



Product Category Rules : Part A

**Implementation and use of I.S. EN
15804:2012 and CEN TR 16970:2016 in
Ireland**

Irish Green Building Council
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1.0 Overview

This document sets out the rules for the implementation and use of I.S. EN 15804:2012 [1] and associated guidance document CEN TR 16970:2016 [2] in Ireland.

It sets out the following:

1. Environmental impact categories that are mandatory for use in the environmental impacts in the Environmental Product Declarations (EPD).
2. Resource use categories that are mandatory for inclusion in the EPDs.
3. Life cycle stage modules that are mandatory for inclusion in the EPDs.
4. Establishes that the Ecoinvent database is the recommended reference database to be used for the environmental impact records developing life cycle assessments (LCA) and EPDs.
5. Establishes default values for Module A4, transportation of goods from factory gate to place of use.
6. Establishes default values for loss in the form of construction waste.
7. Establishes default values for end of life scenarios waste to energy.

2.0 Parameters describing environmental impacts

The impact assessment published on the EPD certificate is to be carried out for the following environmental impact categories:

- Global warming
- Ozone depletion
- Acidification of land and water
- Eutrophication
- Photochemical ozone creation
- Depletion of abiotic resources (elements)
- Depletion of abiotic resources (fossil)

The above impact categories are mandatory. Other optional impact categories may be included on the EPD certificate in order to allow validity in other jurisdictions such as:

- Humane-toxicological effects
- Eco toxicological effects, aquatic (fresh water)
- Eco toxicological effects, aquatic (sea water)
- Eco toxicological effects, terrestrial
- Air Pollution
- Water Pollution

The characteristic factors detailed in IS EN 15804:2012+A1:2013 Annex C [1] shall be used, which are based on the CML 2001 Baseline version that is dated October 2012 (Institute of Environmental Sciences, Faculty of Science University of Leiden, Netherlands). Alternatively, the CML 2001 Baseline version dated August 2016 can be used [3]. The source and version of the characterisation models and factors used shall be reported in the EPD.

3.0 Parameters describing resource use

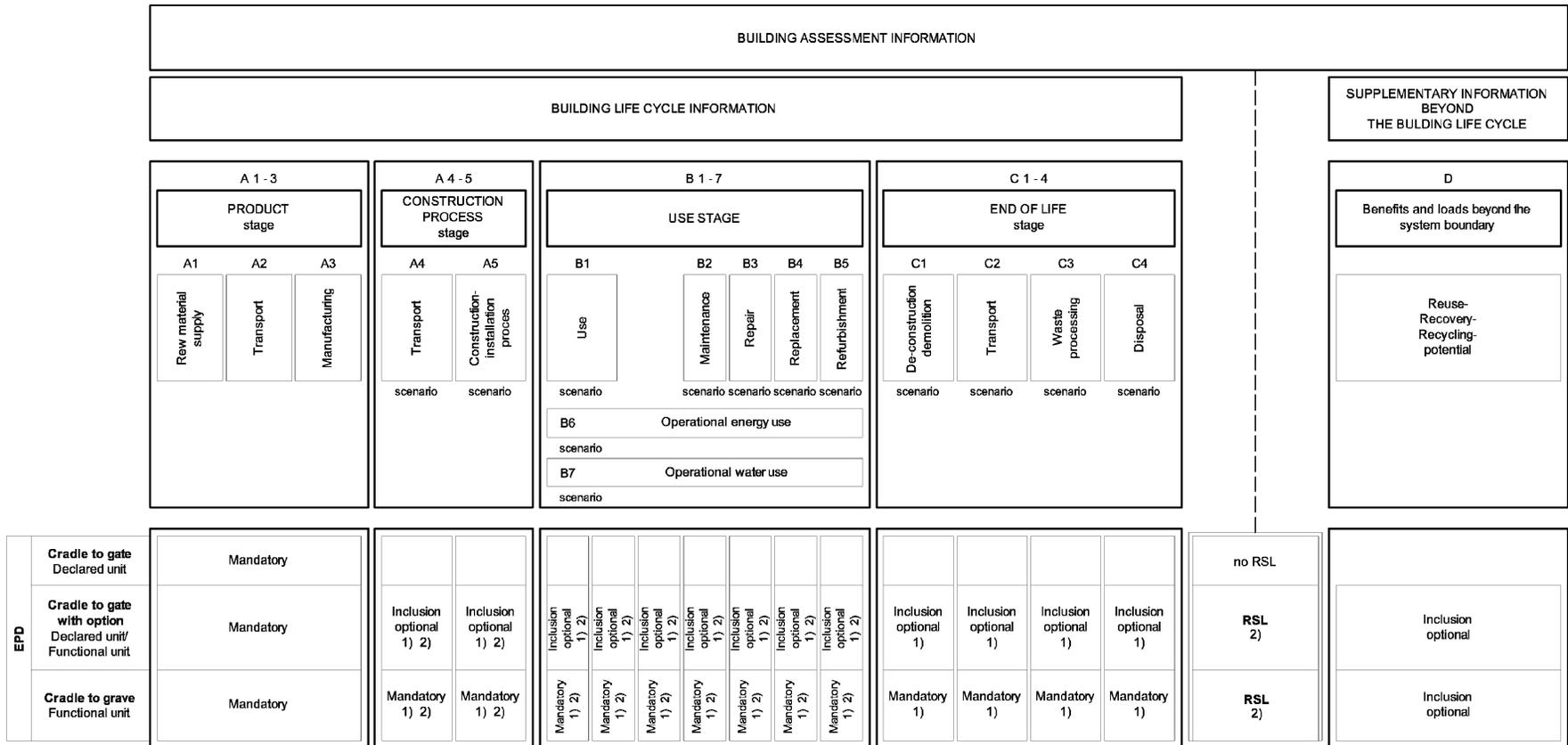
The following parameters describing resource use are mandatory, and are to be included in the EPD:

