

# EPD for Manufacturers and Suppliers

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# What is an EPD?

An Environmental Product Declaration (EPD) communicates verifiable, accurate, non-misleading environmental information for products and their applications, thereby supporting scientifically based, fair choices and stimulating the potential for market driven continuous environmental improvement.



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## Barriers to the wide-scale adoption of EDPs

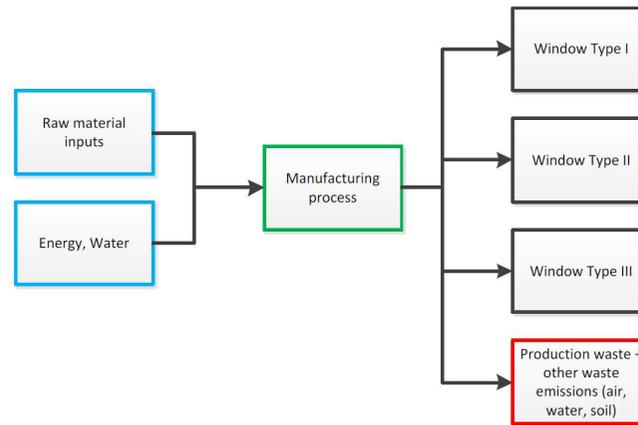
- There is a perception that companies lack the expertise, finances and personnel to create EPDs for their products.
- Having access to the LINA tool has removed these barriers.

## Access to a consultant

- No one need struggle to progress their life cycle assessments
- A LINA consultant is available to answer specific questions and there are extensive questions and answers that can also provide assistance.



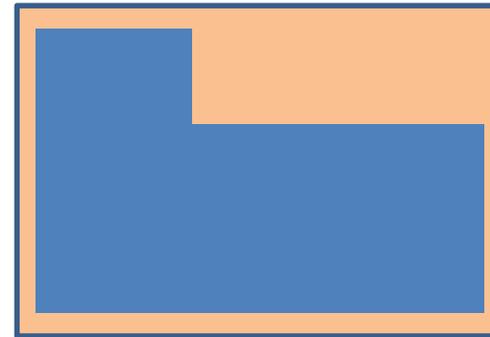
# Simple Allocation Method



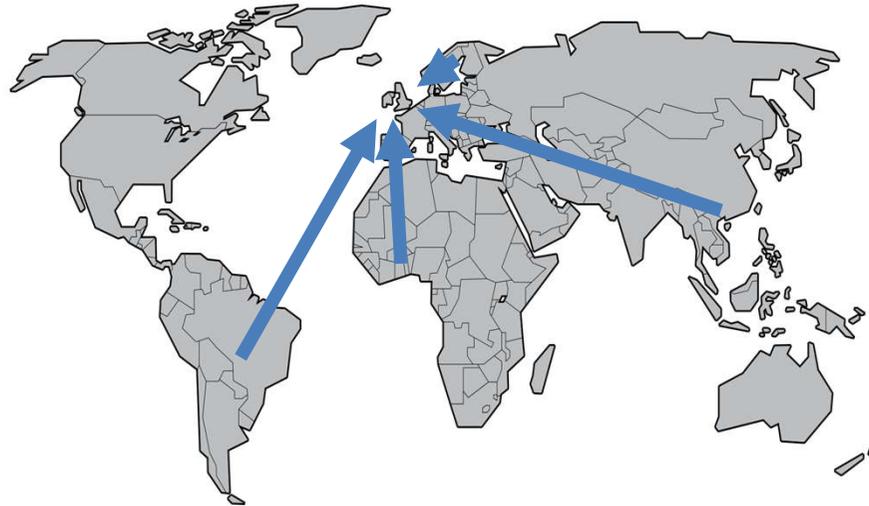
The allocation of materials, energy, water and waste can be made on a simple pro rata basis

## Simple Allocation Method

A mass balance calculator keeps track on whether the materials entering the production process are equal to the mass of materials contained in the finished products and any waste generated



## Where do materials come from?



LINA determines the effects of transport for different locations and modes of transport

