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The EU Ecolabel scheme and its application to construction and building materials

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Abstract: The aim of this chapter is to describe the EU Ecolabel, an environmental label developed by the European Commission to promote environmental excellence in products and services. The chapter first introduces the working EU Ecolabel: its history, criteria setting procedure and GPP (green public procurement). The link between the EU Ecolabel and national ecolabelling schemes is discussed, followed by a focus on construction and building materials covered by EU Ecolabel criteria. The products are listed, showing the main problems and an explanation of possible future trends is given.

Key words: sustainability, environmental labelling, EU Ecolabel criteria, GPP, construction and building materials.

6.1 Introduction

The EU Ecolabel is an evaluation/communication instrument developed by the European Commission during the last 20 years to support ‘business to consumers’ environmental initiatives as set out in the latest revised Regulation (EC) No. 66/2010 of the European Parliament and of the Council of 25 November 2009. The EU Ecolabel is a ‘Type I’ environmental label, according to the ISO 14020 classification (ISO 2000) and is intended to be a voluntary market tool for promoting environmental excellence in products and services in a rigorous and standardised way. It is part of the sustainable consumption and production policy of the Community. Its aim is to reduce the negative impact of consumption and production on the environment, health, climate and natural resources, stimulating producers to verify the means by which products can achieve environmental excellence for environmentally conscious consumers (EU Regulation No. 66/2010). The scientific reliability of the EU Ecolabel is based on the use of the life cycle assessment methodology (LCA) for establishing the environmental criteria used in assessing products. The EU Ecolabel is therefore a recommended reference for establishing green public

procurement action plans for the public purchasing of environmentally friendly products by EU member states.

The first part of the chapter covers the history of the EU Ecolabel, its aims and related statistics. This is followed by the development and revision criteria for obtaining the label according to the current Commission Regulation. Stakeholders directly involved during working sessions are identified and existing procedures analysed. Green public procurement (GPP) and its connections with the EU Ecolabel criteria are introduced, together with the relation between the EU and national Ecolabels, mainly ISO Type I labels.

Particular attention is given to those Ecolabel product groups which are of interest to the construction and building materials sector. In Section 6.7, attention is focused on those products or services that can be awarded the label, from coverings (hard, wood, textile), paints and varnishes, to tourist accommodation and office buildings (currently in progress). The available EU Commission decisions for these products and services are analysed and useful information, approaches and principal criteria are reported. Finally, possible future trends for the EU Ecolabel and construction materials are reported.

6.2 The EU Ecolabel and the European Commission policy for sustainability

In its strategy for sustainable development, the European Commission has identified measures for responding to the key challenges of unsustainable trends and the required actions. The goal of a more sustainable model for production and consumption remains one of the most significant challenges for the Commission's strategy on future sustainability. The recent launch of the product environmental footprint (PEF) methodology reinforces the vision of a 'A resource-efficient Europe' (European Commission, 2011b) and a renewed policy is expected by early 2013. Pragmatic methods for increasing resource productivity and decoupling economic growth from both resource use and environmental impacts, while taking a life cycle perspective, are likely to be forthcoming (European Commission, 2012).

In practice, the EU aims to break down the link between economic growth and environmental degradation. To this end, several strategies have been proposed and remain under continuous improvement:

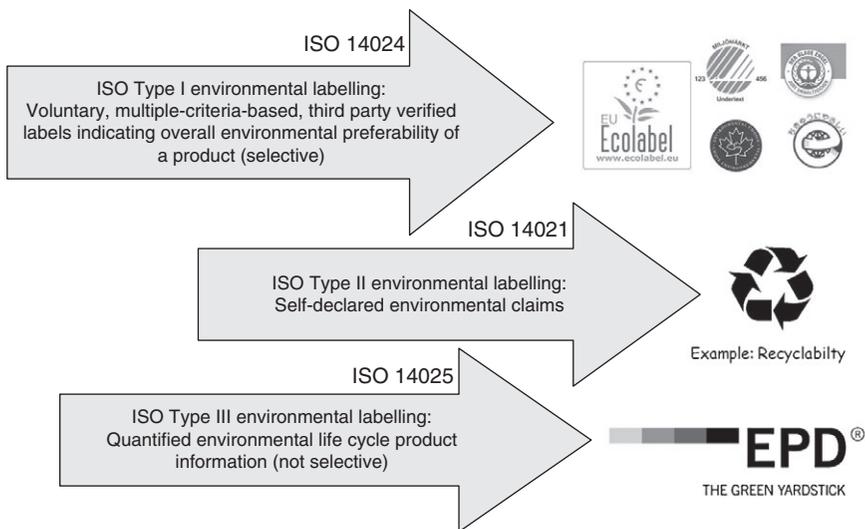
- promotion of environmental innovations at industrial level;
- promotion of information about environmental friendly technologies;
- encouragement of green public procurement;
- developing and promoting the Ecolabelling of products and services.

The EU Ecolabel is therefore to be considered part of a wider sustainable consumption and production policy for promoting environmental excellence which can be trusted by consumers. The slogan used by the Commission on the EU Ecolabel home page is:

‘The EU Ecolabel helps you identify products and services that have a reduced environmental impact throughout their life cycle, from the extraction of raw material through to production, use and disposal. Recognised throughout Europe, EU Ecolabel is a voluntary label promoting environmental excellence which can be trusted’ (www.ecolabel.eu).

The environmental labels (identified as ‘Type I’ by ISO 14020) and the environmental product declarations (or EPD, identified as ‘Type III’ by ISO 14025) are tools that enable the identification of products or services which offer reliable information on environmental impact throughout their life cycle, from the extraction of raw material through production, use and disposal. However, the EU Ecolabel differs from the EPD as it guarantees environmental excellence (Fig. 6.1) as defined by the European Commission.

The EU Flower is issued by competent bodies based in each member state of the European Union under European Commission surveillance. An organisation from everywhere in the world may apply for the EU Flower and start the application with any competent body belonging to the member state in which the product is placed on the market. A success story is, for instance, represented by an enterprise from Hong Kong which was awarded



6.1 Environmental claims classification by ISO 14020.

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the Ecolabel for soaps, shampoos and hair conditioners by the French competent body (AFNOR).

6.3 History and goals of the EU Ecolabel scheme

In 1992, a common EU standardised Ecolabel was launched under the Council Regulation (EEC) No. 880/92 of 23 March 1992 on a Community Award Scheme. Since then, amendments have been proposed to increase the effectiveness of the scheme and EC Regulation No. 66/2010 of 25 November 2009 represents the third revision.

