



## **BUSINESS PLAN**

### **CEN/TC 38**

#### **Durability of wood and wood-based products**

### **EXECUTIVE SUMMARY**

The standardization work in the field of wood durability is managed, at the European level, by the technical committee CEN/TC38 “Durability of wood and wood-based products”. Its goal is the elaboration of standards for wood preservatives and treated and untreated wood, developing terminology, analytical methods, biological tests, classifications, and specifications in accordance with the market needs and European regulations. So far some fifty standards have been adopted by CEN/TC 38, their objectives including ensuring quality and satisfying consumer expectations, eliminating trade barriers, harmonizing the methods used in the sector of wood protection, thus facilitating understanding between producers and users, and promoting sustainable development by delivering reliable wood products with an adequate service life.

The European landscape of wood protection changed a lot during the last decade. New wood-based products, whose durability has been enhanced with the help of non-biocidal innovative processes, entered the wood construction market. National forest sectors put many efforts to promote national resources, with the objective of increasing the use of native untreated wood by offsetting low durability through optimized design, adapted to wood products’ targeted conditions of use. European regulations also encourage manufacturers to develop products which are more efficient and less harmful for the environment and human health, and whose performance takes into account end-users’ expectations. These developments have resulted in a gradual shift in the global approach from traditional “wood preservation” to “wood protection”, which is a more general concept based not only on the inherent characteristics of the material itself but also on its interactions with the environment (design, maintenance, exposure, moisture risk).

New products, processes and construction rules require validation tools that could ensure their reliability and future development. In this challenging context, CEN/TC38 is the main source of methods for assessing the characteristics of new products and as such it plays a key role.

## 1 BUSINESS ENVIRONMENT OF THE CEN/TC 38

Political, economical, social, technical, legal and international factors either directly drive the standardisation activities proposed by CEN/TC 38, or at least significantly influence them. This section describes the current market situation relevant to the product or product grouping under consideration by CEN/TC 38.

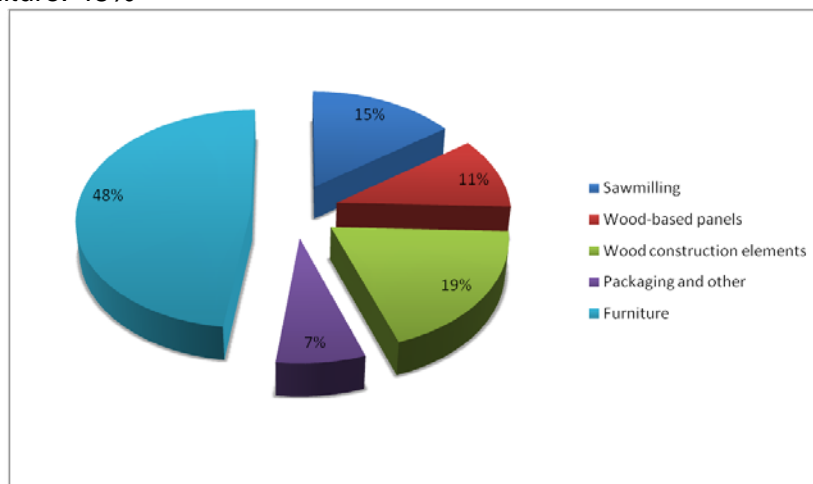
### ***The EU woodworking industry sectors (source CEI-Bois)***

European woodworking industry includes more than 380,000 companies generating an annual turnover of 300 billion euro and employing around 3 million workers in EU27.

The turnover of the WI in the EU-28 peaked in 2007 at 148 billion EUR. Subsequently, the turnover dropped and upturned several times. After three years of growth (2013-2015) it slightly decreased by 1% in 2016, amounting to 128 billion EUR. While the turnover is still below pre-crisis level, it increased by 19% compared to the worst year (2009).

Based on available data and provisions for other countries, the following statements can be made:

- Production value Nace 16 (woodworking): decline by 20.6 % from 2008 to 2009
  - Nace 16.1 (Sawmilling): - 19.2%
  - Nace 16.2 (Panels): -20.3%
- Production value Nace 31 (Furniture): decline by 22.3% from 2008 to 2009
- Relative shares of subsectors: woodworking (52%) clearly ahead of furniture
  - Sawmilling: 15%
  - Wood-based panels: 10.6%..
  - Wood construction elements: 19%
  - Packaging and other: 7.4%
  - Furniture: 48%



### ***Regulations***

Technical development of the sector largely depends upon the requirements in accordance with the regulations and the request of the users of TC38. The users present new needs for new applications therefore introducing, when possible, new types of products or treatments. After the standardisation of performance, assessment and specification for the preventive products and for the products for curative processes, the development of methods began for measuring environmental emissions from wood preservatives during application, treated wood in service and from treated wood after its service life. However, positive environmental solutions for sustainable

development in wood preservation need to be defined. The best route is thought to be via service life performance issues as being discussed within WG28.