# Value for Money Verification

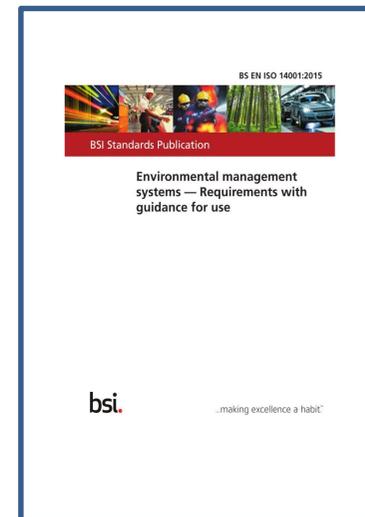
- A manufacturer with access to the LINA software can develop unverified life cycle assessments at no additional cost in order to evaluate different scenarios for the manufacture of their products e.g.
  - raw materials sourced from different locations
  - More efficient use of raw materials
  - Use of recycled materials

# Value for Money Verification

- The process of the verification of the life cycle assessments is also straight forward
- The manufacturer can upload the evidence used as the inputs in the life cycle assessment along with information about the product and the production process.
- Any calculations will have already been done correctly by the LINA software.

# Life Cycle Assessments for ISO 14001

One BWF member has requested access to LINA to obtain life cycle assessments in order to fulfil one of the requirements of their ISO 14001 certification

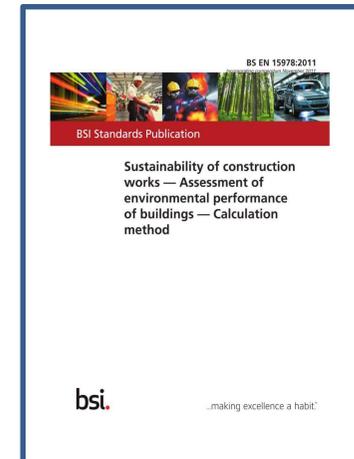


## How can EPD data from different products be compared?

- EPDs are intended to be used to compare the contribution products make to the environmental performance of a building.
- For comparisons of products and services outside of the building context all aspects of the EPD needs to be considered.

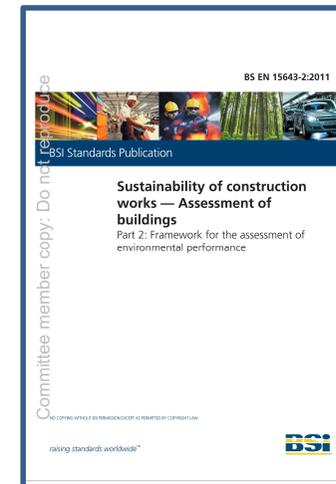
## EPDs at a building Level

- Sustainability of Construction Works
- **Building Level**
- EN 15978
- Assessment of Environmental Performance of buildings
- Calculation method



## EPDs at a building Level

- Sustainability of Construction Works
- **Framework Level**
- EN 15643-2
- Framework for the assessment of environmental performance



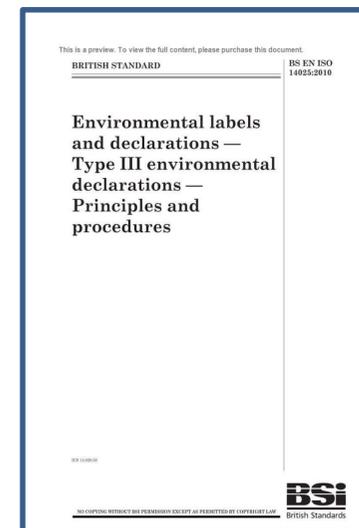
# Comparison of EPDs at a Product Level

- Generic EPD Vs Product Specific EPDs
- Consistency of Product Category Rules
- Consistency of functional unit
- Consistency of Product Stages assessed

# Generic Vs product Specific EPDs

BS EN ISO 14025-1  
Environmental Labels and declarations  
Type III environmental declarations  
Principles and procedures

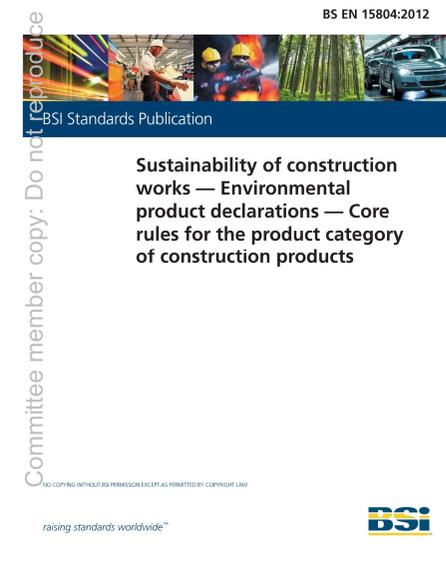
May permit the use of “equivalent” data for generic EPDs that could vary widely from those of developed for a specific product.