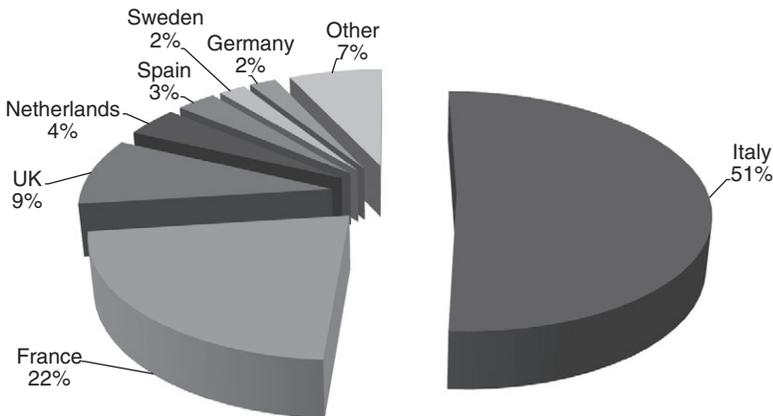
The Regulation establishes a voluntary B2C (business to consumer) scheme intended to:

- promote products and services which have a reduced impact on the environment throughout their life cycle, from the extraction of raw material through production, use and disposal;
- pay particular attention to toxicology;
- consider social and ethical aspects (where relevant);
- obtain widespread agreement on critical points for a single product group and the means of managing them;
- contribute to improving the integration of environmental considerations into markets and provide consumers with better information on the environmental impact of products.

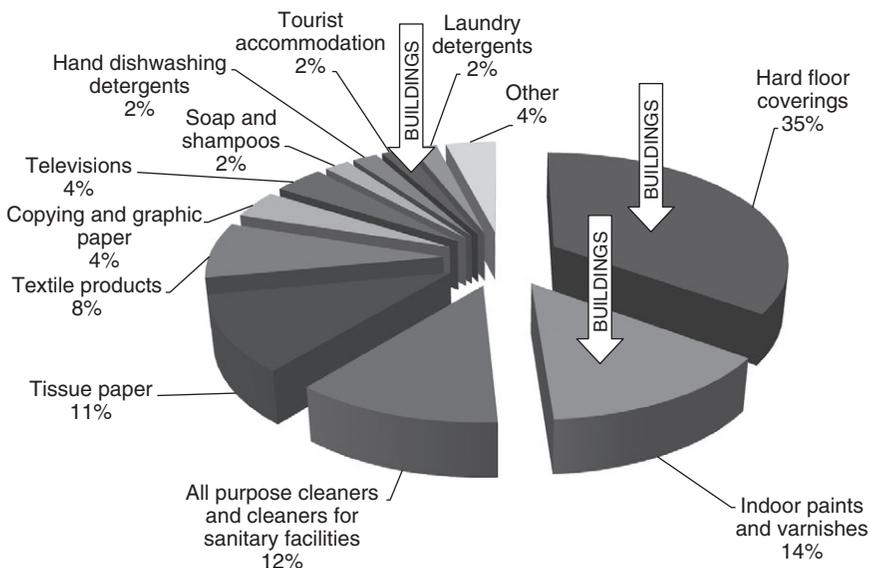
To obtain the EU Ecolabel, a product group must fulfil the following conditions:

- it shall represent a significant volume of sales and trade in the internal EU market;
- it shall involve, at one or more stages of the product's life, a significant environmental impact on a global or regional scale and/or of a general nature;
- it shall present significant potential for effecting environmental improvements through consumer choice as well as an incentive to manufacturers or service providers to seek a competitive advantage by offering products which qualify for the Ecolabel;
- a significant part of its volume shall be sold for final consumption or use.

It should be noted that the criteria for a particular product group are designed to apply to the best 10–20% of products available on the market, based on their environmental performance. These criteria therefore need to be updated and revised on a regular basis to ensure they remain relevant and sufficiently stringent to apply to the above mentioned group of products.



6.2 EU Ecolabelled products issued in Europe as of January 2012.



6.3 EU Ecolabelled products, January 2012 broken up into different product groups. European Commission, Facts and Figures. Available at: <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html> (accessed 21 November 2012).

During the last five years, the number of licences issued has increased fivefold (from 249 in 2005 to 1,375 in 2011¹). Italy is the most active European country, having more than 50% of EU Ecolabelled products (Fig. 6.2). Among the EU Ecolabelled products, approximately 50% belongs to the construction sector (Fig. 6.3).

¹European Commission, Facts and Figures. Available at: <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html> (accessed 21 November 2012).

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6.4 EU Ecolabel establishment procedures and criteria

The assigning of an ecological quality award to a product or a service begins with the links between stakeholders such as Commission plans and GPP goals and the needs of business and manufacturing associations. The initiating activities are usually concerned with the need to involve all potentially interested parties in the dissemination of knowledge so as to build up a team of experts: the so-called 'Ad Hoc Working Group' (AHWG). The AHWG is therefore created to develop a transparent and wide discussion with:

- relevant stakeholders;
- concerned manufacturers;
- consumers;
- environmental associations at the European level.

Its goal is to support the criteria definition by providing technical advice to the whole of the European Union Ecolabelling Board (EUEB). The EUEB consists of the representatives of the competent bodies of all the member states (see below) and other interested parties. In collaboration with the Commission, the EUEB is responsible for developing, revising, publishing and promoting Ecolabel criteria for product groups.

Other organisations which are involved in the EU Ecolabel procedures are:

- *Competent body forum*: in accordance with article 13 of the EU Ecolabel Regulation, the Commission set up a working group composed of representatives of competent bodies to facilitate the exchange of experience and information, particularly in the areas of awarding the EU Ecolabel and market surveillance.
- *Regulatory Committee*: this consists of representatives from the member states and the European Commission. The Commission cannot adopt criteria before voting takes place by qualified majority in the EU Ecolabel Regulatory Committee.