European regulations have, over the years, imposed a number of Directives and Regulations to Member States that are required to be implemented by both industry and Member States. Some major existing regulations, that have impacted the assessment of wood durability, are the following:

- **The Regulation (EC) No 1907/2006** of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC
- **The consolidated version of the Regulation (EC) No 1272/2008** on the classification, labelling and packaging of substances and mixtures (CLP)
- **The Directive 89/106/EEC** on the approximation of laws, regulations and administrative provisions of the Member States relating to construction products
- **The Commission Directive 2003/2/EC** of 6th January 2003 relating to restrictions on the marketing and use of arsenic (tenth adaptation to technical progress to **Council Directive 76/769/EEC**)
- **The Biocidal Products Directive (BPD) 98/8/EC** concerning the placing of biocidal products on the market. The Biocidal Product Directive aims to harmonize the European market for biocidal products and their active substances. At the same time it aims to provide a high level of protection for humans, animals and the environment.
- **The Regulation (EU) No 528/2012** of the European Parliament and of the Council concerning the making available on the market and use of biocidal products was adopted on 22 May 2012 and is repealing and replacing the BPD. The regulation will be applicable as of 1 September 2013. The BPR aims to harmonise the European market for biocidal products, their active substances, and the treated articles. It also aims to provide a high level of protection for humans, animals and the environment.
- **The Construction Products Directive (EU) No 89/106/EEC (CPD)** that reflects the importance of service-life issues with its six essential requirements, which should be fulfilled by construction products during a 'reasonable service life'..
- **The Construction Products Regulation (EU) No 305/2011 (CPR)** which repeals the CPD was adopted on 9 March 2011. The CPR introduces a seventh essential requirement on sustainable use of natural resources and lays down conditions for the placing or making available on the market of construction products by establishing harmonized rules (hEN) on how to express the performance of construction products in relation to their essential characteristics and on the use of CE marking on those products.

### ***Interested sectors***

The core sectors are:

- manufacturers of chemicals (active substances)
- manufacturers of wood preservatives
- companies performing preventive treatment of wood
- regional forestry organisations and councils promoting use of wood for construction purposes
- companies performing post-construction treatment (PCOs)
- companies processing and using wood (construction, panelling, furniture, etc.)
- companies concerned with the service life performance of construction products (providers of environmental product declarations, LCA experts, architects, engineers)

In addition the following are also concerned:

- installers, users, consumers, public authorities, control offices, research institutions, laboratories, consumers' representatives, non-governmental organisations, trade or technical unions and associations
- partners with the construction supply chain like architects, banks, money lenders, insurance providers, project contributors, designers
- organisations such as IRG WP (International Research Group on Wood Protection) and trade or technical unions and associations such as EWPM (European Wood Preservative Manufacturers Group), WEI (Western European Institute for Wood preservation), CEI bois, FESYP (Fédération Européenne des Syndicats de Fabricants de Panneaux de Particules - European Federation of Associations of Particleboard Manufacturers) and other expert groups are interested in the work of TC38.

## **2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC 38**

Several essential issues crucial for the improvement of standards need to be focused on in the future:

- The current CEN/TC38 standards are meant for the assessment of the efficacy of wood preservatives and the inherent resistance of wood species. No specific standards have been developed yet for assessing the resistance and performance of new wood-based products whose durability has not been enhanced with the help of biocides (such as thermo-treated wood, modified wood, glue-laminated wood, wood-based panels, wood polymer composites, wood treated with water-repellents) and the existing standards are inadequate for their qualification. BPD requires the demonstration of efficacy and if new protection systems are to be fostered and innovation encouraged there is a need for test methods allowing the assessment of these products and for specific ways/criteria of interpreting the data coming from the tests. This raises the question of adapting the existing standards and efficacy tests to innovative technologies of wood protection, for which they may not be relevant in their present form.
- In their present form, CEN/TC 38 standards almost exclusively consider the material and not the final products, such as windows or wooden poles. The general approach to performance focuses mainly on the material's resistance (natural or enhanced by preservatives) and not on the primary influence of such external factors as moisture risk, design, exposure, and maintenance. Biological durability is obviously the key factor determining the performance of wood in different use classes, but other crucial factors contribute to determining the likelihood of a worst-case scenario occurring in practice, such as exposure, geographical location, moisture risk, maintenance, or presence/absence of wood-destroying agents.
- The existing standards offer little or no information about the performance of wood-based products in a context of constantly increasing expectations of customers and end-users regarding information about the service life of treated and untreated products or commodities in real-use conditions (indoor, outdoor, above-ground or in-ground contact, etc.).
- When testing the efficacy of wood preservatives, it is common practice to include products which have previously demonstrated high levels of efficacy as references. However, some of these products, such as CCA (extensively used as a reference biocidal product, mainly for field tests), are nowadays banned from the European market or not registered in the framework of the Biocidal Product Directive (BPD), which means that they should not be used anymore by wood preservation laboratories performing tests according to European