- Use of renewable primary energy excluding renewable primary energy resources used as raw materials
- Use of renewable primary energy resources used as raw materials
- Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
- Use of non-renewable primary energy resources used as raw materials
- Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
- Use of secondary materials
- Use of renewable secondary fuels
- Use of non-renewable secondary fuels
- Net use of fresh water

Other environmental information describing output flows and waste categories, as given in Section 7.2.5 of EN 15804:2012, are mandatory.

4.0 Modules

Modules A1-A3 are mandatory for the EPD. Additional modules can also be added, at the discretion of the producer. Where specific Product Category Rules (PCRs) have been approved for specific products, the modules outlined in the PCR are to be used (these always include A1-A3, plus some additional modules).



1) inclusion for a declared scenario

2) if all scenarios are given

Figure 1 —Types of EPD with respect to life cycle stages covered and life cycle stages and modules for the building assessment [1]

5.0 Reference Database

The recommended reference database for use in developing LCAs and EPDs under this programme is the [Ecoinvent database](#). Other reference databases can be used, and where this is the case, the LCA practitioner is required to provide details on the database used, and a justification for its use.

Note 1. In order to allow full comparability of data in any future National database containing product specific and generic data, a single reference database should be used. It is considered by the EPD Ireland expert committee that it is more likely that Ecoinvent would be used in the creation of generic data for a national database. LCAs and EPDs created using the Ecoinvent database would be consistent with this data and thus could be included in the National Environmental Database.

6.0 Generic Data

In addition to the requirement of EN 15804, for the production of materials, it is preferred to use data originating from the producer's own supplier. For generic data, (where the data from suppliers is not available) use the values given in Section 7. For other generic data, use the Ecoinvent database.

The long-term (> 100 years) emissions are not included. These are modelled separately within Ecoinvent, especially for leaching. The cut-off after 100 years applies to all modules A-D and to all data. This should be selected for generic data (as well as specific data).

7.0 Generic default values

7.1 Transportation distances

7.1.1 Transportation (Module A.2)

For transportation of raw materials to the manufacturing factory gate, actual transportation distances and modes must be used.

7.1.2 Transportation (Module A.4)

If data for the transportation distances from production place to user are available, these shall be used. If it can be verified that there is no specific data available, because this supplier cannot or does not want to provide it, it is permitted to use generic data. The following generic default values are applicable to transportation (summarised in Table 1):

- One-way transportation distance to the construction site
 - If the construction product is manufactured in the Ireland: for bulk material is 100 km and for other materials, products and elements is 200 km. In the case of civil

engineering works, the transportation distance of each work is included in the calculation instruments;

- If the construction material/product is imported into Ireland, the actual transportation distances and modes must be used from the manufacturing factory gate to the port of entry in Ireland. From that point, the generic default values for transportation distance in Ireland can be used.
- For removal of materials from a site to landfill or breaking/sorting sites, the default distance is 50km.
- For removal of materials from a site to a waste to energy plant (WtE), the default distance shall be specified as the transport distance from the site to the closest of three locations (Dunleek, Co. Meath; Ringsend, Co Dublin or Ringaskiddy, Co. Cork) or as a default transport distance of 250 km, whichever is less.

Return transportation processes should be included in the calculation, unless it can be shown that the return transport is loaded. If specific data for capacity utilisation² is available, this shall be used. Otherwise, capacity utilisation (including return transport) of the UK's average for freight vehicles of 64% [4] shall be used.