A scheme of all activities arising from the EC's initial decision to develop EU Ecolabel criteria for a new product group to the final publication of ecological criteria in the *Official Journal*, may be summarised as follows (the detailed procedure is also available in Annex I of the Regulation):

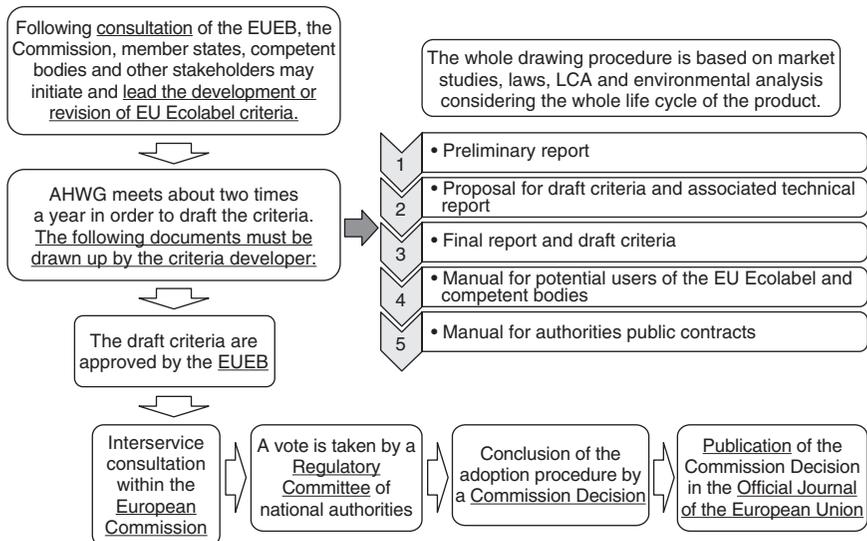
- The Commission co-ordinates the activities in strict co-operation with a leading party. In principle, any interested party may lead the development or revision of EU Ecolabel criteria, providing that common procedural rules are followed and the process is co-ordinated by the Commission. While the leading party is usually a national CB, this work has recently been assigned to the Product Bureau of the Joint Research

Centre (JRC). This is the reference centre of the European Commission's science service which provides customer-driven scientific and technical support for the conception, development, implementation and monitoring of EU policies. The EUEB acts as the main reference and decision-making body, together with the Commission which adopts the final criteria. The last call for tenders supporting work in revising Ecolabel and GPP criteria for six selected product groups was recently launched by the Directorate General Joint Research Centre (DG JRC) through the Institute for Prospective Technological Studies (IPTS).

- The leading party, including JRC, usually nominates technical support with solid LCA experience and expertise and begins with the dissemination of the project among all the stakeholders. The preparatory work includes a feasibility study, environmental and market studies, improvement analysis and revision of the existing life cycle analysis, or implementation of new analysis as necessary. The EU Ecolabel criteria are then established based on these scientific data.
- All CBs in Europe participate in the AHWG meetings and assist in the dissemination of the project in their own countries by providing technical support for the development of the ecological criteria.

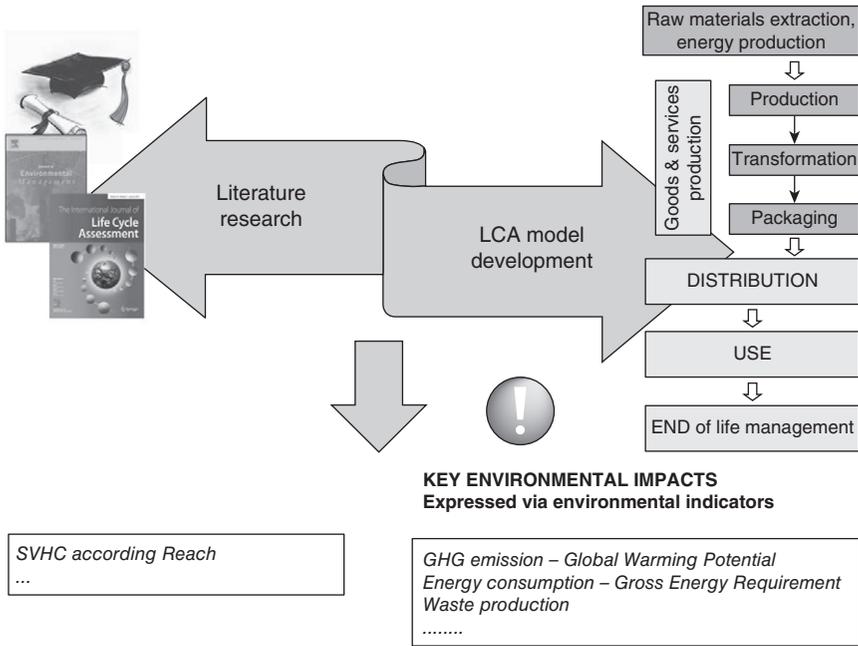
Figure 6.4 shows the principal steps of the procedure for EU Ecolabel criteria.

Because the purpose of the EU Ecolabel is the promotion of products with reduced environmental impacts throughout their life cycle, the main



6.4 EU Ecolabel criteria-making procedure.

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6.5 Process to define the key environmental impacts by means of the LCA approach.

contributors to that environmental impact must be identified according to those criteria. The analysis usually starts with bibliographical research and consultation with those stakeholders having specific competencies in the field, including direct data collection along the supply chain and the main processes involved in the product system. The LCA analysis is then used to quantify the product system environmental burden (Fig. 6.5).

Within the EU Ecolabel Regulation, life cycle assessment considerations play a key role in:

- highlighting ‘hot spots’ over the entire production chain of the products/services concerned, and
- identifying the most appropriate set of ecological criteria for the above mentioned preliminary conditions.

There follows the specific task of covering issues related to human health as well as other social/non-environmental impacts of products not covered by the LCA analysis. Through literature review, stakeholder dialogue and the skills of criteria development leaders, the non-LCA environmental impact indicators are analysed for assessment and discussion of the relevant impacts. Where these are significant, they are taken into account during the criteria development.

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6.5 EU Ecolabel and green public procurement (GPP)

The Commission has identified the potential of green public procurement (GPP) as an important instrument for promoting environmentally friendly products and services and encouraging the eco-innovation which contributes to sustainable development. Green public procurement is a process by which public authorities procure goods, services and works which will have a reduced environmental impact throughout their life cycle when compared to others with the same function. It is important to ensure that criteria used by member states are similar to avoid distortion of the single market and a reduction in community competition.

GPP is a voluntary instrument and member states and public authorities may determine the extent to which they implement it. Its use may present problems as some purchasers are unfamiliar with environmental issues and may have difficulties in integrating environmental criteria into the tendering process. It may also prove difficult to verify the fulfilment of environmental requirements provided by tenderers. To overcome this problem, the EU Ecolabel, other 'Type 1' or 'ISO 14024' labels (e.g., the Nordic Swan, The Blue Angel, NF Environment, Milieukeur) and 'single-issue' labels (such as energy efficiency labels) may be used as appropriate instruments to provide the source for identifying environmental criteria and describing them. The criteria can then be directly inserted into tendering documents according to specific guidelines and may be divided into two types, core and comprehensive. The core criteria address the key environmental aspects and are designed to require minimum additional verification or cost increases. The aim of the comprehensive criteria is the purchase of the best available environmental products (European Commission, 2011a). In this context, the added value of the EU Ecolabel is clear:

- The environmental (cut-off) criteria have been developed based on solid scientific evidence and in co-operation with all relevant stakeholders; the Ecolabel gives information about specific limits and 'assessment and verification' of criteria. All analyses and assessments are regulated by European and international approved standard such as EN, ISO, CEN or other certificated systems or regulations.
- EU Ecolabel criteria can be used as GPP criteria and can therefore be inserted directly into green tendering documents.
- Products that meet the environmental criteria are easy to detect as those with EU Ecolabel automatically fulfil the requirements.

