

**COST Action E53**  
**“Quality control for wood and wood products”**

**4<sup>th</sup> Workshop**

**NTI**

(Norwegian Institute of Wood Technology)

**Holmenkollen - Oslo, Norway**

19-20 May 2008

# Summary

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Arto Usenius, Johannes Welling, Julia Denzler and Charlotte Bengtsson



## 1. Organisation

The 4th workshop of Cost E53 in Oslo Holmenkollen, Norway was organised by Knut Magnar Sandland. The entire event contained three separate WG workshops, joint meeting of the Task Group and Steering Committee (SC) and finally, Management Committee (MC) meeting. The choice of the venue for the workshop and other meetings was excellent. Sandland's excellent work of organising the event is very much appreciated.

## 2. Participation

Large number of participants representing MC, WG members and representative from the industry participated in the event. Here is the list of participants.

Aas Clementz, Christoffer	WG3	NO	Köhler, Jochen	WG3	CH
Akerfelds, Ivars	WG2	LV	Lagana, Rastislav	WG2	SK
Aleinikovas, Marius	WG3	LT	Lycken, Anders	WG3	SE
Aleon, Daniel	WG2	FR	Mamonova, Miroslava	WG1	SK
Allegretti, Ottaviano	WG2	IT	Milic, Goran	WG2	RS
Bacher, Martin	WG3	IT	Moloney, Sean	WG3	IE
Baso, Carlos	WG2	ES	Möttönen, Veikko	WG2	FI
Bengtsson, Charlotte	WG3	SE	Nelsson, Claes	WG3	SE
Benoit, Yann	WG3	CH	Oja, Johan	WG1	SE
Brännström, Mattias	WG3	SE	Olofsson, Jörgen	WG3	SE
Bumanis, Karlis	WG3	LV	Orlowski, Kazimierz	WG1	PL
Buytendijk, Evan	WG3	NL	Perstorper, Mikael	WG3	SE
Carballo, Jorge	WG3	ES	Pervan, Stjepan	WG2	RS
Coppens, Hugo	WG3	BE	Qvale Nyrud, Anders	WG3/TG	NO
De Boever, Lieven	WG3	BE	Ranta-Maunus,Alpo	WG3	FI
De Corte, Jozef	WG1/2	BE	Reuling, Didier	WG3	FR
Denes, Levente	WG3	HU	Rinnhofer, Alfred	WG1	AT
Denzler, Julia	WG3	DE	Rozema, Pieter	WG3	NL
Dubovsky, Jan	WG3	SK	Salin, Jarl-Gunnar	WG2	SE
Fewell, Tony	WG3	UK	Sandland, Knut Magnar	WG2	NO
Forsen, Holger	WG2	FI	Sandomeer, Markus	WG3	CH
Frühwald, Katja	WG3	DE	Santos, José	WG2	PT
Gard, Wolfgang	WG2	NL	Sauter, Udo Hans	WG1	DE
Gorisek, Zeljko	WG2	SI	Schauer, Roman	WG3	AT
Gornik Bucar, Dominika	WG3	SI	Sega, Bogdan	WG3	SI
Grohmann, Rainer	WG2	DE	Skarvelis, Michalis	WG2	GR
Grzeskiewicz, Marek	WG3	PL	Skema, Mindaugas	WG2	LT
Hartz, Erik	WG1	NO	Spulle, Uldis	WG3	LV
Holmila, Pertti	WG1	FI	Stapel, Peter	WG3	DE
Hrcka, Richard	WG2	SK	Straze, Ales	WG2	SI
Iejavs, Janis	WG3	LV	Toverød, Håkon	WG1	NO
Kakaras, Ioannis	WG1	GR	Travan, Livio	WG2	IT
Klemmt, Hans-Joachim	WG1	DE	Turk, Goran	WG3	SI
Kliger, Robert	Chair	SE	Usenius, Arto	WG1	FI
Knaggs, Gordon	WG2	IE	Welling, Johannes	WG2	DE
Kolin, Branko	WG2	RS	Ziethén, Rune	WG3	SE
Krzosek, Slawomir	WG3	PL	Øvrum, Audun	WG3	NO

The joined session was opened by Robert Kliger, who introduced the workshop which included objective of the action and short introduction to WG1, WG2 and WG3. Ms. Melea Langbein, the new COST Senior officer, was introduced to the action participants.