standards, even for research purposes or as reference products. The standards requiring the use of reference products prohibited on the European market shall be consequently modified and propose other reference products.

- The evaluation approaches used in the laboratory and in the field do not involve the same microorganisms. Laboratory tests usually involve a limited number of strains of white rot and brown rot fungi that are carefully referenced and maintained, while the basidiomycete species involved in the degradation of wood *in situ* are almost never identified and, therefore, largely unknown. Consequently, laboratory tests only allow assessment of wood's resistance to a well-known set of decay fungi and provide no information on how this wood will perform in the field.
- CEN/TC 38 standards need to connect better with their users. Simplifying EN standards in order to facilitate their use in practice is an essential objective to be reached in the future.

### 3 PARTICIPATION IN THE CEN/TC 38

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organizations are also possible under certain conditions.

### 4 OBJECTIVES OF THE CEN/TC 38 AND STRATEGIES FOR THEIR ACHIEVEMENT

The construction sector is permanently under pressure to improve its cost effectiveness, quality, energy efficiency and environmental performance, to improve service life and to reduce the use of non-renewable resources.

Based on the considerations above, CEN/TC38 proposes the following objectives and strategic directions for its future work:

#### 4.1 Defined objectives of the CEN/TC 38

The scope of CEN/TC 38 is the durability of wood and wood-based products.

*Note:*

*Durability of wood and wood-based products is defined as their resistance to attacks by wood destroying organisms which is either inherent (due to the presence of natural components that may exhibit different levels of toxicity towards biological organisms) or achieved with the help of wood protection products/processes (by chemical, physical or construction means).*

*Performance of wooden components in service which can be quantified as the level of ability to withstand deterioration over time, depends both on the natural or enhanced resistance of the wood or wood-based material and on external parameters such as design, maintenance and exposure.*

The work of CEN/TC 38 is the elaboration of standards on wood preservatives, on treated and untreated wood (terminology, analysis, biological tests, classifications, specifications.) considering market needs, ensuring quality and satisfying consumer expectations, eliminating barriers to trade, harmonising the methods used in the sector, thus facilitating understanding between the producers and the users, providing manufacturers with methods in compliance with legal requirements related to the Construction Product Regulation (durability, stability, hygiene, health, environment, sustainability) and the requirements of the Biocidal Products Directive (Regulation).

Among specific objectives:

- Enhancing the perception of treated/untreated wood and its market share

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- Promoting sustainable development of wood products by improving reliability and adequate service life
- Contributing to the safety of the construction sector for humans and animals
- Sustaining commercial diversity across Europe by providing information on types of wood and exposure linked to the local uses and habits
- Helping to improve knowledge on pathologies affecting wood
- Supporting the utilization of home-grown/ indigenous wood species
- Paying attention to the fate of materials throughout their whole life cycle - preservation treatment to be applied where and when necessary, in schemes varying from preventive, curative and maintenance action

### ***Liaisons with other CEN Technical Committees***

CEN/TC38 is involved in any topic regarding the durability of wood and wood based products, in liaison with the following CEN TCs:

- CEN/TC 33 - Windows and doors. Officer: F. HENRY ( FR)
- CEN/TC 112 - Wood-based panels. Officer: J. VAN ACKER (BE)
- CEN/TC 124 - Timber structures. Officer: F. HENRY (BNBA, FR)
- CEN/TC 139 – Paints and varnishes. Officer: M. KLAMER (DK)
- CEN/TC 175 - Round and sawn timber. Officer: F. HENRY (FR)
- CEN/TC 249/WG13 – Wood polymer composites – J. VAN ACKER (BE)
- CEN/TC 256/SC 1 – Infrastructure. Officer: E. SUTTIE (UK)
- CEN/TC 261 – Packaging. Officer: E. HEISEL (FR)
- CEN/TC 350 - Sustainability of construction works. Officer: G. DEROUBAIX (FR)
- CEN TC 351 - Construction products: assessment of the release of dangerous substances. Officer: C. YRIEIX (FR)
- CEN/PC 404 – Pest management. Officer: R. PLARRE (DE)
- CEN/TC 411 – Bio-based products. Officer: F. HENRY (FR)
- ISO TC 59/SC 14 – Design life. Officer: E. SUTTIE (UK)
- ISO/TC 88 – Thermal insulation
- ISO/TC 296 – bamboo and rattan.

