

PRODUCT CATEGORY RULES

FLOOR CLADDING



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Version 1.2.

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Developed versions

Version	Comments	Edition date
1.0	First version of the Product Category Rules document for the DAPHabitat System	10.02.2014 – February 2014
1.1	Extension of the document's validity period	18.11.2020 – November 2020
1.2	Update of the PCR document when updating the Standard EN 15804:2012+A2:2019	01.06.2022 – June 2022

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GENERAL INTRODUCTION

1.1. DAPHabitat System

The DAPHabitat System is a Portuguese registration program of Type III Environmental Product Declarations (EDP) for product from habitat field. The Habitat field includes all the products and services involved in building and construction works.

This national registration program allows any company or interested entity to development or approval of Product Category Rules (PCR) and the registration of EDP, independent from its home country.

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1.2. Program Operator

The administration of the DAPHabitat system is a function of the Platform for Sustainable Construction. In this EDP registration system, the administrator is called the Program Operator.

Identification	Associação Plataforma para a Construção Sustentável
NIF	509 037 321
Localization	<u>Delegação:</u> Departamento de Engenharia Civil Universidade de Aveiro 3810-193 Aveiro Portugal
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website	www.centrohabitat.net






1.3. Product Category Rules

PCR are documents that contain the set of rules, requirements, and specific guidelines for the development of EDP, such as the parameters and categories of impact to declare, functional unit, system boundary, the life cycle stages to consider in the processes to be included, the biogenic carbon content, rules for the preparation of scenarios, rules for calculating the life cycle inventory and impact assessment, rules regarding additional environmental information, the conditions of comparability between construction products based on the information declared in the EDP, other information to declare, issues related to the verification and registration of the EDP in the database of the registration program.

1.4. PCR- basic module specific for construction products and services

This document was developed based on the PCR-model base document specifically for construction products and services. This document was prepared according to EN 15804:2012+A2:2019 and represents a supplement to the standard and any specific PCR document.



This document, specific PCR for floor covering, within the scope of construction products and services, must define, at least, the reference service life and the relevant functional unit for the set of products it represents. This document was carried out following the procedure described in the General Instructions for the System, as well as with national and international standardization:

-  NP ISO 14025:2009 – “Rótulos e declarações ambientais – Declarações ambientais Tipo III – Princípios e procedimentos”¹;
-  ISO 21930:2007 – “Building Construction – Sustainability in building construction”;
-  EN 15804:2012+A2:2019 – “Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products”;
-  NP EN ISO 14044:2010 – “Gestão ambiental – Avaliação do ciclo de vida – Requisitos e linhas de orientação”²;
-  NP EN ISO 14040:2008 – “Gestão ambiental - Avaliação do ciclo de vida - Princípios e enquadramento”³.

2. GENERAL INFORMATION

2.1. Scope and objective

This document establishes the framework that allows organizations to develop the following studies/documents:

-  Life Cycle Assessment (LCA) of the product(s) or service(s) object of the study and respective communication, for the floor covering category DAP for products that serve as floor cladding;
-  EDP for products that serve as floor covering.

The main objective of this PCR document is to ensure that the set of rules for the development of reliable and verifiable information in a EDP is described for products belonging to the category of “floor cladding”, based on the LCA. This document is intended for all manufacturers (and other interested parties) of floor cladding.

Note

¹ ISO 14025:2009 – “Environmental labels and declarations – Type III environmental declarations – Principles and procedures”

² ISO 14044:2006 – “Environmental management – Life cycle assessment – Requirements and guidelines”

³ ISO 14040:2009 - “Environmental management – life cycle assessment – Principles and framework”

2.2. PCR document identification

The identification data referring to the preparation of this version of the PCR document for floor covering products are shown in **Table 1**.