### **3. Workshop content**

After the short introduction of the entire program by the chairman and some practical information presented by the organiser, all participants have chosen one of the three parallel sessions.

#### **3.1 Session with technical discussion/presentation related to WG 1, chaired by Arto Usenius.**

Issues discussed in Oslo meeting:

- a. Future trends in the sawmill industry. How to strengthen customer and end user orientation
- b. Presentations of ongoing research and development activities on scanning and supply chain optimisation
- c. Identifying topics for international co-operation
- d. Future activities within WG 1 Scanning

#### **Research and development activities on scanning and supply chain optimisation**

Future trends in the sawmill industry. How to strengthen customer and end user orientation

Scanning and optimisation from industrial perspective

Prospects of linking forest inventory with the wood conversion chain by scanning technologies

Flexible and adaptive manufacturing systems for saw mill industry

Using colour information for hardwood grading

Optimizing production of wood flooring based on consumer preferences

WoodCIM and InnoSIM software systems for optimisation activities throughout conversion chains

Evaluation methods for scanning systems

Dimensional accuracy of sawn timber

Simulation of wood conversion chain

#### **3.2 Session with technical presentations related to WG II, chaired by Johannes Welling**

After a short recall of the topics discussed during the last very short WG 2 meeting in Warsaw the delegates were asked to give a short summary on the moisture content and drying related research in their countries. With few exceptions the general picture was that i) the number of researchers in the field is strongly declining, ii) drying related topics do not have a strong position in current national and EU frame work programs, iii) a loss of available expertise has to be expected over the coming years.

The leaders of the three task groups in WG 2 reported about progress of work related to elaboration of leaflets/information brochures for practitioners:

- TG Moisture content and drying quality (J. Welling)

Table of content was presented. Swedish publication as basis was discussed. Text will be translated and up-dated in accordance with current EU standards. A tough time table was fixed and persons were allocated to the different tasks.

- TG Distortion (R. Grohmann)

The concept for the leaflet was explained. For each type of distortion general description, physical/anatomical background and methods for avoidance/reduction will be described. Examples were displayed.

- TG Discolouration (W. Gard)

List of discolouration types was presented. Different types of discolouration will be explained in form of fact sheets (approx. one page long with pictures), which contain description, biological, chemical, physical reasons for the occurrence of the discolourations and strategies for avoidance.

Some colleagues proposed to start the work on a book related to drying of wood for practitioners. This book is not mentioned in the MoU and therefore it should not be considered as part of the official COST E53 WG 2 activity. It was decided to first work out a draft table of contents and then seeks authors for the different chapters. All delegates agreed that it will not be possible to finish the work within the scope of COST E53.

J. Welling reported about a recent project in Germany dealing with methods for determining moisture content of fuel wood. This topic has to be seen in the context of strategies for reducing respirable dust from burning wood for heat and power generation.

K.M. Sandland introduced the delegates to the new internet-based discussion forum which is run by Norwegian Kiln Drying Club Torkeklubben in cooperation with EDG. Strategies for increasing traffic in the discussion forum were discussed.

K.M. Sandland, who is the current chairman of EDG organized a Drying Seminar for WG 2 delegates and practitioners which was attended by approx. 60 people. Nine high quality papers were presented by speakers from 6 European countries. Lively discussions clearly demonstrated the high interest of the topics to the audience.

### **Conclusions**

The delegates have contributed very actively to the WG 2 objectives and targets described in the MoU of the Action. The time schedules defined for the different tasks indicate that the objectives will be accomplished within the time frame fixed for the Action.

### **3.3 Session with technical presentations related to WG II, chaired by Charlotte Bengtsson**

All participants were encouraged to think about the task group and possible invited speakers to Cost Action. Julia Denzler was nominated as secretary.

In the following, a short summary of the discussion after each presentation is given.

#### 3.3.1 Alpo Ranta-Maunus “Gradewood – presentation of project”

Evan Buytendijk asked about the start of the project. Alpo stated that this was beginning of 2008. Hugo Coppens wanted to know if the group is still interested in “old results”.