# BS EN 15804:2012 + A1:2013

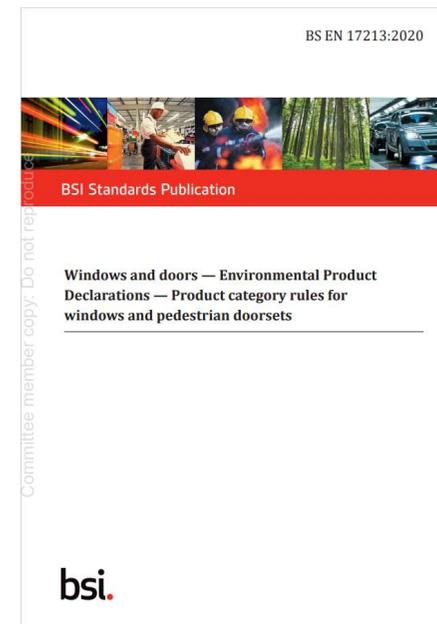
Sustainability of construction works.  
Environmental product declarations.  
Core rules for the product category of  
construction products

This standard provides a structure to ensure that all  
EPDs of construction products, construction services  
and construction processes are derived, verified and  
presented in a harmonised way.



# BS EN 17213:2020

Windows and doors —  
Environmental Product Declarations  
Product category rules for  
windows and pedestrian doorsets



## Types of EPD with respect to life cycle stages

- **“cradle to gate”**
- The product stage only.
- Raw material supply, transport, manufacturing and associated processes;
- based on information modules A1 to A3

## Types of EPD with respect to life cycle stages

- **“cradle to gate with options”**
- The product stage and selected further life cycle stages.
- based on information modules A1 to A3 plus other selected optional modules, e.g. end-of-life information modules C1 to C4 or Information module D.

# Life cycle stages

- The initial focus is for BWF members to look at **cradle to gate** assessments
- Greater understanding will be obtained by encouraging members to consider **cradle to gate with options** to cover more stages of the product life cycle.

## Life cycle stages – Product Stage

- A1, raw material extraction and processing, processing of secondary material input (e.g. recycling processes),
- A2, transport to the manufacturer,
- A3, manufacturing,

## Life cycle stages – Construction Process Stage

- A4, transport to the building site
- A5, installation into the building

## Life cycle stages – Use Stage, Building Fabric

- B1, use or application of the installed product;
- B2, maintenance;
- B3, repair;
- B4, replacement;
- B5, refurbishment;

## Life cycle stages

### – Use Stage, Operation of the Building

- B6, operational energy use (e.g. operation of heating system and other building related installed services);
- B7, operational water use;

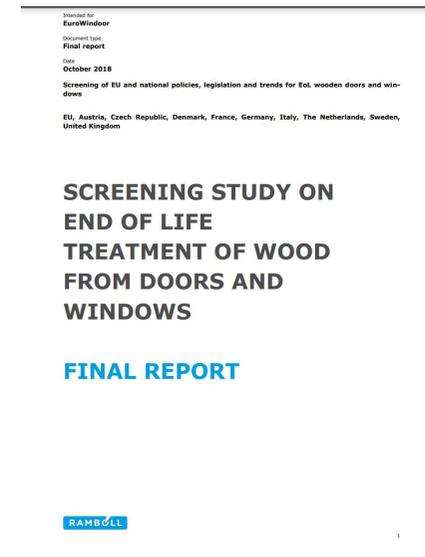
## Life cycle stages – End of life stage

- C1, de-construction, demolition;
- C2, transport to waste processing;
- C3, waste processing for reuse, recovery and/or recycling;
- C4, disposal;



## Screening Study on End of Life Treatment of Wood from Doors and Windows

New wooden doors and windows entering the market today will be in place for anywhere from 15 to over 100 years. As such, the end-of-life (EoL) management of these products seems distant. However, the possibility to recycle these products at EoL is an important component of their overall sustainability.