Table 1: PCR document identification

NAME	PCR – Floor cladding – V.1.2 (2015)	
REGISTER DATE AND NUMBER	10/02/2014 PCR001	
VERSION	New <input type="checkbox"/>	Update x
PCR COORDINATORS	Luís Arroja arroja@ua.pt Marisa Almeida marisa@ctcv.pt	
AUTHOR(S):	Marisa Almeida marisa@ctcv.pt Luís Arroja arroja@ua.pt Ana Cláudia Dias acdias@ua.pt	
SECTOR PANEL	RMC – Revestimentos de Mármore Compactos, S.A. Dominó – Indústrias Cerâmicas, S.A. MAS – Manuel Amorim da Silva, Lda. Sonae Indústria, SGPS, S.A. APICER – Associação Portuguesa da Indústria de Cerâmica	
CONSULTATION PERIOD	01/08/2013 to 30/11/2014	
VALID UNTIL	June 2027	




Comments on this document can be sent to the Construção Sustentável Platform or to the document's coordinators.

To establish a document that allows international comparison, the DAPHabitat System needed to harmonize the document PCR - Floor cladding with other European registration programs. In this way, a study of other similar PCR documents was carried out. **Table 2** shows the PCR documents consulted and adopted for the realization of the PCR document for floor covering.

Table 2: Consultation of existing PCR documents in other EDP registration programs

International registration programs	PCR
DAPHabitat System	PCR- basic module to construction products and services. Version 2.2.
The Norwegian EPD Foundation epd-norge.no	Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for <i>Ceramic Tiles</i> . Version 1.0 - 2011/12/31.
EDPc System (Spain)	RCP – <i>Productos de recubrimiento cerámico</i> . RCP 002 – Sistema DAPc. Versión 1. 2010/06/11.
The International EPD System - Environdec	CPC 3754: Tiles, flagstones, bricks and similar articles, of cement, concrete or artificial stone Version 2.0 – 2011-08-25.
IBU environmental product declarations (German)	PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Dimension stone for roof, wall and floor applications . Version 1.0 – 2012/07/17.
	PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for floor cladding . Version 1.1 – 2012/10/29.
	PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Fibre cement/Fibre concrete . Version 1.1 – 2012/10/29.
	PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Laminates . Version 1.1 – 2012/10/29.
	PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Mineral panel . Version 1.1 – 2012/10/29.
PCR Guidance-Texts for Building-Related Products and Services. Part B: Requirements on the EPD for Ceramic tiles and panels . Version 1.1 – 2012/10/29.	

After analysing the documents in **Table 2**, the need to prepare the PCR document for floor cladding was concluded for the following reasons:

-  The PCR documents analysed are made for specific products within the category of floor cladding, not including all products for floor covering considered in this document;
-  The PCR documents analysed include different specifications that may compromise the comparison between the EDP of similar products within the scope of floor cladding according to point 6.7.2. of NP EN 14025: 2009
-  Some of the PCR documents are not yet in line with the principles of Standard EN 15804, which includes the basic rules for developing PCR for all construction products and services.

3. PRODUCTS GROUP DEFINITION

The product category “floor cladding” includes all products with a floor covering function. With the floor covering, flat, hard, and decorative surfaces are obtained, which not only allow access to space, but also provide resistance to wear, and at the same time a pleasant appearance, at the aesthetic level. The choice and type of floor covering vary depending on the type of occupation planned for the installation site and must respect certain requirements such as habitability, comfort, safety, and durability.