Alpo clarified that if the test results are based on the existing standard, then they are interesting and the group would be pleased to obtain as much test results as possible.

Tony Fewell reminded that the data collected should be comparable within the Gradewood project. EN 408 and EN 384 were modified some years ago, the requirements were “tightened up”. This can cause differences. Alpo totally agreed with that comment and stated that the group makes its best to bring the data into a comparable form. Robert Kliger wants to know the variation in size which is of interest. Alpo said that normal sawn timber should be examined. Evan Buytendijk asked about other timber species e.g. Larch. Alpo stated that no other timber species are considered right now.

The influence of moisture content and the consideration of moisture content within the Gradewood project were questioned. As this factor is not studied within the Gradewood project the correction is made according to the standard.

#### 3.3.2 Peter Stapel “Determination of growth areas where the same settings for grading machines can be used”

Katja Fruehwald commented that the relationship between strength and density should be part of Gradewood. Tony Fewell said that combining growth areas is complex and the range of test results has to be similar. The combination of countries is also depending on strength classes in his opinion. Jochen Koehler wanted to know if the implicit method of EN 14081 is the correct way for the combination of growth areas. Peter said that in his opinion the method given in EN 14081 is not sufficient.

Alpo Ranta-Maunus was interested in the lower strength values for the Austrian data. He found out that the bending tests of Austrian timber is much higher than the one shown in this presentation. Martin Bacher stated that the problem of spread of material consists even within a country. Rune Zithén explained that whenever a sub-sample is picked out of a sample that fulfils the requirements then this sub-sample will also fail the given requirements. This is a statistical aspect. Jochen Koehler proposed to consider the uncertainties within wooden material. Therefore, the models should be more complex.

#### 3.3.3. Anders Lycken „Gradewood WP5 Modelling and development of grading procedures, results concerning output control“

Mikael Perstorper wanted to know if there is an explanation for the low correlation for spruce shown in this presentation. Anders answered that perhaps knot clusters are more definite in pine and that there is other literature available showing that. Alpo Ranta-Maunus has the same experience.

#### 3.3.4. Karlis Bumanis Latvian spruce and pine – Addendum to the Nordic common growth area

Martin Bacher commented that also grading machines based on radiation can be used to grade timber acc. to the MOE. Tony Fewell wanted to know if MOE was measured in the neutral axis or not and asked Karlis to correct his picture given in the presentation.

#### 3.3.5. Discussion and advice for the Gradewood project

Markus Sandomeer asked for the limitations to take part in Gradewood project. Alpo Ranta-Maunus commented that the Gradewood project plans to have open meetings beside meetings only for participants. The next open meeting will be in Vaxjö June 25. Mikael Perstorper asked if output control is also considered within Gradewood project and received the answer that it is considered in parts, but that this is a very cost intensive method. The pregrading of logs is not considered within Gradewood project. Martin Bacher mentioned that this should be explained to companies more clearly. Sean Moloney mentioned that the group should not forget that the specimens end up in a product afterwards and wanted the group to consider that within the project.

#### 3. 5. 6. Jochen Koehler: On the reliability of timber structures – effects of timber grading

Tony Fewell stated that partial factors were calibrated against national codes. Reliability might be able to work for special components but not for timber in general, because timber varies too much. It is in his opinion not useful to use reliability for timber because the within piece variation can not be taken into account in the design. Mikael Perstorper mentioned that the load curve has also a lot of uncertainties. Perhaps there should be more input concerning the reliability of the load curves.

#### 3. 5. 7. Markus Sandomeer: Representing the variability of machine graded material by means of probabilistic hierarchical modelling

Mikael Perstorper asked for the time frame of changing the settings within an output control system. Markus explained that this depends on the amount of the shift itself (faster reaction on great shifts).

#### 3. 5. 8. Anthony Fewell: TG1 and experiences from development of the grading standard

Evan Buytendijk asked if growth areas were specified in the beginning. Tony explained that timber from different countries was tested, but the grading was correct for the growth areas in this time because the strength classes were low compared to nowadays. Jochen Koehler stated that the reliability index should not be proportional to costs as it is at the moment. Tony Fewell replied that there is no reliability included in the code, but Jochen stated that there is in downgrading. Tony agreed but answered that these figures are just for having a comparable number.

