spatial strategy creates the basis for energy efficiency

POSTAGRARIAN BUILDINGS The subject of dealing with postagrarian structures, which is of great importance for the Alpine Space, requires spatial concepts



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population's participation Planstauch any Revision der Octoberung auf Grundlage der Biogenheinigung Samreis delle paperkei a soppe of versione skelle antelligte unbandlace samte sower delle participatione orbeiten Echange die sonfaue en von remanier im planstealen du village basie auf is participation der appabilise



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Architectural interventions Architekturische Eingriffe Interventi architekturische

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Intervention 6 in Constitution of the bank, produced adaption on sinking and hing space. Page 2 Page 2



UTILISATION OF VERNACULAR INTELLIGENCE

Town Centres and Energy | Vernacular Building Type

AlpHouse considers the buildings and settlements in the Alps as stimulators for cultural and economical aspects of building. This new evaluation concentrates on vernacular buildings and settlements: they can be understood as database of building culture. Vernacular construction offers models of how buildings adapt to climate and topography, how they use energy efficiently and how they harness materials efficiently. This vernacular intelligence has at first nothing to do with building styles but with structural factors on all three project levels:

The regional level with cycle systems and spatial structures,

The village level with its compactness and exposition,

The building and detail level with spatial organisation in layouts and sections, with materials and their combination.

The energetic knowledge of vernacular buildings indicates to ask for standards and comfort: it can even stimulate innovations for standardised procedures of energy efficiency.

To the right: TOWN CENTRES AND ENERGY The spatial and energetic model of dense central settlement cores

VERNACULAR BUILDING TYPES The Alps' vernacular buildings are a database of intelligent behaviour towards surroundings and natural forces





COMBINING MATERIAL CULTURE AND TECHNOLOGY

The House as System | Material and Region

Not all vernacular technologies have survived industrialisation, they have not been fixed standards but a developing field of knowledge and competences. Nowadays lifestyle, ideas of comfort, of public and private space are very different than they have been before 1918. However, the aim of AlpHouse is to re-appropriate vernacular technologies and to reassess them where they are necessary for the building stock. The paradigm of repair is an ecologic process to reduce the use of energy and material – but, what is more, reparation is a cultural value.

The AlpHouse approach can thus be described as counter stream operation: it is about adaption and decisions to use technologies and materials from the field of new constructions (e. g. passive house elements, controls, fabrication methods, tools, etc.), but also about rediscovering vernacular materials and technologies and even their transfer to the field of new construction (e.g. solid wood, chalk, clay).

Because of the differentiated nature of the alpine building stock, a wide spectrum of techniques can be collected and developed: in the areas of structural design, expansion, heating and ventilation, calculation and design tools. They have to correspond to the different steps of energy saving, which can be achieved within the building stock with reasonable financial and ecological effort.

To the right: THE HOUSE AS SYSTEM The pilot building Welf in the Aosta Valley demonstrates the importance of joining building elements and spatial complexity

MATERIAL AND REGION In Vrin the building material wood motivates regional cycle systems





FAIR STAND TOUR PLAN

Visiting events

10.6.2011	Fair Stand Opening Klimawoche - Altbautag, public conference HWK and ByAK Traunstein (D)
1617.6.2011	Alpine Space Programme Mid Term Conference HWK Grenoble (F)
2729.6.2011	PM4 public conference Neopolis Valence (F)
3 4.9.2011	Ballenberg Jubilee Haus Ballenberg Ballenberg (CH)
114.10 2011	Public conference Exhibition Pilot village analysis EIV Andelsbuch (A)
2530.11. 2011	Qualification course architects and planners COA Energia Aosta (I)
17.12.2011	PM5 public conference Regione Veneto Cortina d'Ampezzo (I)
1213.1. 2012	Fair Monumenta LBH Salzburg (A)
1530.1.2012	Exhibition Pilot village analysis LBH Kuchl (A)
2022.2.2012	Fair Regione Veneto Longarone (I)
1420.3.2012	Fair Handwerksmesse HWK München D
September 2012	PM final public conference HWK and ByAK München (D)





AlpHouse Fair Stand Catalogue, in 4 languages

FACTSHEET

Technical Data

Weight ca.

160 kg	Wood
140 kg	Steel
300 kg	Total

Measures max.

1,60 m	Width
7,50 m	Length max. adjustable
2,00	Hight

Parts

- 12 Wood
- 20 Steel frames
- 1 Stele
- 48 6 mm Hexagon socket screws (steel -wood)
- 48 Thin screw nuts (steel-wood)
- 26 6 mm Hexagon socket screw flat head (steel-steel)
- 6 Screws Wood 4,5 mm (for BooksBox1 and 2)
- 25 "Feet" for adjusting the hight
- 1 Modell "House Welf" inside BooksBox1

Tools6 mm Hexagon socket screwdriver
Screw nut tool
4,5 mm Star head screwdriver
Water level for adjusting the hight
Cutter

Transportation3 EURO-PALETTE3 wooden transportation boxesStrong broad tapeAir bubble wrap



80

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<u>↓ 40</u> ↓

INSTRUCTIONS FOR ASSEMBLING

The AlpHouse Stand Manual

Put the parts out of the transportation boxes.	
Fold the aire bubble wrap nicely and keep it for later u	se.