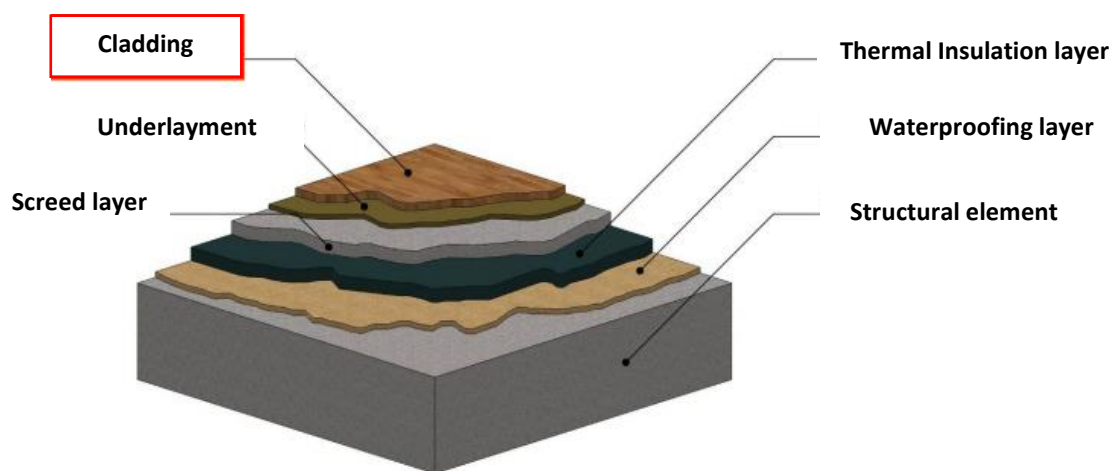







Figure 1: Schematic diagram of the generic structure of a pavement

Floor or floor cladding can be classified:

-  Executed *in situ* (self-leveling mortars, bitumens, epoxy resins, etc.);
-  Manufactured (carpets, ceramic mosaics, stone, wood);
-  Traditional (wood, ceramic, natural stone);
-  Non-traditional (linoleum, vinyls, rubber, cork tiles, etc.);
-  Or by type of material (wood, ceramic, stone, hydrocarbon, textile, organic, etc.).

3.1. Main types of products for floor cladding








The main types of floor cladding are classified according to their constitution, shape, and dimension. There are several types of floor cladding, such as mineral materials (ceramic mosaics, natural stones, self-leveling mortars, hydraulic tiles); woody materials (wood, cork); textile materials (carpets, rugs); metallic materials (metallic grids); synthetic materials (epoxy resins, linoleum, pieces of vinyl). The product description must contain the applicable product standard, national or European.

In Table A. 1 and Table A. 2 of ANNEX A, there are some standards for ceramic, stone, concrete, fiber cement, textile, resilient and laminate, wood, metal, glass flooring, and others. For undated references, the latest edition of the referenced document applies.

The product description to be included in the specific EDP should be detailed according to the example presented below.








***Ceramic tiles** are “Plates made of clay and/or other inorganic raw materials. NOTE 1: Tiles are generally used as a covering for floors and walls. They are usually shaped by extrusion (Method A) or dry pressing (Method B) at room temperature, then dried and subsequently cooked at temperatures sufficient for the development of the required properties, however, they can be shaped by other processes. Ceramic tiles can be glazed (GL) or non-glazed (UGL), being non-combustible and insensitive to light. NOTE 2: A fully glazed tile (or porcelain tile) is a tile with water absorption below 0.5%. (according to definition 3.1 of NP EN 14411: 2008).*

In the EDP, the product group and the respective NACE codes (Statistical Nomenclature of Economic Activities of the European Community) must be specified following Decree-Law No. 381/2007 of 14 November, according to the following classification examples:


-  Ceramic floor covering: Section C, class 2331;
-  Stone floor covering: Section C, class 2370;
-  Concrete floor covering: Section C, class 2361;
-  Wooden floor covering: Section C, class 1622, class 1629;
-  Cork floor covering: Section C, class 1629;
-  Plastic floor covering for construction - Section C, class 2223;
-  Textile floor covering - carpets, rugs, curtains: Section C, class 4753 and Section C, class 1393.

3.1.1. Application

The products belonging to the category of floor cladding have a wide field of application in building and among other construction works, and can be applied in:

-  industrial buildings;
-  agricultural buildings;
-  accessory buildings and annexes and provisional facilities;
-  sports pavilions;
-  airports;
-  special large-span structures;
-  dwellings;

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 administrative and school buildings.

The producer must specify whether the coating is placed inside, outside, or both

4. LCA CALCULATION RULES

4.1. Functional unit

The functional unit provides a reference for the quantification of the environmental performance of the product, being required for a cradle-to-grave EPD.

“1t in (specify product and material) for floor covering with a reference service life (x years) and with the conversion factor of x (kg/m³)”

The specification of the product and material referred to above must be precise and objective so that the product is identified unambiguously (eg. indicate the water absorption classification group for ceramic tiles).

The reference service life must be determined according to the indications in point 5.4.1. of the PCR document - basic model specific for construction products and services.