NOTE: Works made by the CEN/TC 411 Bio-based products have recently appeared in relationship with the CEN/TC 38, regarding the aspects of measurement of biogenic Carbon and more largely the promotion of wood and wood based materials (treated and untreated).

### ***Liaisons with other entities***

The use of biocides for the wood is widely covered by CEN/TC 38 activities and concerned by many regulations. A strong relationship between CEN/TC 38 and the national and international authorities such as OECD and DG Environment must exist in order to have a clear mandate. CEN/TC38 intends to pro-actively participate to the work of wood products TCs with regard to CE marking and the Declaration of Performance. A generic document setting out the roles and expertise of CEN/TC38 will be worked out in the near future and dispatched to products TCs for their information.

#### **4.2 Strategies adopted to reach the objectives and counterbalance the identified risks.**

So far, some 50 standards to be used in the field of wood durability have already adopted by CEN/TC 38. Existing standards are largely mature and were developed for the assessment of

wood preservatives. Now there are numerous ways of enhancing durability of a broad range of wood-based products (e.g. wood modification, coatings, design, water repellents).

CEN/TC 38 adopted the following strategies in order to ensure the diffusion of relevant, informative and easy-to-handle standards:

- Bringing together groups of experts to quantify the need, facilitate the development of test methods for wood preservatives. Formalizing liaisons with other TC's in search of additional expertise and assist in the development of requirements not previously called up in technical standards.
- Providing standards helping the wood construction market to deliver reliable components of controlled durability with minimum maintenance needs and life-cycle costs, which is a key issue for the competitiveness of wood.
- Giving priority to the consideration of European Directives and Regulations impacting the assessment of performance, the risk management and the end-life of treated products.
- Working on the adaptation of the procedures developed for solid wood to allow testing other wood-based products.
- Providing tests that could be collectively used to determine if a treatment is fit for purpose in a specific end use.
- Considering non-biological mechanisms for wood deterioration that will influence strongly the connection between laboratory and field tests and performance in the construction industry. (e.g. physical checking of decking boards, splitting of round fence posts, surface weathering of cladding).
- Because presence and virulence of biological agents vary across Europe, providing a framework in which specifications for preservation can be made on a country-by country basis depending on the requirements of any given country, yet using the same set of efficacy tests.
- Using reference materials in the tests that give known service lives when applied in practice and used for specific commodities.
- Selecting new reference products (i.e. a wood species treated with an extensively tested biocide or untreated wood of a species whose durability is known to be very constant).
- Exploring the most appropriate way of taking into account external factors (i.e. moisture risk), that may affect the performance of the material in real-use conditions.
- Paying attention to variability in test methodologies and data analyses, especially for heterogeneous biological materials such as wood.
- Defining relevant sampling procedures, optimizing the amount of delivered data and selecting the most relevant approaches making the characterization of the products possible.
- Strengthening the statistical approach in CEN/TC 38 standards in order to deliver robust methodologies to the laboratories performing durability tests and, consequently, deliver reliable wood-based products to the market.
- Being the horizontal CEN/TC for the predictive definition of the conditions of exposure to potentially dangerous substances in situations of end-use and service for wood and wood products.
- Setting up efficient liaisons with others CEN/TCs in order to promote the works of CEN/TC 38 and to work complementarily.
- Contacting the relevant authorities such as OECD and DG Environment to have a clear mandate for the WG27, in charge of the exposure aspects.

Experts participate to different WG taking into account their background and capabilities in the following fields:

- fundamental knowledge of wood (structure, chemistry, anatomy)

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- technical knowledge of the use of wood as building material
- fundamental knowledge of wood-attacking organisms (biology, development of insects, fungi, marine borers) and exposure conditions
- chemistry of biocidal products (simulation of fate and behaviour of substances, when incorporated to wood by various processes, emanations of such substances from wood to the various compartments of the immediate environment)
- relevant European regulations
- environmental issues

A Strategic roadmap (see the figure below) for the transformation of CEN/TC 38 standards to meet user requirements has been finalised in the framework of the project PERFORMWOOD. It was developed at a workshop in Brussels 6 November 2012. It was presented and discussed at CEN/TC38 WG28 on the 28 November 2012 and further at the TC38 Plenary meeting 29 November 2012.