#### 3. 5. 9. Peter Rozema: Timber Grader MTG

Martin Bacher asked if Peter try to analyse each species separately. Peter answered that he did so and these individual, species related packages, have all lower settings compared to the mixture. Regarding speed Martin Bacher wanted to know how many specimens

can be graded per minute when weighing is included in the process. Peter explained that there will be appr. 20 specimens graded within 1 minute than. Without weighing, 40 specimens can be graded.

#### 3. 5. 10. Marek Grzeskiewicz: Polish timber grading using Timber Grader MTG

Claes Nelsson asked if the MTG grading result can be directly compared to the visual grading according to the Polish standard. Marek stated that this is not possible; the two diagrams are not directly comparable.

#### 3. 5. 11. Markus Sandomeer: Summary of Swiss survey regarding motivation and demand for machine graded structural timber in Switzerland

Yann Beniot wanted to know, how many people of French Swiss part and how many of German Swiss part take part. Markus said that it was equally distributed.

Robert Kliger stated that the questionnaire was focused on engineers and asked if Markus intends to do the same with the end-users. Markus negotiated that.

Sean Molony is interested in sending this questionnaire to concrete and steel engineers, just to get a feeling for the main reason not to use timber.

#### 3. 5. 12. Katja Frühwald: Procedure for determination of characteristic of hardwoods

Alpo Ranta-Maunus stated that the correlation between strength and density is also low for softwoods and that density is needed within the design process.

Didier Reuling mentioned that FCBA tested approx. 2000 oak specimens in bending and that these data is available.

#### 3. 5. 13. Mattias Brännström: Proposal of preparing documents within COST E53/WG3

Jochen Koehler and Katja Frühwald both support the idea. Alpo Ranta-Maunus suggested preparing one example within this Cost Action for an existing standard to help the standardisation body to make a short description of each standard on their one. Four volunteers agreed to take this role: Evan Buytendijk, Mattias Brännström, Katja Frühwald and Markus Sandomeer. A suggestion will be given on the next meeting.

### **Conclusions**

This WG is a very active group with large amount of activities going on in Europe. During this workshop almost 40 people followed the presentations and discussions after each presentation. It should be notice that four main producers of grading machines were present and very active during the meeting. The activities conducted by this group are very interesting and the aims stated in MoU are well on the way to be fulfilled.

## **4. Task Group and Steering Committee (SC)**

Each WG group will create an own questionnaire with 12 question (no comments, crosses or figures, 6 points alternative answers). To each question some alternative answers will be produce by us. As a result, the people who answer can choose one or

more of the suggested alternatives. There will be no possibilities to write answers or comments in the final on-line version. Deadline for each WG leader to send set of 12 questions to Robert Kliger is the **20<sup>th</sup> of June**. By the end of August the questionnaire will be finalised and send to all MC members to be translated to other languages.

## **5. Future activities, joint SC and Task group meeting and conference in Delft**

Wolfgang Gard presented the proposal both for the agenda and for organisation of the conference in Delft. Most time was spent to discuss the conference, which is planned for 29-31 October 2008.

MC Meeting was suggested on 30 October 2008, at 8.30 – 9.30.

Task Group Meeting: 1 hrs on 29 October (first day of the meeting).

People who will be asked to give a presentation as an invited speakers:

first keynote speaker (someone from the Netherlands)

second keynote speaker (Jouko Silén)

Martin Bacher for Grading and CE-Marking

Gerald Koch for drying and discoloration

Anders Ros (?) for requirements

Subjects for the open calls: (requirements and strategies)

Quality for structural timber

Quality for joinery

Quality control

Aesthetical aspects

Deadline related to the conference.

Submission of abstracts: 16 June

Reviewing of abstracts: Johannes W, Charlotte B, Julia D, Wolfgang G

Template for flyer: Levente Denes

Deadline for papers: 15 September

Registration: 1 July to 15 September

Final program: 1 July