Table 3: Example units and their application

Examples
1 m ² in ceramic tile (B1b group, with dimensions 30 x 30 cm) for floor covering for a reference life of 50 years.
1 m ² in marble (dimensions 30 x 30 cm) for floor covering for a reference life of 50 years.
1m ² floating wooden floor (120x30 cm ruler) for floor covering for a 20-year service life
1m ² wooden parquet flooring for 20 years

4.2. Declared unit

Declared unit can be:

“1 t floor covering produced in (specify product and material) ”

However, another declared unit can be used as long as the conversion factor(s) from that unit to the 1m² unit are provided.

Table 4: Example units and their application

Examples	Declared unit
1 piece	1 ceramic tile produced (dimensions to be declared) for floor covering 1 block of granite produced (dimensions to be declared) for floor covering
Mass	1 t of ceramic tile produced with (dimensions 60 x 60 cm) for floor covering 1 t of carpet (dimensions) for floor covering 1 t of parquet (dimensions) for floor covering

4.3. System boundaries

The system boundaries determine which information modules and unit processes that should be include in the LCA that underlies EDP.

Examples of unitary processes to consider in module A3 of the product stage, in a cradle-to-gate EDP:

 Stone tile:

- cut in standard dimensions;
- grinding and polishing;
- packaging and storage.

 Ceramic floor covering:

- preparation of the paste;
- conformation;
- drying;
- glazing or decoration;
- cooking;
- polishing;
- choice and packaging and storage.

As part of the definition of the system boundaries, a description must be made for each module included in the product's life cycle stages, as well as the establishment of a flow chart.

4.3.1. Product Stage (mandatory)

The product stage is composed by information modules related to the extraction and processing of raw materials, its transport until the production site and the product production. The document PCR- base model describes some of the processes that should be considered in each sub-module A1, A2 and A3.

4.3.2. Construction Process Stage

The construction stage is an optional stage and includes the information modules about the transport of products to the construction site and its installation in the building or in other construction works, including all materials supply

and energy, as well the waste processing by the end of waste status or their final destination. The document PCR-base model describes some of the processes that should be considered in each sub-module A4 and A5.

4.3.3. Use Stage

The use stage is an optional step and is constituted by information modules covering the period from the delivery of the building or construction works as completed to its deconstruction or demolition. The duration of the use stage relative to the product may be different from the required lifetime of the building or construction work (for which the construction was designed).

The document PCR-base model describes some of the processes that should be considered in each sub-module B1-B7. However, in this document some characteristic examples of the product category “floor cladding” are described.

4.3.3.1. Modules step of using information for the construction of the components (B1-B5)

B1) Use of the installed product:

Example: Release of substances from the floor covering (indoor or outdoor) into the air, soil or water.

B2) Maintenance:

Example 1: Accounting for the use of resources and respective impacts associated with the planned maintenance actions for cleaning and eliminating debris that accumulates in floor covering products.

Example 2: The use of waxes on wooden or ceramic floors, among others.

B3) Repair:

Example: For a damaged floor covering, its repair includes the impacts associated with the production and transport of the materials necessary for the respective repair process (mortars, sealants, adhesives, cleaning water, etc.), as well as the end of life of the resulting residues the repair process, including packaging.

4.3.3.2. Information modules of use stage concerning the exploitation of construction (B6-B7)

B6) Energy consumption by the integrated technical systems in the building operational stage:

If the floor covering is not part of the technical systems integrated into the building (as usual), module B6 should not be considered.

B7) Water consumption by the integrated technical systems in the building operational stage:

If the floor covering is not part of the technical systems integrated into the building (as usual), module B7 should not be considered.

4.3.4. End of life stage

The “end of life” stage of the floor covering begins when it is replaced, disassembled, or deconstructed from the building or other construction works and has no other functionality. This can also start at the end of the building's life, depending on the choice of the product's end-of-life scenario. The document PCR- basic model describes some of the processes that must be considered in each sub-module C1, C2, C3, and C4.

4.3.5. Benefits and environmental loads beyond the system boundaries – D module

The information module “D” regards to the benefits or to the loads for environmental created by reused products, recycled materials and/or energy transfer to the outside of the product system (as secondary materials or fuels). The document PCR- basic model describes some of the processes that must be considered in this module.