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Life cycle stages  
Benefits and loads beyond the system  
boundary

- D, reuse, recovery and/or recycling potentials, expressed as net impacts and benefits.

## Impact Assessment

- Global warming; GW
- Ozone depletion; ODP
- Acidification of land and water; AP
- Eutrophication; EP
- Photochemical ozone creation; POCP
- Depletion of abiotic resources (elements); ADP
- Depletion of abiotic resources (fossil). ADP

But which impacts have the most effect on the environment?

- GWP 105 kg of carbon dioxide CO<sub>2</sub>
- ODP 0.000013 kg of trichlorofluoromethane CFC-11
- AP 0.85 kg of sulphur dioxide SO<sub>2</sub>
- EP 0.2 kg of phosphate (PO<sub>4</sub>)<sup>3-</sup>
- POCP 0.069 kg of ethene C<sub>2</sub>H<sub>4</sub>
- ADPE 0.0017 kg of antimony Sb
- ADPF 2120 MJ net calorific value

# Could the impacts be presented in a clearer way?

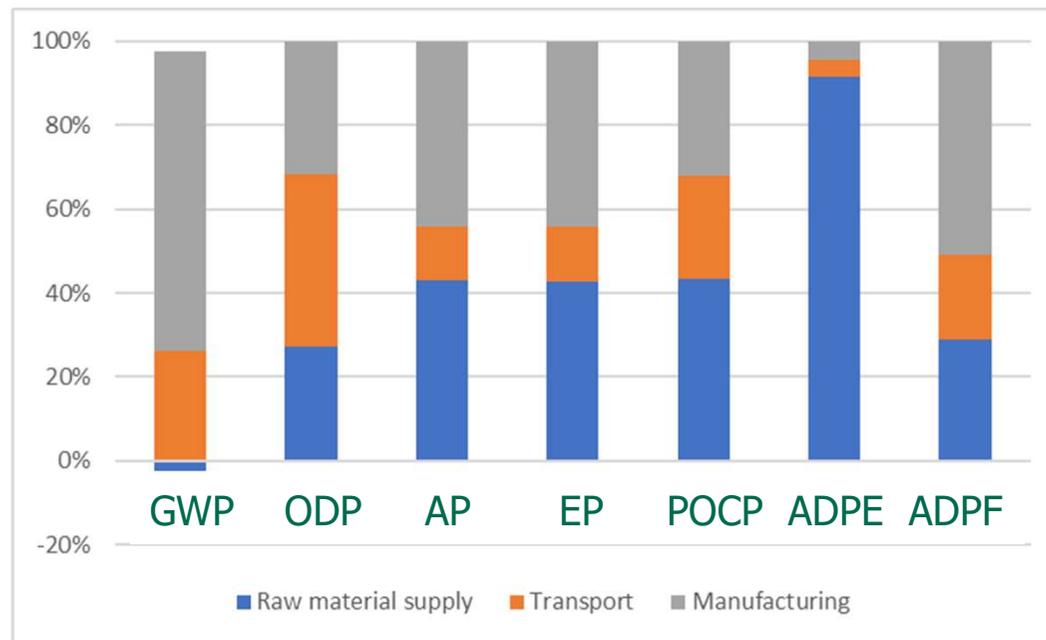
## LCA Results

(MND = module not declared; MNR = module not relevant; INA = indicator not assessed; AGG = aggregated)

Parameters describing environmental impacts			GWP	ODP	AP	EP	POCP	ADPE	ADPF
			kg CO <sub>2</sub> equiv.	kg CFC 11 equiv.	kg SO <sub>2</sub> equiv.	kg (PO <sub>4</sub> ) <sup>3-</sup> equiv.	kg C <sub>2</sub> H <sub>4</sub> equiv.	kg Sb equiv.	MJ, net calorific value.
Product stage	Raw material supply	A1	-2.63E+00	3.51E-06	3.65E-01	8.64E-02	2.96E-02	1.58E-03	6.13E+02
	Transport	A2	2.85E+01	5.26E-06	1.07E-01	2.74E-02	1.71E-02	7.41E-05	4.31E+02
	Manufacturing	A3	7.91E+01	4.05E-06	3.78E-01	8.92E-02	2.22E-02	7.30E-05	1.08E+03
	Total (of product stage)	A1-3	1.05E+02	1.28E-05	8.50E-01	2.03E-01	6.89E-02	1.73E-03	2.12E+03



