

## LIGNOVISIONEN

Schriftenreihe des Institutes für Holzforschung (ihf)  
am Department für Materialwissenschaften und Prozesstechnik (MAP)  
an der Universität für Bodenkultur Wien

Band 13

Book series of the Institute of Wood Science and Technology (ihf)  
at the Department of Material Sciences and Process Engineering (DMSP)  
at the University of Natural Resources and Applied Life Sciences, Vienna

Issue 13



## Proceedings of the COST Action E40 Conference

# Large diameter timber - problem or chance?

Edited by  
Alfred Teischinger

in Co-operation:  
COST - European Co-operation in the field of  
Scientific and Technical Research  
Action E40 - Innovative utilisation and products of large diameter timber  
and  
Bernern Fachhochschule, Hochschule für Architektur,  
Bau und Holz, Burgdorf, Biel, Switzerland

The COST action E40 "Innovative utilisation and products of large diameter timber" deals with a very specific topic within the forestry-wood-chain and wants to develop solutions for a proper use of large diameter timber. A conference in Biel/Switzerland within this COST action had the focus on large diameter timber as a problem or a chance. In order to find a proper answer to these very challenging questions, the conference was structured in several parts:

- Session 1 - political statements by invited speakers from forestry, wood processing and wood research including a round table discussion. Controversial points of view were to be presented and discussed.
- Session 2 - presentations concerning chances and potentials of quality grading referring to the specific properties of large diameter timber
- Session 3 - presentations showing appropriate processing technologies and products for large diameter timber
- Poster Session - providing a survey on various research activities concerning large diameter timber
- Conference summary and adoption of a conference communiqué

The proceedings provide a documentation of all the various sessions within the conference and provides some answers to open questions so as to develop a successful processing of large diameter wood.

### **COST-aided**

COST is an intergovernmental European framework for international co-operation between nationally funded research activities. COST creates scientific networks and enables scientists to collaborate in a wide spectrum of activities in research and technology. COST activities are administered by the COST Office.

## Abstracts - Poster Session

### **Influence of some anatomical and physical properties of wood on warp during kiln drying of spruce (*Picea abies* Karst.) and silver fir (*Abies alba* Mill.)**

Željko Gorišek<sup>1</sup>, Aleš Straže<sup>1</sup>, Dominika Gornik Bučar<sup>1</sup>, Bojan Bučar<sup>1</sup>

<sup>1</sup> University of Ljubljana, Biotechnical Faculty, Department of Wood Science and Technology, Ljubljana, Slovenia, E-Mail: zeljko.gorisek@bf.uni-lj.si

#### **ABSTRACT**

Great variability and non-homogeneous nature of wood is the most troublesome characteristic affecting the end use of wood. Growth ring orientation and distance from pith considerably affected the strength and warp in sawn timber which is a common problem while lumber is being dried. In Norway spruce (*Picea abies* Karst.) and silver fir (*Abies alba* Mill.) fiber length, microfibril angle (MFA), growth rate (GR), oven dry density ( $\rho_0$ ), spiral grain (SG) and shrinkage in all three anatomical direction ( $\beta_L$ ,  $\beta_R$ ,  $\beta_T$ ) at successive growth sections in direction from pith to bark (A  $\leq$  10 years, B  $\leq$  20 years, C  $\leq$  30 years, D - at the border the sapwood, E - at the border of the cambium) were determined and correlated with bow and twist that occur during drying. Oven dry density ( $\rho_0$ ) and shrinkage reached the lowest values in section A, and increased towards the greatest and significantly different values in mature wood (E). Spiral grain was the greatest in early period of juvenile wood. Spiral grain results in greater tendency to warp and twist and also increased with decreasing moisture content.