At present, there are 19 available GPP criteria, ranging from copying paper to mobile phones. The European Commission has also developed GPP criteria for some product groups related to building materials such as windows, thermal insulation and wall panels.

6.6 EU Ecolabel and national ecolabelling schemes

Both the previous and newer versions of the EU Ecolabel Regulations foresee collaboration between the EU Flower and national ecolabelling schemes for EN ISO 14024 Type I labels. Article 11 of the EU Ecolabel Regulation No. 66/2010 states that 'EU Ecolabel criteria shall also take into account existing criteria developed in officially recognised ecolabelling schemes in the Member States'. This consideration has also been formulated in Annex I of the Regulation where the different procedures for development and revision of EU Ecolabel criteria are stated, as in Procedure B 'Shortened procedure where criteria have been developed by other EN ISO 14024 Type I ecolabelling schemes'.

In practice, it is possible to develop EU Ecolabel criteria taking existing criteria as the basis for a given product group in a national ecolabelling scheme (EN ISO 14024 Type I). This enables a simpler procedure as only one AHWG meeting will be necessary if requested by a member state. The main challenge is to ensure that the criteria are formulated within a national ecolabelling scheme which will be workable and applicable in all member states. The criteria of national ecolabelling schemes are based on specific national standards, industrial characteristics and consumer attitudes which may differ from country to country.

In addition to this specific procedure for developing the criteria, the methodology generally requires reference to existing initiatives, providing examples of workable criteria already in place. For this reason, the existing ecolabelling ISO Type I criteria are considered as possible benchmarks in developing EU Ecolabel criteria.

6.7 EU Ecolabel for eco-efficient construction and building materials

As it is a typical B2C tool, the construction and building materials sector can only be partially affected by the EU Ecolabel. It is likely that a clear interaction with GPP will exist only when business operators are interested in considering the possibility of applying for it. It is therefore important to make information available about the products used in construction and the general construction criteria and management which will minimise environmental impact in terms of resources consumed, emissions and waste produced during the operational life of the structure.

The traceable product and service groups belonging to this sector are:

- coverings (wooden, hard, textiles);
- indoor and outdoor paints and varnishes;
- tourist accommodation;

- office buildings (in progress);
- road construction (only GPP criteria).

An overview of each of the above listed groups is given to provide the following essential elements:

1. Types of products/services considered.
2. The meaning of current criteria and the area of expected improvements.

Details of the definition of product and criteria assessment and verification are reported in the EU Ecolabel Regulations published in the *Official Journal of European Union*. References about these documents can be found below.

There are three other groups which are mostly related to domestic systems:

- heat pumps;
- sanitary tapware;
- toilets and urinals (waiting for publication-voted on 20 June 2013).

These three groups are not analysed in this chapter (see Section 6.9 for links).

6.7.1 Coverings

This group provides criteria for three different product categories (Table 6.1):

- wooden floor coverings (Commission Decision 2010/18/EC);
- hard coverings (Commission Decision 2009/607/EC);
- textile floor coverings (Commission Decision 2009/967/EC).

Criteria have generally been developed according to single specific product characteristics. Even where the typical destination of these products is similar, each is specific because it will be made from different raw materials using different production processes.

A general view of the criteria for ‘Coverings’ which compares all product categories (wooden, hard floor and textile coverings) is presented in Table 6.2. A commentary on these common criteria is proposed as follows:

- **Raw materials:** A short explanation of raw material criteria for ‘Coverings’ is reported in Table 6.3.
- **Production process (only for wooden floor coverings and hard coverings):** A short explanation of production process criteria for ‘Coverings’ is reported in Table 6.4.
- **Use phase:** In order to control the release of dangerous substances during the life cycle of coverings, the release of some substances,

Table 6.1 Products considered in the group 'Coverings'

Wooden floor coverings

- Wood and timber coverings
- Laminate floorings
- Cork coverings
- Bamboo floorings

Hard coverings

- **Natural products** (including marble, granite and other natural stones)
- **Processed products**, divided into:
 - § **Hardened products**
 - o agglomerated stones
 - o concrete paving units
 - o terrazzo tiles
 - § **Fired products**
 - o ceramic tiles
 - o clay tiles

Textile floor coverings

Family of carpets, defined as 'floor covering' commonly installed with tacks or staples, or by adhesives. Include

- Woven fabric
- Knitted fabric
- Needle-tufted fabric

Table 6.2 Criteria for 'Coverings' category

Wooden floor coverings	Hard coverings	Textile floor coverings
Raw materials	Raw material (extraction)	Raw materials
–	–	Production of all materials
–	Raw material selection	–
–	Finishing operations	–
Use of dangerous substances	–	–
Production process	Production process	–
–	Waste management	–
Use phase	Use phase	Use phase
Packaging	Packaging	–
Fitness for use	Fitness for use	Fitness for use
Consumer information	Consumer information	Consumer information
Information appearing on the Ecolabel	Information appearing on the Ecolabel	Information appearing on the Ecolabel

Table 6.3 Raw materials criteria for 'Coverings' category**Wooden floor coverings**

In a sustainability context it is important to evaluate the management of forests, remembering that wood is a not permanent renewable resource.^a Ecolabel raw material criteria report that wood must originate from forests that are managed in a way to implement the principles and measures according to certified sustainable forest management.

Hard coverings

The raw materials shall comply with some requirements related to extraction activity project and environmental recovery such as authorisation for the extraction activity, environmental recovery plan and/or environmental impact assessment report; a map indicating the location of the quarry, the declaration of conformity to Council Directive 92/43/EEC (1) (habitats) and Council Directive 79/409/EEC. Moreover, only for natural products, EU regulations assess raw material extraction evaluating six indicators (using a matrix) relating to water recycling, land use, natural resource waste, noise, and air/water quality.

Textile floor coverings

Beyond giving advice on risk phrases in raw materials, the regulation imposes restrictions about chemical substances used for fibre treatments (for wool treatments, polyamide fibres, polyester, polypropylene, foam rubber, vulcanised foams) and concentration of formaldehyde.