## Contribution of Product Stages A1, A2 and A3

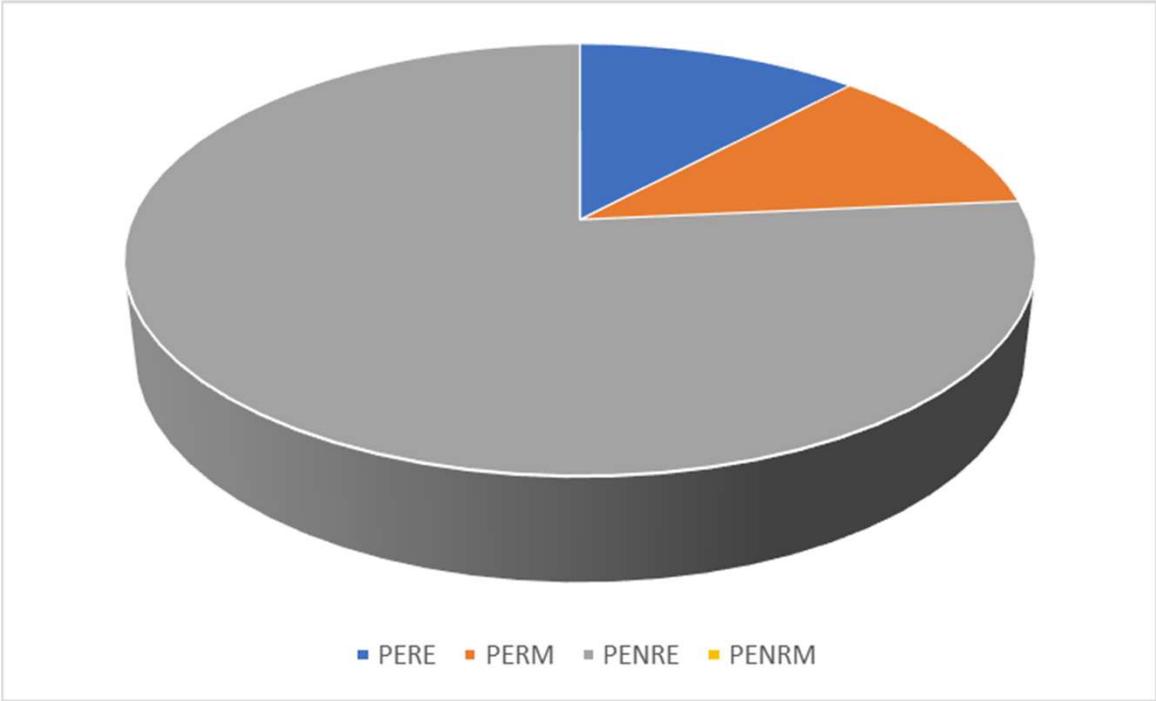


# Resource Use – Primary Energy

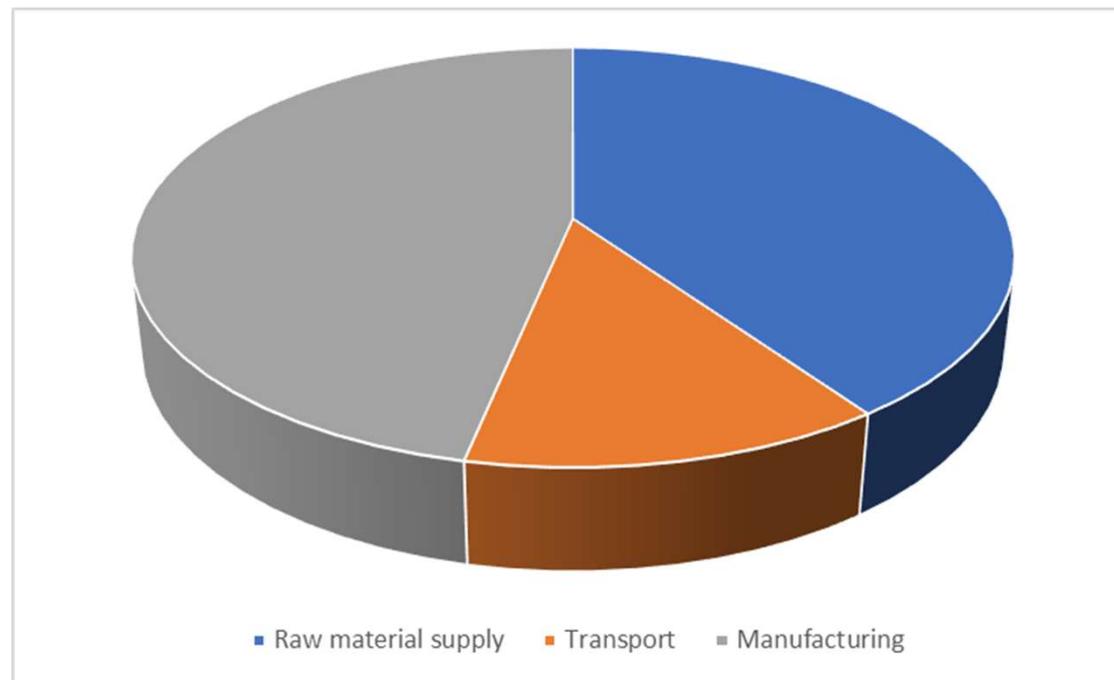
## LCA Results (continued)

Parameters describing resource use, primary energy			PERE	PERM	PERT	PENRE	PENRM	PENRT
			MJ	MJ	MJ	MJ	MJ	MJ
Product stage	Raw material supply	A1	2.77E+02	3.86E+02	6.63E+02	6.77E+02	0.00E+00	6.77E+02
	Transport	A2	5.97E+00	2.18E-05	5.97E+00	4.29E+02	0.00E+00	4.29E+02
	Manufacturing	A3	1.16E+02	3.25E-05	1.16E+02	1.44E+03	0.00E+00	1.44E+03
	Total (of product stage)	A1-3	3.99E+02	3.86E+02	7.85E+02	2.55E+03	0.00E+00	2.55E+03