### **Material characteristics as basis for optimized and sustainable use of Austrian large dimensioned softwood Analysis of the variation of selected wood properties over cross-section and height**

Alfred Teischinger<sup>1</sup>, Ulrich Müller<sup>1</sup>, Margareta Patzelt<sup>1</sup>

<sup>1</sup> BOKU, University of Natural Resources and Applied Life Sciences Vienna, Institute of Wood Science and Technology, Peter-Jordan-Straße 82, 1190 Vienna, Austria

#### **ABSTRACT**

The vision of the actual project where this specific research war has been carried out is to raise the competitiveness of large diameter timber on the market. In order to meet one of the main goals - rising utilisation of large diameter timber - the "missing link" between marketing and processing has to be found.

The major task was to find out how selected wood properties are influenced by the age of the tree and how the properties are distributed within the stem - concerning both height and diameter.

The gained data - both on macroscopic and microscopic scale - show a high variety within each examined parameter. Obvious is the distinctive difference between juvenile and adult wood. Although most parameters show an increase in the adult areas accompanied by for instance higher strength of longer fibres, the wood industry can't benefit from these properties directly. The parallel increase in knot diameter deteriorates the benefits of improved fibre properties. Therefore there is more need for research and development on industrial scale in order to find out appropriate techniques and processing methods for a raw material, which shows high potential per se.

## **Measuring the quality of large timber: an integrated approach**

Martino Negri<sup>1</sup>, Claudio Pollini<sup>1</sup>, Barbara Tessadri<sup>1</sup>, Nadia Gaeti<sup>1</sup>, Jakub Sandak<sup>1</sup>

<sup>1</sup> IVALSA/CNR, Trees and Timber Institute, 38010 (TN) San Michele a/A, Italy, E-Mail: negri@ivalsa.cnr.it

### **ABSTRACT**

The poster presents an integrated approach to define and describe quality of wood. A special interest has been focused on the measurement of wood properties at the levels of standing tree, lumber and laboratory sample. Standardized parameters as well as newly developed descriptors were used to express various characteristics of wood. A summary of results is presented in a handy form of the radar/spider graph.

## **Internet data base presenting material characteristics as basis for optimized and sustainable use of Austrian large dimensioned softwood**

Maria Huber<sup>1</sup>, Wolfgang Wimmer<sup>1</sup>

<sup>1</sup> Vienna University of Technology, Institute for Engineering Design - Environmental Product Design, Austria

### **ABSTRACT**

Material characteristics of large diameter round wood have been edited for specific target groups. To rise the utilisation of large diameter timber the whole product chain - the processors as well as the end costumers - have to be aware of its properties, the necessary processing characteristics and the use areas of the raw material.

The gap between the scientific knowledge and its application in practise was filled by an freely accessible internet tool. The objectives of the internet tool are:

- present the advantages and potential of LDT in a clear and appealing manner
- knowledge transfer
- provide a decision support for potential users.

## **Marketing of silver fir Development of a joined marketing concept for silver fir in central Europe**

Thorsten Beimgraben<sup>1\*</sup>, Oliver Hövelmann<sup>1</sup>, Udo Hans Sauter<sup>1</sup>

<sup>1</sup> FVA, Forest Research Institute Baden-Württemberg, Freiburg, Germany

*\* To whom correspondence should be addressed*

### **ABSTRACT**

Silver fir fulfils an important ecological function in the forest stands of the alps and sub alpine areas of central Europe. Nevertheless it is very difficult for forest owners to sell the round timber. Most times Silver fir is sold in limited mixture with Norway spruce and a so called "silver fir adjustment".

In cooperation with foresters, saw millers and scientists a marketing concept has been designed and realised in the years 2003 to 2005 to inform producers and end users about the properties and the quality of Silver fir. Architects, producers of wooden house elements and end users have been identified as key players in relation to real estate development and house building. These target groups have been approached by trade fairs, TV-productions and configuration of a new web page. This web page contains a broad index of Silver fir products and functions as a regular market for these products developed.