5. EDP CONTENT

The DAPHabitat System requires an EDP to include certain general information regarding the registration program and the applicant organization. For the preparation of the EDP, at least the following content should be considered:

- Name and address of the manufacturer(s);
- Description of the use of the construction product/ product class and the functional unit or declared to which the data relates;
- Identification of the construction product/product class by its name (including any product code) and a simple visual representation of the construction product/product class to which the data relates;
- Description of the main components and/or product materials;
- Name of the program used as well the name and address of the program operator and, when relevant, the logo and web page;
- Issue date of the declaration and validity period up to 5 years;
- information indicating the stages are not considered, if the statement is not based on an LCA covering all stages of the life cycle;
- mention indicating that the construction product EPD may not be comparable if they are not in accordance with EN 15804 and this PCR document;
- in the case where an EDP is declared as an average environmental performance for a number of products, a mention of this must be included in the declaration, accompanied by a description of the range/variability of the results of the LCIA, if this is significant;
- the location(s), the producer or group of producers or their representatives for whom EDP is representative;
- declaration of the content in materials of the product should at least enumerate the substances contained in the product that are in the " List of substances of very high concern candidates for authorization" (under REACH) when the content exceeds the limits for registration by the European Chemicals Agency;
- Information indicating where the explanatory elements can be obtained.

This information should be declared according to the requirements indicated in the General Instruction for DAPHabitat System and with the EPD **template** at www.daphabitat.pt for formatting and presentation of content in the EPD.

More specific information about the content of an EDP is presented in the document PCR- basic model, with no specificity for the category of "floor cladding".




6. PROJECT REPORT

The project report should be systematic and complete to support the verification procedure of an EPD. The project report must register the LCA and additional information, as stated in the EPD, according to EN 15804. This must be made available to the certification body recognized by DAPHabitat System respecting the confidentiality requirements specified in EN ISO 14025.

The elements of the Project Report should follow the requirements of the EN 15804 as well as the indications described in the document General Instructions of DAPHabitat System, available at www.daphabitat.pt.


7. UNITS

The SI units should be used. The basic units to be used are: meter (m), kilogram (kg), molecular weight (mole). All resources must be expressed in kg with the exception:

-  of energy resources must be used kWh or MJ;
-  the temperature should be expressed in Celsius degrees;
-  time should be expressed as a rating scale: minutes, hours, days, or years.

8. REFERENCES

- NP ISO 14025:2009 – “Rótulos e declarações ambientais – Declarações ambientais Tipo III – Princípios e procedimentos”;
- ISO 21930:2007 – “*Building Construction – Sustainability in building construction*”;
- EN 15804:2012+A2:2019 – “*Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*”;
- NP EN ISO 14044:2010 – “Gestão ambiental – Avaliação do ciclo de vida – Requisitos e linhas de orientação”;
- NP EN ISO 14040:2008 – “Gestão ambiental - Avaliação do ciclo de vida - Princípios e enquadramento”;
- General Instructions for the DAPHabitat System. Version 2.0, June 2022;
- PCR – Product Category Rules. Basic module construction products and services. Sistema DAPHabitat. Version 2.2 2022;
- Product – Category Rules (PCR) For preparing an environmental declaration (EPD) for Product Group **Asphalt and crushed stone**. – The Norwegian EPD Foundation, NPCR, Novembro 2010
- Product Category Rules (PCR) for preparing an Environmental Product Declaration (EPD) for **Ceramic Tiles**. – The Norwegian EPD Foundation, NPCR, Version 1.0 - 2011/12/31.
- RCP – **Productos de recubrimiento cerámico**. RCP 002 – Sistema DAPc. Versión 1. 2010/06/11.
- CPC 3754: Tiles, flagstones, bricks and similar articles, of cement, concrete or artificial stone The International EPD System. Version 2.0 – 2011-08-25.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Dimension stone for roof, wall and floor applications**. Institut Bauen und Umwelt e.V. (IBU) Version 1.0 – 2012/07/17.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for floor cladding**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Aluminium roofing and cladding systems**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Fibre cement/Fibre concrete**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Glass Reinforcement Mesh**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Ceramic panelling**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Laminates**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.
- PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Mineral panel**. Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.