^a'Not permanent renewable resources' means that there is a flux (input flux) comparable with human life, which creates continuously new material. A condition where the input flux is smaller than the extracting flow implies that, in a variable period, the resource may run out.

Table 6.4 Production process criteria for 'Coverings' category**Wooden floor coverings**

Limits for process energy consumption, according to product family (wood floor and bamboo coverings, laminate floor coverings, cork coverings) are reported using a score method (algorithms set by the Regulation). Moreover, the Regulation imposes that information about waste management, in terms of type and quantity of waste recovered, disposed or reused shall be reported in a specific report.

Hard coverings

Limits, in terms of specific consumption (MJ/kg) for process energy, according to product family (for agglomerated stones and terrazzo tiles) are reported. For ceramic and clay tiles, a limit for energy used in the firing process is established. Moreover, the Regulation imposes limits for freshwater specific consumption, air emissions and water emission as well as specification for cement use.

Table 6.5 Use phase criteria for 'Coverings' category

Wooden floor coverings

- Volatile organic compounds emissions (TVOC, TSVOC, Total VOC without LCI)
- formaldehyde from panels made of cork, bamboo or wood fibres

Hard coverings

- Lead (Pb) only for glazed tiles
- Cadmium (Cd) only for glazed tiles

Textile floor coverings

- Volatile organic compounds emissions (TVOC, TSVOC, Total VOC without LCI)

Table 6.6 Packaging criteria for 'Coverings' category

Wooden floor coverings

Packaging must be made out of easily recyclable material or materials taken from renewable resources intended to be reusable.

Hard coverings

Paperboard used for the packaging of the final product should be reusable or made out of 70% of recycled materials.

depending on the floor material, is limited by this criterion. Substances released and limited by this criterion are shown in Table 6.5.

- **Packaging (only for wooden floor coverings and hard coverings):** Regulation set criteria for packaging materials are shown in Table 6.6.
- **Fitness for use:** The product shall be fit for use and this evidence may include data from appropriate ISO, CEN or equivalent test methods. The kind of use shall be clearly specified.
- **Consumer information:** This part of the Commission Decision shows the information to be reported on the packaging and/or in documentation accompanying the product, such as recommendations for its use and maintenance, indication of the route of recycling or disposal, information on the EU Ecolabel.
- **Information appearing on the EU Ecolabel:** The last part of the Commission Decision shows which information and data about product hot spots shall be reported in the Box 2 of the Ecolabel. Statements that shall be reported are listed in Table 6.7.

The aim and specific purposes of other criteria will be reported in the following paragraphs.

Wooden floor coverings specific criteria

Wooden floor coverings criteria, not reported for other covering materials, are as follows:

Table 6.7 Information appearing on the Ecolabel for 'Coverings' category

Wooden floor coverings	Hard coverings	Textile floor coverings
Sustainable managed forests and reduced impact on habitats, Hazardous substance restricted,	Natural products: Reduced impact of extraction on habitats and natural resources, Limited emission from finishing operations, Improved consumer information and waste management.	Hazardous and toxic substance restricted,
Production process energy saving,	Processed products: Reduced energy consumption of production processes, Reduced emissions to air and water, Improved consumer information and waste management.	Production process energy saving, Limited pollutant emissions to water,
Lower risk to health in the living environment.		Lower risk to health in the living environment.

- **Use of dangerous substances:** The limitation of dangerous substances in raw wood and plant treatments is reported (absence of risk phrases in raw materials and the absence of halogenated organic binding agents, azidirin and polyaziridins, based on lead, cadmium, chrome (VI), mercury and their compounds, arsenic, boron and copper, organic tin). There are limitations on substances used in the coating and surface treatments (chemicals, adhesives, formaldehyde emissions, pesticides, biocides).

Hard coverings specific criteria

Hard coverings criteria, not reported for other covering materials, are as follows:

- **Raw material selection (for all hard coverings products):** In addition to restriction on risk phrases in raw materials, the Commission Decision imposes limitations on the use of some substances such as additives (for glazing and tiles only) and the presence of asbestos and polyester resins in the materials.

- **Finishing operations (for natural products only):** Natural product finishing operations shall respect some limits in terms of air emissions (particulate and styrene), water emissions (suspended solid and cadmium) and waste recycling.
- **Waste management:** Production plants shall have a system (documented and explained in the application form) for handling the waste and residual products of production. The system shall include information on procedures for separating and using recyclable materials from the waste stream, procedures for recycling materials for other uses, procedures for handling and disposing of hazardous waste.

Textile floor coverings specific criteria

Textile coverings criteria, not reported for other covering materials are as follows:

- **Production of all materials:** Restrictions on risk phrases for flame retardants and pesticides are given. There are also limitations on dyes and pigments/composition, water emissions and substances that could affect water emission values. Finally, energy consumption (process energy calculated according to a technical appendix reported in the Commission Decision) shall be smaller than an imposed limit (this criterion is reported for hard covering and wooden covering materials in another section (Production process)).

6.7.2 Indoor and outdoor paints and varnishes

Criteria are divided into nine points for both indoor and outdoor products and are shown in Table 6.8.

The general aims of EU Ecolabel criteria for these categories, as listed in the Regulations are:

- the efficient use of the product and the minimisation of waste;
- reducing environmental and other risks (such as tropospheric ozone) by reducing solvent emissions;
- reducing the discharges of toxic or polluting substances into watercourses.

There are set levels for these criteria. Even where criteria names are the same for these products, the limits and specification may be different. Criteria names are shown in Table 6.9.

- **White pigments:** Commission Decisions limit the content of white inorganic pigments. (The limits are not the same for outdoor and indoor paints and varnishes).

Table 6.8 Product considered in the groups 'Indoor and outdoor paints and varnishes'

Outdoor paints and varnishes – Commission Decision 2009/543/EC (valid until June 2014)

According to EU Commission Decision, the product group '*outdoor paints and varnishes*' shall comprise '*outdoor decorative and protective paints and varnishes, wood stains and related products for use on buildings and outdoor furniture, floors and fencing (...), for use by do-it-yourself and professional users; and that are primarily developed for outdoor use and marketed as such. This includes, inter alia, floor coatings and floor paints; products which are tinted by distributors at the request of amateur or professional decorators; tinting systems; decorative paints in liquid or paste formulas which may have been pre-conditioned, tinted or prepared by the manufacturer to meet consumers needs, including wood paints, wood and decking stains, masonry coatings and metal finishes (excluding anti-corrosion finishes and primers) as well as primers (and undercoats) of such product systems (...)*'.