## **Large dimensioned timber New mobilisation and marketing concepts for large dimensioned timber resources in Germany**

Thorsten Beimgraben<sup>1\*</sup>, Matthias Holzmann<sup>1</sup>, Udo Hans Sauter<sup>1</sup>

<sup>1</sup> FVA, Forest Research Institute Baden-Württemberg, Freiburg, Germany

*\* To whom correspondence should be addressed*

### **ABSTRACT**

Twenty percent of the growing stock in German forests is so called large dimensioned timber (LDT). This is the result of modern silvicultural strategies and reluctant selling behaviour of forest owners as a consequence of low round timber revenues. When compared with small and medium sized round timber, the harvesting and processing of LDT is more expensive. In addition, new techniques like gluing of small pieces to big dimensions substitutes big round timber.

It is intended to practise a solid information policy and dissemination of data concerning the amount, sizes, location, quality and logistics of the actual and forthcoming output of large timber. A suitable set of harvesting methods and logging schemes have to be worked out and realized and at the same time the flow of accurate data and information has to be secured.

Clearly, a marketing process has to accompany the proceedings. Ultimate goal of this project is therefore to analyse the potentials of using large wood and to investigate the market chances of products derived from large dimensioned timber. In addition, product strategies and marketing recommendations for the tree species Norway spruce, Silver fir and Beech for the forest and timber industry will be developed.

# Impressum / Imprint

Verleger / Publisher:	Universität für Bodenkultur Wien University of Natural Resources and Applied Life Sciences, Vienna
Herausgeber / Editor:	Alfred Teischinger
Redaktion / Editorial office:	Robert Stingl, Daniela Romstorfer  Institut für Holzforschung (ihf) am Department für Materialwissenschaften und Prozesstechnik (MAP) an der Universität für Bodenkultur Wien  Institute of Wood Science and Technology (ihf) - Department of Material Sciences and Process Engineering (DMSP), University of Natural Resources and Applied Life Sciences, Vienna
in Co-operation:	COST - European Co-operation in the field of Scientific and Technical Research Domain: Forests and Forestry Products Action E40 - Innovative utilisation and products of large diameter timber  Bernern Fachhochschule, Hochschule für Architektur, Bau und Holz, Burgdorf, Biel, Switzerland
Adresse / Address:	Peter Jordan Straße 82 A - 1190 Wien (Vienna), Austria
Telefon / Telephone: FAX / Telefax:	+43 – (0)1 – 74654 – 4250 +43 – (0)1 – 47654 – 4295
E-mail: Internet:	ihf@mail.boku.ac.at <a href="http://www.boku.ac.at/holzforschung">http://www.boku.ac.at/holzforschung</a>

# Bestellung / Order Form

LIGNOVISIONEN Band 13 / Issue 13



## Proceedings of the COST Action E40 Conference Large diameter timber - problem or chance?

December 5th - 6th 2005; HSB Biel, Switzerland

Edited by Alfred Teischinger

ca. 120 Seiten (A4) / Pages (size A4)

Text and Summary: in englischer Sprache / in English language

**Session 1 - political statements by invited speakers from forestry, wood processing and wood research including a round table discussion. Controversial points of view were to be presented and discussed.**

**Session 2 - presentations concerning chances and potentials of quality grading referring to the specific properties of large diameter timber**

**Session 3 - presentations showing appropriate processing technologies and products for large diameter timber**

**Poster Session - providing a survey on various research activities concerning large diameter timber  
Conference summary and adoption of a conference communiqué**

An die

Universität für Bodenkultur Wien  
Institutes für Holzforschung (ihf)  
am Department für Materialwissenschaften und Prozesstechnik (MAP)  
Peter Jordan Straße 82  
A-1190 Wien (Vienna), Austria

Tel: +43 (0) 1 47654 4258  
Fax: +43 (0) 1 47654 4295

Ich/Wir bestelle(n) ..... Exemplar(e) der Serie LIGNOVISIONEN Band 13

I/We order ..... copy(ies) of the book series LIGNOVISIONEN Issue 13

Preis / price € 30.-- (plus Versandkosten / plus mailing costs)

Titel, Vorname /  
Degree, First Name .....

Nachname /  
Surname .....

Firma oder Institut /  
Company or Institute .....

Adresse / Adress .....

UID-Nr. / VAT-Nr. ....

Email .....

Anmerkung / Remark .....

.....  
Datum / Date

.....  
Unterschrift / Signature