**4.3 Environmental aspects**

These aspects are covered by the work done in the WG 27 on regulated dangerous substances, in liaison with CEN/TC 350 and CEN/TC 351.

**5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME**



The objectives of CEN/TC 38 can only be met with the voluntary support from manufacturers, RTO's and users' groups. This support will only be forthcoming if these groups see that action is taken to effectively use the standards in the market place.

Potential problems that may occur in the process of building-up standards:

- Insufficient attention may be paid to ensure consistent application of the Directives across the EU.
- Priority may be given to national interests.
- There may be need of specific expertise in some areas to produce effective solutions. It's important to ensure the right experts are around the table.
- Situations where an industry in one country has its own standard, which other countries may consider over-demanding. If this is brought to the CEN table, compromise may result in a poor and ineffective standard.
- No mandate to work on safety and environment aspects for OECD or DG Environment.
- No or weak liaisons with others CEN TCs: works of CEN/TC 38 are unknown, some topics are redundant.
- No financial support to organize round robin tests for the testing methods or to have pre-normative studies.

Potential consequences if no attention is paid to address the points mentioned above:

- Decline in confidence in the performance of wood in construction (300,000 tonnes per annum shift).
- Increased competition with other building materials (steel, concrete, polymers).
- Loss of opportunity for a range of low carbon construction materials.

## **6 CEN/TC 38 STRUCTURE AND RESOURCES**

This section gives an overview of the existing and planned standardisation structure for this CEN/TC and its resources, which are required to be able to elaborate the above listed projects. Only structures directly responsible for standardisation projects (WIs) are listed. Therefore, no coordination or advisory groups are included. Again, the aim of this listing is to demonstrate the adequacy of available resources with regard to the anticipated workload.

Chairperson: Dr Magdalena KUTNIK (FR)  
Secretary: Mr Adrien GAUDRON-KIM (FR)  
CEN Member responsible: BNBA/AFNOR (FR)

In order to achieve its objectives, CEN/TC 38 has created several Working Groups (WGs) to deal with specific items.

**WG 21 Durability - Classification**

*Convenor: Dr Magdalena KUTNIK - FCBA, FR*

WG 21 elaborates the documents on terminology and on the natural durability and is in charge of the definitions of the use classes relating to exposition in service.

**WG 22 Performance-assessment and specification**

*Convenor: Dr Elena CONTI – CATAS, I*

WG 22 elaborates the documents related to the minimum performance requirements of the treated wood and the performance of the wood preservative products for the preventive effects and for the curative products.

**WG 23 Fungal testing**

*Convenor: Prof. Joris VAN ACKER – U. Ghent, BE*

WG 23 elaborates the documents of biological tests for the determination of the preventive or curative efficacy of wood preservatives against sapstains, wood destroying basidiomycete fungi or soft rotting microfungi, and dry rot.

**WG 24 Insect testing**

*Convenor: Dr Rudy PLARRE – BAM, DE*

WG 24 elaborates the biological tests for the determination of the preventive or curative efficacy of wood preservatives against beetles and termites (wood-boring insects).

**WG 25 External factors**

*Convenor: Dr Morten KLAMER – Danish Technological Institute, DK*

The WG 25 elaborates the documents concerning the field test methods in ground contact and out of ground contact, the preconditioning before the biological tests and the permanence of active matters in timber.

**WG 26 Physical / chemical factors**

*Convenor: Dr Mats WESTIN, SP, SE*

WG 26 produces documents concerning the sampling and analysis of biologically active matter in the treated wood.

**WG 27 Exposure aspects**

*Convenor: Dr Elisabeth RAPHALEN – FCBA, FR*

WG 27 elaborates in application of the BPD Directive the documents for measuring environmental emissions of active ingredients from wood in service and after its service life in collaboration with OECD.

**WG 28 Performance classification**

*Convenor: Dr Ed SUTTIE – BRE, UK*

The core work item of WG 28 is to consider existing methods and their ability to estimate service life. Are there fundamental changes needed concerning reference products, the methods and time series data, changes to data handling, analysis and interpretation. Ultimately, the WG aims to identify the key gaps and challenges or weaknesses in using existing standards for estimating service life.

WG28 interfaces with the whole CEN/TC 38 structure and other TCs concerning service life and building physics. Gathering and processing such large volumes of ideas, information and opinions is challenging.