# Resource Use – Primary Energy



## How is the energy used?

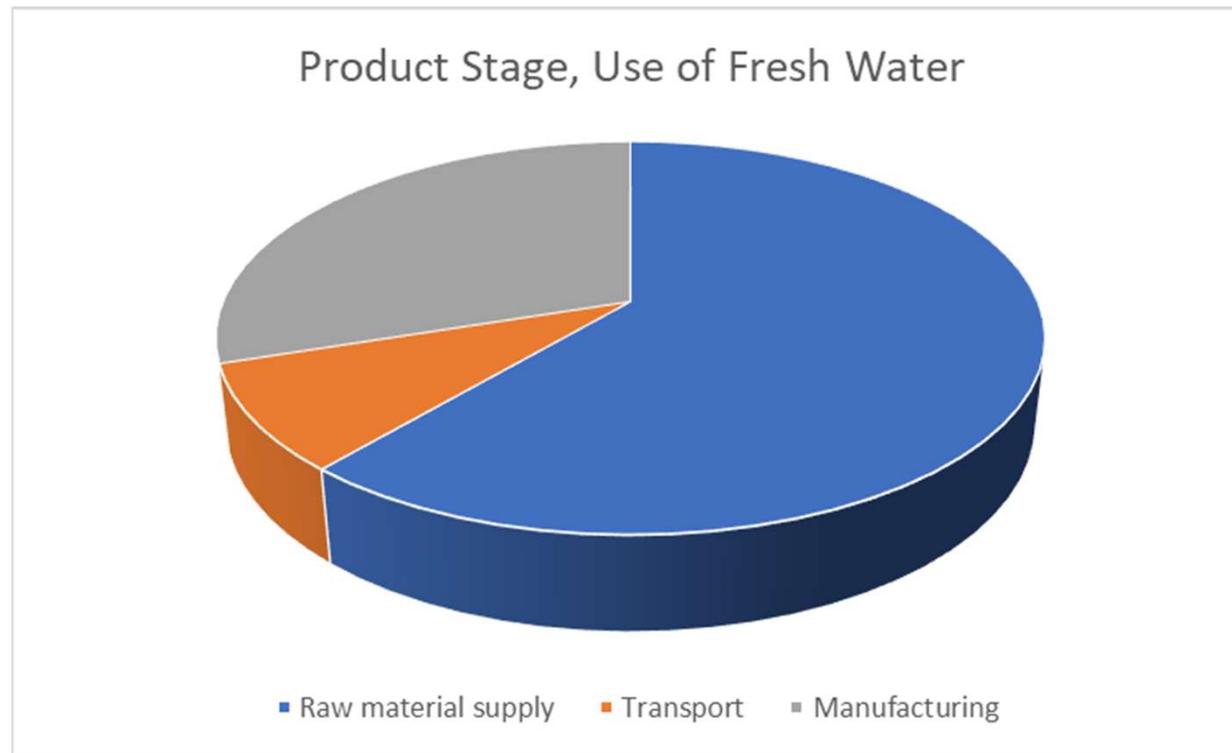


# Resource use - water

## LCA Results (continued)

Parameters describing resource use, secondary materials and fuels, use of water						
			SM	RSF	NRSF	FW
			kg	MJ net calorific value	MJ net calorific value	m <sup>3</sup>
Product stage	Raw material supply	A1	0.00E+00	0.00E+00	0.00E+00	6.66E-01
	Transport	A2	0.00E+00	0.00E+00	0.00E+00	9.46E-02
	Manufacturing	A3	0.00E+00	0.00E+00	0.00E+00	3.26E-01
	Total (of product stage)	A1-3	0.00E+00	0.00E+00	0.00E+00	1.09E+00

## Resource Use – Secondary Fuels, Resources and Water





Ministry of Housing,  
Communities &  
Local Government

# Planning for the future

We will work tirelessly as part of this Government's wider commitment to net zero emissions by 2050, delivering a green housing revolution of attractive and environmentally friendly homes.

From 2025, the Future Homes Standard will require up to 80% lower carbon emissions for all new homes. This will help bring an environmental revolution to home building – tackling climate change while keeping household bills low. This will ensure everyone, including developers, is doing their bit to protect the environment.



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# Marketing Integrity Group

To give confidence to those in the supply chain that use product information, that it is accurate, accessible, up-to-date, clear and unambiguous and can therefore be relied upon when making decisions about using those products at any stage of design, specification, installation, use and maintenance.





# CEN/TC 33 Standardisation Request

For BRCW 7, Sustainable use of natural resources, the harmonised standards shall identify and enumerate all the relevant elements of performance related to the whole life cycle of the products concerned. This standardisation work shall be based on EN 15804.