Indoor paints and varnishes – Commission Decision 2009/544/EC (valid until June 2014)

According to EU Commission Decision, the product group '*indoor paints and varnishes*' shall comprise '*indoor decorative paints and varnishes, wood stains and related products (...), intended for use by do-it-yourself and professional users and primarily developed for indoor use and marketed as such. This includes, inter alia, floor coatings and floor paints; products which are tinted by distributors at the request of amateur or professional decorators; tinting systems; decorative paints in liquid or paste formulas which may have been pre-conditioned, tinted or prepared by the manufacturer to meet consumer's needs, including primers and undercoats of such product systems (...)*'.

Table 6.9 Criteria for 'paints and varnishes' category group

Outdoor paints and varnishes	Indoor paints and varnishes
White pigments	As 'Outdoor paints and varnishes'
Titanium dioxide	
Volatile organic compounds (VOC)	
Volatile aromatic hydrocarbons (VAH)	
Heavy metals	
Dangerous substances	
Fitness for use	
Consumer information	
Information appearing on the Ecolabel	

- **Titanium dioxide:** The Commission Decisions limit the emissions of SO_x and the production of sulphate and chloride waste in titanium dioxide pigment manufacturing. (These substances are the same in both outdoor and indoor paints and varnishes but the limits are different).
- **Volatile organic compounds (VOC):** Volatile organic compounds shall not exceed fixed values according to product classifications given by Directive 2004/42/EC (limited values and limits may change according to outdoor or indoor use).
- **Volatile aromatic hydrocarbon (VAH):** Volatile aromatic hydrocarbons shall not be directly added to the product before or during tinting. Ingredients containing VAH can be used only if the VAH content of the final product does not exceed a fixed value (substance and limits are the same for both outdoor and indoor paints and varnishes).
- **Heavy metals:** Cadmium, lead, chromium VI, mercury, arsenic, barium (excluding barium sulphate), selenium, antimony, cobalt (excluding cobalt salts) shall not be used as an ingredient of the product or tint (substance and limits are the same for both outdoor and indoor paints and varnishes).
- **Dangerous substances:** Commission Decisions set rules and limits for some specific matter (see Table 6.10). Rules, substance and limits are also in this case the same for both outdoor and indoor paints and varnishes.
- **Fitness for use:** As with 'Coverings', these product groups shall meet criteria about their usability. The requirements for fitness for use in

Table 6.10 Matter of analysis for dangerous substances

The product

The product shall not be classified as very toxic, toxic, dangerous to the environment, carcinogenic, toxic for reproduction, harmful, corrosive, mutagenic or irritant.

Ingredients

There are restrictions on risk phrases and risk classification for ingredients.

Alkylphenolethoxylates (APEOs)

APEOs shall not be used in the product before or during tinting.

Isothiazolinone compounds

The content of isothiazolinone compounds is limited by Commission Decisions.

PFAS, PFCA, PFOA

Perfluorinated alkyl sulfonates (PFAS), perfluorinated carboxylic acids (PFCA) including perfluorooctanoic acid (PFOA) and related substances listed in the OECD 'Preliminary lists of PFOS, PFAS, PFOA, PFCA', related compounds and chemicals that may degrade to PFCA are not permitted in the product.

Formaldehyde

Halogenated organic solvents

Phthalates

Table 6.11 Fitness for use criteria for 'Indoor and outdoor paints and varnishes' category

Outdoor paints and varnishes	Indoor paints and varnishes
Spreading rate	Spreading rate
–	Wet scrub resistance (only for indoor use)
Resistance to water	Resistance to water
Adhesion	Adhesion
Abrasion	Abrasion
Weathering	–
Water vapour permeability	–
Liquid water permeability	–
Fungal resistance	–
Crack bridging	–
Alkali resistance	–

paints and varnishes for both indoor and outdoor use are shown in Table 6.11.

- **Consumer information:** Information that shall be reported on the packaging and/or on documentation accompanying the product is given below. The following information shall come with the product:
 - use, substrate, conditions of use of the product, including advice on preparatory work;
 - recommendations for cleaning tools and waste management in order to limit water pollution;
 - recommendations on storage conditions after opening, including safety advice if appropriate;
 - recommendations on preventive protection measures for the painter;
 - for thick decorative coatings, a text informing that these are paints specially designed to give a three-dimensional decorative effect;
 - text advising that unused paint requires specialist handling for safe environmental disposal;
 - advice on the correct primer or base paint for darker coatings.
- **Information appearing on the EU Ecolabel:** Information that shall be listed in Box 2 of the EU Ecolabel, is reported in Table 6.12.

6.7.3 Tourist accommodation

This category differs from the groups previously analysed but its design rules are relevant for the construction sector and are reported in Table 6.13. Criteria for the category, which are formally and numerically almost the same as those for Campsite and Tourist accommodation services, set limits for three specific stages of the life cycle of the accommodation service:

Table 6.12 Information appearing on the Ecolabel for ‘Indoor and outdoor paints and varnishes’ category

Outdoor paints and varnishes	Indoor paints and varnishes
Good performance for outdoor use	Good performance for indoor use
Hazardous substances restricted	Restricted hazardous substances
Low solvent content	Low solvent content

Table 6.13 Services considered in the group ‘Tourist accommodation’

Campsite service – Commission Decision 2009/564/EC (valid until November 2015)

‘The product group “campsite service” shall comprise, as a main service provided for a fee, the provision of pitches equipped for mobile lodging structures within a defined area. It shall also comprise other accommodation facilities suitable for the provision of shelter to lodgers and collective areas for communal service if they are provided within the defined area’

Tourist accommodation service – Commission Decision 2009/578/EC (valid until November 2015)

‘The product group “tourist accommodation service” shall comprise the provision, for a fee, of sheltered overnight accommodation in appropriately equipped rooms, including at least a bed, offered as a main service to tourists, travelers and lodgers. The provision of overnight sheltered accommodation may include the provision of food services, fitness and leisure activities and/or green areas’

- purchasing;
- provision of the service;
- waste management.

In particular, criteria, according to Commission Decisions, aim at:

- limiting energy consumption;
- limiting water consumption;
- limiting waste production;
- promoting the use of renewable resources and of substances which are less hazardous to the environment;
- promoting environmental communication and education.

The criteria set environmental limits in five specific areas:

- energy systems;
- water systems;
- waste management;
- general management of the structure;
- structural materials.

In term of construction materials, the Commission Decisions define criteria and limits for:

- *Energy efficiency of buildings:* The tourist accommodation shall comply with the national legislation and local building codes related to energy efficiency and the energy performance of buildings.
- *Window insulation:* All windows shall have an appropriate degree of thermal insulation according to the local regulations and climatic conditions and shall provide an appropriate degree of acoustic insulation.

