



Structural fire design Eurocode 5-1.2 Timber structures

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7 Chapters :

1. General
2. Basis of design
3. Material properties
4. Design procedure for mechanical properties
5. Design procedure for wall and floor assemblies
6. Connections
7. Detailing

6 Annexes :

- A : (informative) Parametric fire exposure
- B : (informative) Advanced calculation models
- C : (informative) Load-bearing floor joists and wall studs in assemblies whose cavities are completely filled with insulation
- D : (informative) Charring of members in wall and floor assemblies with void cavities
- E : (informative) Analysis of the separating function of wall and floor assemblies
- F : (informative) Guidance for users of this Eurocode Part

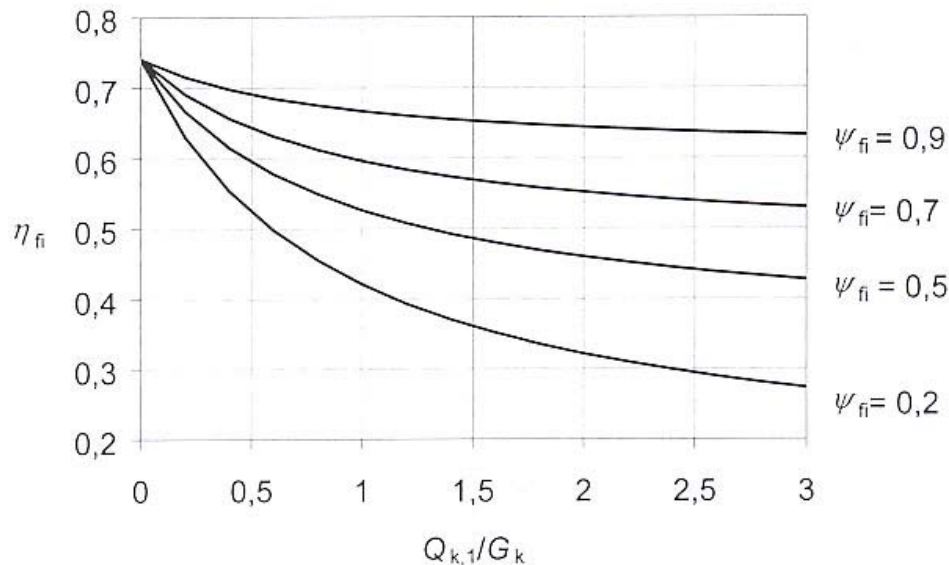
2.4 Verification methods

2.4.1 General

$$E_{d,fi} \leq R_{d,t,fi}$$

2.4.2 Member analysis

$$E_{d,fi} = \eta_{fi} E_d \quad \eta_{fi} = f(G_k, Q_k, \gamma, \psi)$$





Some research work has been carried out:

Such as in the fields of

- **Material properties and resistances**
- **Some Design procedures for mechanical resistance**
- **and others which will be subject to the following paper**

Still more R&D has to be done

This will partially be covered by the following project:



WoodWisdom-Net project
**FireInTimber –
Fire resistance of Innovative Timber structures**

December 2007

FireInTimber – Partners and countries:

SP Trätekt – Sweden

TUM, DGfH – Germany

TreSenteret – Norway

HFA, UIBK, TUW – Austria

Resand – Estonia

VTT – Finland

BPU, CSTB France

BRE – UK

ETH Zuerich – Switzerland

European industry: CEI-Bois / BWW



WoodWisdom-Net opening Seminar in Berlin 12 February 2008 - ERA-Net



WoodWisdom-Net

**FireInTimber -
Fire Resistance of Innovative
Timber structures**

Birgit Östman
SP Trätekt, Sweden



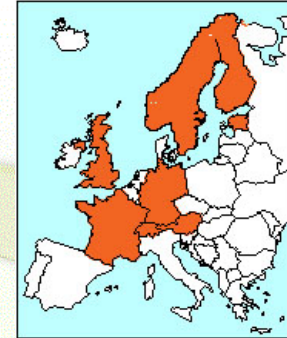
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Project Partners and their Roles



14 partners in 9 countries:

1. SP Trätekt, Sweden – Coordinator
2. VTT, Finland – WP 1 and 4 leader
3. TUM Technische Universität München, Germany , WP 3 leader
4. DGfH Deutsche Gesellschaft für Holzforschung, Germany – R&D
5. CSTB Centre Scientifique et Techn du Batiment, France – R&D
6. BPU Blaise Pascal University, France – R&D
7. TS Tresenteret (Wood Centre), Norway – R&D
8. BRE Building Research Establishment, UK – R&D
9. HFA Holzforschung Austria – R&D
10. UIBK University Innsbruck, Austria – R&D
11. TUW Technische Universität Wien, Austria – R&D
12. Institute of Structural Engineering, ETH Zurich, Switzerland – R&D
13. Resand Ltd, Estonia – R&D
14. CEI-Bois Roadmap– Main industry partner
+ additional national industry partners



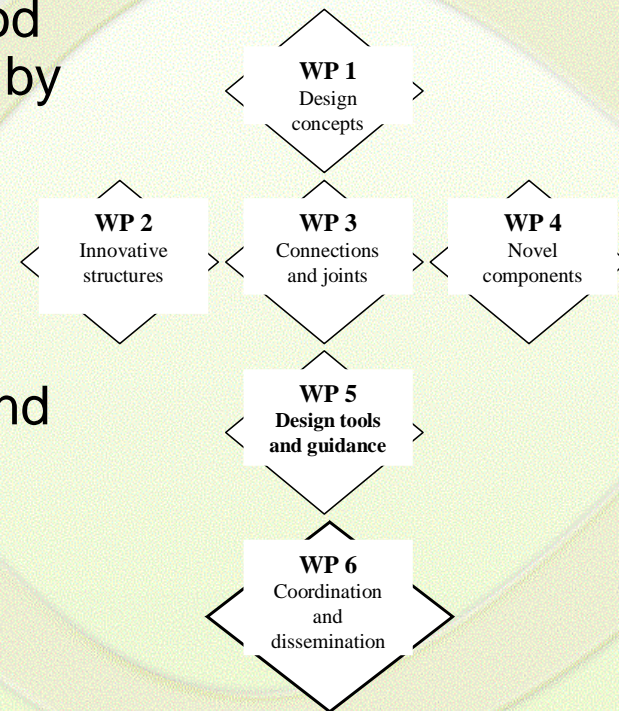


Project Objectives and Main Tasks

Key objectives:

- New possibilities for wood products in construction by proper fire design
- Simplified approval processes for wood products in buildings
- Knowledge transfer to end users

Six work packages:





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Expected Impact and Target Groups

Impact:

- Reduced requirements on documentation for the fire design of wooden buildings
- Simplified structural solutions
- Improved cost competitiveness of building with wood

Target groups:

- Architects, designers, engineers, authorities, educational bodies, wood and building industries





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Added Value from Transnational Approach

- Unified European view on fire safety in wooden buildings
- Increased reliability of fire safe use of wood
- European validated knowledge database available for all stake holders



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Expected results:

- **Analytical design concepts for load-bearing timber structures under fire conditions**
- **New models for load-bearing solid wood cross laminated panel and light weight structures during fire exposure**
- **Performance principles of connections at fire exposure**
- **Guidance on joints between wall and ceiling elements and on fire stops within structures**

Expected results:

- **Critically reviewed novel innovative products and summary of new knowledge for product development**
- **The first European wide guideline on the fire safe use of wood in buildings.**

FireInTimber :

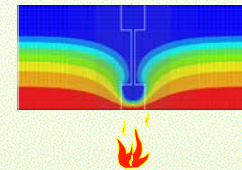
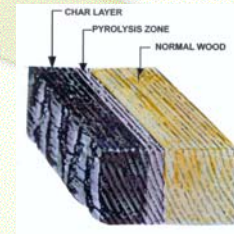
- **a new project within the European WoodWisdom-Net framework**
- **with 14 participants from 9 countries**
- **the project has started in November 2007 and will be finalised by the end of 2009**
- **It is supported by industry through the European initiative BWW and public funding organisations.**



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Project Highlights

- New models for load-bearing solid wood cross laminated panel structures and light weight structures during fire exposure
- Guidance on joints between wall and ceiling elements and on fire stops within structures
- **The first European wide guideline on the fire safe use of wood in buildings**



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Eurocode 5, part 1 . 2 :

In the following paper today's status as well as up to date findings will be presented by Jochen Fornather.

Thank you very much for your kind attention!