# CEN/TC 33 Standardisation Request

The harmonised standards shall also prescribe that, when a manufacturer wants to declare the performance of his product in relation to the essential characteristic Environmental sustainability, they shall present in the declaration of performance the results of the assessment of all those elements of performance specified in the harmonised standard in question and he shall include in the calculation all the mandatory modules according to EN 15804.





# CEN/TC 33 Standardisation Request

Regarding the inclusion of BRCW 7 in the standardization request, TC 33 in its majority appreciate and understand the push from EC to introduce this using EN 15804 and on an equal level to all other characteristics. In trying to meet the expectations from EC in this aspect many challenges have been confirmed by TC 33 as well as TC 88, TC 241 and CPE, mainly linked to the use in a regulatory context of a standard developed under voluntary context.



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# CEN/TC 33 Standardisation Request

## 2.4.7. BRCW#7: Sustainable use of natural resources

Essential characteristics (including sub-elements, if any)	Class Threshold	AVCP system





Ministry of Housing,  
Communities &  
Local Government

## Digital Exchange of Construction Information

There are a number of drivers pushing the exchange of digital construction information.

Recent Building Safety proposals have encouraged the use of digital communications e.g.

The Hackitt Review proposals for the “Golden Thread”

The Building Safety Bill proposals for fire safety information

There is a concern that there may be a divergence of methods and technologies to achieve this. One way is through BIM



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ISO/CD 22057:2019

## Sustainability in buildings and civil engineering works – Use of Environmental Product Declarations (EPD) for construction products in Building Information Modelling (BIM)

This document provides the principles and requirements to enable environmental and technical data provided in Environmental Product Declarations (EPD) for construction products and services, construction elements and integrated technical systems to be used in building information modelling (BIM) to assist life cycle assessment (LCA) at construction works level.



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