Note 2. Capacity utilisation is the ratio of the actual goods moved to the maximum tonne-kms achievable if the vehicles, whenever loaded, were loaded to their maximum carrying capacity.

Table 1 – Details of generic default values for transportation distance in Ireland

Description	Units	Default Value
Factory gate to construction site, Irish bulk products, e.g. cement, lime, gravel, bitumen	km	100
Factory gate to construction site, Irish manufactured products, e.g. windows, insulation, cladding, paints	km	200
Factory gate to construction site, imported manufactured products	km	See note 3
Waste materials from construction site to landfill	km	50
Waste materials from construction site to waste to energy plant	km	250 (see note 4)
Vehicle Capacity Utilisation: Transport, lorry > 16t, fleet average / RER U	%	64 (see note 5)

Note 3. In the case of materials/products imported into Ireland, the actual transportation distances and modes must be used from the manufacturing factory gate to the port of entry in Ireland. From that point, the generic default values for transportation distance in Ireland can be used.

Note 4. Or use transport distance from the site to the closest of three locations (Dunleek, Co. Meath; Ringsend, Co Dublin; Ringaskiddy, Co. Cork), if less.

Note 5. Return transportation processes should be included in the calculation, unless it can be shown that the return transport is loaded. If specific data for capacity utilisation² is available, this shall be used. Otherwise, capacity utilisation (including return transport) of the UK's average for freight vehicles of 64% [4] shall be used.

7.2 Loss in the form of construction waste

In the supply, storage and construction assembly of products, some of the materials will be lost. This loss has an influence on the material streams. The loss is dependent on the application, the construction site and the care with which activities are conducted. If data for losses are available, these shall be used. If it can be verified that there is no specific data available, because this supplier cannot or does not want to provide it, it is permitted to use generic data. The following generic default values are applicable to losses:

7.2.1 Prefabricated products

Prefabricated products manufactured in a controlled off-site environment (e.g. concrete blocks, roof-tiles): For these products, some waste can often be directly inserted back into the process. The assumption is that 5% of the materials are lost (on the construction site or during transportation).

7.2.2 In-situ products

Products manufactured on the construction site (e.g. site-mix mortars, carpentry works), commonly produce additional waste, and material is often lost due to damage or weather. The assumption is that 8% of materials are lost.

7.2.3 Ancillary and finishing materials

Ancillary and finishing materials refer to epoxies, glues, paints, and other materials which often remain and become obsolete after a period of time. Also, residue is left behind in packaging or on application instruments. The assumption is that 15% of the materials are lost.

Table 2 – Default values for loss in the form of construction waste.

Type of product	Materials lost
Prefabricated products	5%
In Situ products	8%
Ancillary and finishing materials, epoxies, glues and paints.	15%

7.3 Incineration in the waste energy plant (WtE) Module D : End of Life

Avoided energy production is taken into consideration when considering the incineration at the Waste to Energy plant (WtE). This information is included in module D. Average net return of Irish waste to energy plant (WtE) are yet to be determined and subject to further research, pending the full operation of the WtE plant in Ringsend, Dublin, and for existing operational plants at Ringaskiddy and Duleek. Pending default values use Ecoinvent.

To include the avoided energy production, the WtE plant is required to meet return requirements from the EU:

- For saved-up electricity: the Ecoinvent process “Electricity mix/IE U” (>20 kV; production and import; no transformation and transportation / distribution loss); and
- For saved-up heat: ‘Heat, natural gas, at industrial furnace >100kW/RER U’ (process in MJ) [Ecoinvent]
- The calculation is based on the Lower Heating Values (LHV) that Ecoinvent provides in the process descriptions. In Table 3, several LHV are included:

Table 3 - Lower Heating Values (LHV) for various materials

Materials	LHV (MJ/kg)
PET	22,95
HDPE	42,47
LDPE	42,47
PP	32,78
EPS	32,20
ABS	35,20
Carton	15,92
Wood	13,99
Textile	14,45
Paper	14,11

References

1. *IS EN 15804:2012+A1:2013. Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products.* National Standards Authority of Ireland (NSAI), Dublin, Ireland.
2. *S.R. CEN/TR 16970:2016 Sustainability of construction works - Guidance for the implementation of EN 15804,* National Standards Authority of Ireland (NSAI), Dublin, Ireland.
3. CML - Department of Industrial Ecology, *CML-IA Characterisation Factors, Dated August 2016,* Leiden University, Leiden, Netherlands Available at: <https://www.universiteitleiden.nl/en/research/research-output/science/cml-ia-characterisation-factors>
4. N. Hill, R. Watson, K. James. *2016 Government GHG Conversion Factors for Company Reporting: Methodology Paper for Emission Factors,* September 2016, Department of Business Energy & Industrial Strategy, London, UK.