6.7.4 Office buildings

Although the EU Ecolabel criteria for office buildings are still under development, discussion of their provisional content according to the most recently circulated document is relevant: 'Final draft proposal for the development of ecological criteria for office buildings' is available on the European Commission website (Boyano Larriba *et al.*, 2012).

The draft criteria define an office building as follows:

An office building is a building which contains administrative, financial, technical and bureaucratic activities as core representative activities. The office area must make up a vast majority of the total buildings gross area dedicated to this purpose providing a service to other companies or to individuals. Therefore, it could have associated other type of spaces, like meeting rooms, training classes, staff facilities, technical rooms, etc. Excluded from this definition are parking areas that are not counted in this total buildings gross area.

Criteria for the 'Office buildings' category cover the following issues:

- energy consumption;
- material selection and hazardous materials;
- indoor air quality and well-being;
- waste management;
- water management;
- corporate criteria (information to end users).

In focusing on construction products, the draft Commission Decision sets criteria which address the environmental impacts of the production stage, but which also consider other indirect measures which may contribute to reduction of the environmental impact throughout the entire life cycle.

Criteria established and reported in the document are:

- *Use of construction materials complying with certain environmental criteria:* At least 80% of the cost of major construction elements shall be selected using environmental sustainability criteria. Construction products or construction materials with verified environmental information (Type I or Type III ISO labels) shall be selected.

- **Material recovery potential of the construction components:** At least 80% in weight of waste generated at the construction phase and the end of the service life of the building shall be prepared for re-use, recycling and other material recovery, including backfilling operations.
- **Recycled, reused and/or recovered content in the construction products and materials:** At least 50% of the cost of construction components will consist of products and materials containing at least 30% of recycled, reused and/or recovered materials.
- **Hazardous substances and materials in the construction components:** The draft criteria ban product with some risk phrases and limit the concentrations of hazardous substances in construction materials.
- **Substances listed in accordance with Article 59 of Regulation (EC) No. 1907/2006:** The work-in-progress criteria impose specific concentration limits for some substances identified as being of ‘very high concern’.
- **Responsible sourcing of construction materials:** At least 80% by value and weight of finishing materials and products used within stairs, windows, external and internal doors, skirting and panelling must be responsibly sourced. These criteria shall not be applied for insulation materials, fixings, adhesives and additives and construction products or materials that account for less than 10% by weight of a key area.

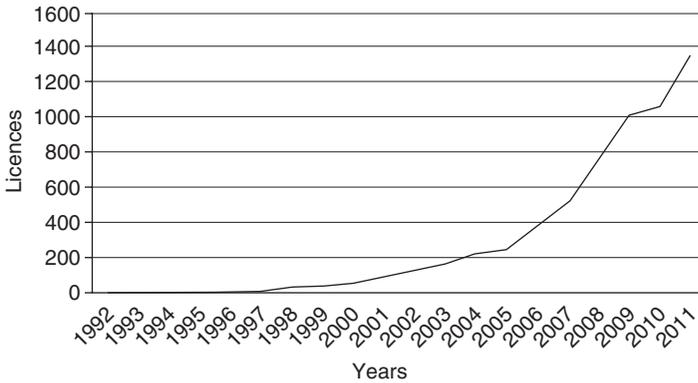
6.8 Future trends

If EU Ecolabelled products are analysed in terms of the number of licences issued per year (Fig. 6.6), a positive growth rate emerges which is expected to continue in the future. This trend is the direct consequence of two factors:

1. Stakeholder and consumer attention to environmental problems is increasing.
2. A wider number of product groups are eligible for the award.

In 2011, the European Commission published a new EU Ecolabel work plan for 2011–2015 which lays out a proposed expansion of the Ecolabelling programme. Its purpose is to set a number of realistic and achievable objectives for the following years. It includes a strategy and a non-exhaustive list of product groups for consideration regarding the priorities for future Ecolabelling. These products include groups which are concerned with construction and building materials:

- hydronic heating systems (already in progress);
- insulation;
- water heating systems.



6.6 Trend of licences issued from 1992 to 2011. European Commission, Facts and Figures. Available at: <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html> (accessed 21 November 2012).

These are indicated as a ‘non-exhaustive list of product groups ranked by environmental priority order for Ecolabelling with priority assessment’. It is likely that windows and wall panels will also be included as the European Commission has developed GPP criteria for these product groups.

In addition to the EU Ecolabel for construction and building materials, the Commission has developed a complementary strategy for building sustainability and has engaged CEN to develop a standard for this assessment. CEN TC 350 ‘Sustainability of construction works’ has been developing a European series of standards for sustainability assessment in terms of:

- environmental performance;
- social performance;
- economic performance.

Both the EU Ecolabel and TC 350 use the LCA as the instrument for environmental assessment and for the provision of reliable indicators on:

- use of natural and secondary resources and waste management (including material recycling and other recovery operations);
- energy use (including use of renewable energy);
- climate change and other environmental impacts on nature.

Although the scope of the two schemes is different, their integration is logical. The EU Ecolabel uses the LCA approach for criteria definition to assess hot spots and for verifying criteria improvements in defining goods and services as environmentally friendly. TC 350 work has been developed on the principle of providing a common EU framework and sound standardisation practices and building assessment calculation. Despite their

different goals, both schemes are directed towards the Commission's objective of making zero energy buildings the new European standard and of contributing to a more sustainable society through sustainable building.

The Commission aims to promote the construction sector as a driving force in job creation and at the same time, to prevent trade barriers within the internal market that could be caused by a lack of consistency between the requirements of member states in areas such as public procurement. By the end of 2013, it is expected that a 'Sustainable Buildings Communication' will provide the Commission's vision for bringing together tools such as TC 350, Ecodesign measures, Ecolabel criteria for buildings/construction, GPP or incentives and other private schemes, in order to define a comprehensive building assessment system.

6.9 Sources of further information and advice

Sources of further information are provided here. Additional information can also be found in the documents and websites reported in Section 6.10.

6.9.1 GPP

- European Commission, *GPP criteria*. Available at: http://ec.europa.eu/environment/gpp/gpp_criteria_en.htm (accessed 21 November 2012).
- European Commission, 2011a, *Buying Green!, Green Public Procurement in Europe*. Available at: http://ec.europa.eu/environment/gpp/pdf/buying_green_handbook_en.pdf (accessed 21 November 2012).