-  PCR Guidance-Texts for Building-Related Products and Services. **Part B: Requirements on the EPD for Ceramic tiles and panels.** Institut Bauen und Umwelt e.V. (IBU) Version 1.1 – 2012/10/29.

ANNEX A

Table A. 1 – Examples of products for floor cladding and product standards

Material type	Product standard
Ceramic	<ul style="list-style-type: none"> – NP EN 1344:2004: Blocos cerâmicos para pavimento. Especificações e métodos de ensaio (EN 1344:2002). – EN 14411:2012: Pavimentos e revestimentos cerâmicos – Definições, classificação, características e marcação (EN 14411:2006).
Stone	<ul style="list-style-type: none"> – NP EN 1341:2004: Lajes de pedra natural para pavimentos exteriores. Requisitos e métodos de ensaio (EN 1341:2001), – NP EN 1342:2004: Cubos e paralelepípedos de pedra natural para pavimentos exteriores. Requisitos e métodos de ensaio (EN 1342:2001). – NP EN 1343:2005: Guias de pedra natural para pavimentos exteriores. Requisitos e métodos de ensaio (EN 1343:2001). – NP EN 12057:2006: Produtos em pedra natural – Ladrilhos modulares – Requisitos (EN 12057:2004). – NP EN 12058:2006: Produtos em pedra natural – Placas para pavimento e degraus – Placas para pavimentos e degraus – Requisitos: (EN 12058:2004). – NP EN 15285:2010: Pedra aglomerada. Ladrilhos modulares para pavimentos e degraus (interiores e exteriores) (EN 15285:2008/AC:2008).
Concrete	<ul style="list-style-type: none"> – NP EN 1338:2009: Blocos prefabricados de betão para pavimentos. Requisitos e métodos de ensaio (EN 1338:2003). – NP EN 1339:2010: Lajetas prefabricadas de betão. Requisitos e métodos de ensaio (EN 1339:2003). – EN 490:2011: Concrete roofing tiles and fittings for roof covering and wall cladding. Product specifications.
Fiber cement	<ul style="list-style-type: none"> – NP EN 492:2010: Soletos de fibrocimento e respectivos acessórios. Especificação de produto e métodos de ensaio (EN 492:2004+A1, A2:2005). – NP EN 12467:2009: Chapas lisas de fibrocimento. Características do produto e métodos de ensaio (EN 12467:2004).

Table A. 2 - Examples of products for floor cladding and product standards

Product name	Product standard
Textiles, resilients and laminates	<ul style="list-style-type: none"> - EN 14041:2004: Resilient, textile and laminate floor cladding – Essential characteristics.
Wood	<ul style="list-style-type: none"> - EN 14342:2005+A1:2008: Wood flooring - Characteristics, evaluation of conformity and marking. - EN 14915:2006: Solid wood panelling and cladding – Characteristics, evaluation of conformity and marking.
Metallic	<ul style="list-style-type: none"> - NP EN 14782:2008: Chapas metálicas autoportantes para coberturas, revestimentos exteriores e divisórias interiores (EN 14782:2006). - NP EN 14783:2009: Chapas e bandas metálicas totalmente apoiadas para cobertura, revestimentos exteriores e interiores. Especificação de produto e requisitos. (EN 14783:2006).
Glass	<ul style="list-style-type: none"> - NP EN 1051-2:2008: Vidro na construção – Tijolos de vidro e blocos de vidro para pavimento - Parte 2: Avaliação da conformidade/Norma de produto (EN 1051-2:2007).
Others	<ul style="list-style-type: none"> - EN 13454-1:2004: Binders, composite binders and factory made mixtures for floor screeds based on calcium sulphate – Part 1: Definitions and requirements. - NP EN 13748-1:2010: Ladrilhos hidráulicos. Parte 1: Ladrilhos hidráulicos para utilização em interiores (EN 13748-1:2004). - EN 13748-2:2004: Terrazzo tiles – Part 2: Terrazzo tiles for external use. - EN 13813:2002: Screed material and floor screeds – Screed materials – Properties and requirements. - EN 14904:2006: Surface for sport areas – Indoor surfaces for multi-sport use – Specification.