Step 1	Unwrap and position the steel elements SPECIAL attention to the first (stele) and the last (booksboxes) steel frames.
Step 2 Steel-steel	Two persons screw one steel stand with 6mm hexagon socket screws flat head.
Step 3 Steel -wood	Screw the wooden boxes on the steel stands in the right order with 6mm hexagon socket screw.
Steel "feet"	Tighten with upper screw nut. Adjust Hight with lower screw nut.
Step 4 Wooden boxes	Flip the boards around by putting a stick with a soft top (cloth, paper) through a hole in the bottom of the box and lift the board.
Step 5 Steel -wood	Modell board nr. 8 A part of the model is inside BooksBox1.

Finished Stand cannot be moved anymore

When disassembling the AlpHouse Fair Stand, please check if anything is missing.













ADAPTION

Add and change contents



Boards

Boards can be replaced and individually designed after having consulted the carpenter from HWK Bildungszentrum Traunstein.

Length 87 cm ca Width 97 cm ca

Walls and Floors

Detailled plans of Pilot villages and buildings Photographs Analysis and development material Craft work drawings

Local materials and technologies Adaption of innovative technologies Building parts and joints



ACTIVITIES

Learn Discuss Adopt Develope















Upper row: October 2010 - June 2011 Concept and design of the AlpHouse Fair Stand TUM Landraum | München (D)

Lower row: March - June 2011 Construction of the AlpHouse Fair Stand HWK Bildungszentrum Traunstein (D)

10.6.2011 Fair Stand opening Klimawoche - Altbautag, public conference HWK and ByAK | Traunstein (D)

ALPHOUSE FAIR STAND HANDBOOK

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ALL IMAGES HANDBOOK TUM Landraum

COVER CATALOGUE

Photography: Klaus Leidorf for Landraum (DE and EN version), Neopolis (FR version), Regione del Veneto (IT version)

ALL IMAGES CATALOGUE TUM Landraum

FAIR STAND TABLES:

9 PILOT REGIONS

edited by RSA iSPACE. Data sources: USGS - GTOPO30 DEM, Alpine Convention - Perimeter GIS data, Alpine Space Programme - Programme area, EuroGeographics for the administrative boundaries - NUTS boundaries, ESRI background data - Country boundaries, AlpHouse project - Region boundaries

14 PILOT VILLAGES

edited by TUM Landraum. Data sources: Bavarian State Office for Survey and Geoinformation, RSA iSpace, Regione del Veneto, Energieinstitut Vorarlberg, ERSAF Ente Regionale per i Servizi all'Agricoltura e alle Foreste Lombardia, COA Energia Finaosta, Neopolis

30 PILOT BUILDINGS

Photography: BAUakademie Lehrbauhof Salzburg, Regione del Veneto, Energieinstitut Vorarlberg, ERSAF Ente Regionale per i Servizi all'Agricoltura e alle Foreste Lombardia, COA Energia Finaosta, Neopolis, TUM Landraum

SETTLEMENT DEVELOPMENT AND ENERGY

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POST-AGRARIAN BUILDINGS

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TOWN CENTRES AND ENERGY

edited by TUM Landraum. Photography: Landraum. Data sources: Neopolis, ERSAF Ente Regionale per i Servizi all'Agricoltura e alle Foreste Lombardia, Bavarian State Office for Survey and Geoinformation, field research TUM Landraum

VERNACULAR BUILDING TYPES

edited by TUM Landraum. Data sources: BAUakademie Lehrbauhof Salzburg, Regione del Veneto, Energieinstitut Vorarlberg, ERSAF Ente Regionale per i Servizi all'Agricoltura e alle Foreste Lombardia, arch. Chiavenuto, COA Energia Finaosta, Neopolis, TUM Landraum

THE HOUSE AS SYSTEM

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MATERIAL AND REGION Photography: Laura Egger for Landraum

ALPHOUSE COLUMN

Photography: Klaus Leidorf for Landraum



Bayerische Architektenkammer





Overview of the AlpHouse pilot regions and pilot villages: XX pilot region XXX pilot village

01 Tennengau (A) 011 Kuchl

02 Traunstein (D) 021 Schleching

03 Garmisch-Partenkirchen (D) 031 Murnau

04 Provincia di Belluno, parte settentrionale (I) 041 Selva di Cadore 042 Vodo di Cadore

05 Bregenzerwald (A) 051 Andelsbuch 06 Comunità montana Valtellina di Sondrio (I) 061 Chiesa in Valmalenco 062 Chiuro 063 Ponte in Valtellina

07 Vallée d'Aoste - Valle d'Aosta (I) 071 Gressony-La-Trinité 072 Gressony-Saint-Jean 073 Champorcher 074 Avise

08 Val de Drôme (F) 081 Saou

09 Vercors (F) 091 Vassieux-en-Vercors