6.9.2 Product environmental footprint (PEF)

- European Commission, *Product Environmental Footprint*. Available at: http://ec.europa.eu/environment/eussd/product_footprint.htm (accessed 21 November 2012).
- European Commission, 2012. *Product Environmental Footprint (PEF) Guide*. Available at: <http://ec.europa.eu/environment/eussd/pdf/footprint/PEF%20methodology%20final%20draft.pdf> (accessed 21 November 2012).
- European Commission, 2013. *Communication from the Commission to the European Parliament and the Council. Building the Single Market for Green Products. COM(2013) 196 final*. Available at: <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0196:FIN:EN:PDF> (accessed 20 September 2013).

6.9.3 TC 350

- European Committee for Standardization, *CEN TC 350 Sustainability of construction works*. Available at: <http://www.cen.eu/cen/Sectors/>

Sectors/Construction/SustainableConstruction/Pages/CEN_TC350.aspx (accessed 21 November 2012).

6.9.4 International Organization for Standardization (ISO)

- International Standards Office, 1999. ISO 14024:1999. *Environmental labels and declarations – Type I environmental labelling – Principles and procedures*. Geneva: ISO.
- International Standards Office, 2000. ISO 14020:2000 *Environmental labels and declarations – General principles*. Geneva: ISO.
- International Standards Office, 2006a. ISO 14040:2006 *Environmental management – Life cycle assessment – Principles and framework*. Geneva: ISO.
- International Standards Office, 2006b. ISO 14044:2006 *Environmental management – Life cycle assessment – Requirements and guidelines*. Geneva: ISO.
- International Standards Office, 2006c. ISO 14025:2006. *Environmental labels and declarations – Type III environmental declarations – Principles and procedures*. Geneva: ISO.
- International Standards Office, 2011. ISO 14021:1999/Amd 1:2011 *Environmental labels and declarations – Self-declared environmental claims – Type II environmental labelling*. Geneva: ISO.

6.9.5 Life cycle assessment (LCA)

- JRC European Commission – IES, 2010. *ILCD Handbook, General Guide for Life Cycle Assessment – Detailed Guidance*. Available at: <http://lct.jrc.ec.europa.eu/pdf-directory/ILCD-Handbook-General-guide-for-LCA-DETAIL-online-12March2010.pdf> (accessed 21 November 2012).

6.9.6 GPP and road construction and signs

- European Commission, 2011. *Road Construction and Traffic Signs – Green Public Procurement Product Sheet Other*. Available at: http://ec.europa.eu/environment/gpp/pdf/road_construction_and_traffic_signs_GPP_product_sheet.pdf (accessed 21 November 2012).

6.9.7 Heat pumps criteria

- *Commission Decision of 9 November 2007 establishing the ecological criteria for the award of the Community eco-label to electrically driven, gas driven or gas absorption heat pumps.*

6.9.8 Sanitary tapware criteria

- See: <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>

6.9.9 Toilets and urinals (in progress)

- See: <http://ec.europa.eu/environment/ecolabel/products-groups-and-criteria.html>

6.10 References and further reading

- Baldo, G.L., Rollino, S., Stimmeder, G. and Fieschi, M., 2002. The use of LCA to develop ecolabel criteria for hard floor coverings on behalf of the European Flower. *Int. J. of Life Cycle Assessment*, 7(5), 269–275.
- Baldo, G.L., Marino, M., Montani, M. and Ryding, S.O., 2009. The carbon footprint measurement toolkit for the EU Ecolabel. *Int. J. of Life Cycle Assessment*, 14(7), 591–596.
- Boyano Larriba, A., Dodd, N. and Wolf, O., 2012. *Final draft proposal for the development of ecological criteria for office buildings*. Brussels: Joint Research Center, Institute for Prospective Technological Studies.
- Commission Decision 2009/543/EC of 13 August 2008 establishing the ecological criteria for the award of the Community Ecolabel to outdoor paints and varnishes.*
- Commission Decision 2009/544/EC of 13 August 2008 establishing the ecological criteria for the award of the Community Ecolabel to indoor paints and varnishes.*
- Commission Decision 2009/564/EC of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for campsite service.*
- Commission Decision 2009/578/EC of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel for tourist accommodation service.*
- Commission Decision 2009/607/EC of 9 July 2009 establishing the ecological criteria for the award of the Community Ecolabel to hard coverings.*
- Commission Decision 2009/967/EC of 30 November 2009 on establishing the ecological criteria for the award of the Community Ecolabel for textile floor coverings.*
- Commission Decision 2010/18/EC of 26 November 2009 on establishing the ecological criteria for the award of the Community Ecolabel for wooden floor coverings.*
- EN 15804:2012 *Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products*, European Norm.
- European Commission, 2011a. *Buying Green!, Green Public Procurement in Europe*. Available at: http://ec.europa.eu/environment/gpp/pdf/buying_green_handbook_en.pdf (accessed 21 November 2012).
- European Commission, 2011b. *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and*

- the Committee of the Regions. Roadmap to a Resource Efficient Europe. COM(2011) 571 final.* Available at: http://ec.europa.eu/environment/resource_efficiency/pdf/com2011_571.pdf (accessed 21 November 2012).
- European Commission, 2012. Facts and Figures. Available at: <http://ec.europa.eu/environment/ecolabel/facts-and-figures.html> (accessed 21 November 2012).
- European Committee for Standardization, *CEN TC 350 Sustainability of construction works.* Available at: http://www.cen.eu/cen/Sectors/Sectors/Construction/SustainableConstruction/Pages/CEN_TC350.aspx (accessed 21 November 2012).
- EU Regulation No. 66/2010 of the European Parliament and of the Council of 25 November 2009 on the EU Ecolabel.*
- International Standards Office, 2000. *ISO 14020:2000 Environmental labels and declarations – General principles*, Geneva: ISO.
- Joint Research Center n.d. *EU Ecolabel and Green Public Procurement for Buildings.* Available at: <http://susproc.jrc.ec.europa.eu/buildings/whatsnew.html> (accessed 21 November 2012).

6.11 Appendix: abbreviations

LCA	Life cycle Assessment.
AHWG	'Ad Hoc Working Group', bringing together all stakeholders who participate in the EU Ecolabel criteria development for specific product groups: industry, experts, NGOs, public authorities and other interested parties.
CB	Competent body. Each member state designates a body within government ministries or outside, responsible for carrying out the tasks provided for the EU Ecolabel Regulation and ensures that they are operational. They are in charge of the verification process.
EUEB	European Union Ecolabelling Board, consisting of the representatives of the competent bodies of all the member states.
GPP	Green public procurement, to provide a clear, verifiable, justifiable and ambitious environmental criteria for products and services, based on a life cycle approach and scientific evidence base.
ISO	International Organization for Standardization.
PEF	Product environmental footprint, a multi-criteria measure of the environmental performance of a product or service throughout its life cycle.