

Rakennustieto Component based EPD tool guideline

22.9.2025

Complies with standard SFS-EN 15804:2012 + A2:2019/AC:2021
and Protocol for the preparation of environmental declarations
for construction products (Rakennustieto EPD), version 121124

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1 Preface

Background information

The increasing availability of product-specific emissions data plays a very significant role in achieving emissions reduction goals in the construction sector. In the near future, there will be a great need for the market to provide a large amount of environmental product declaration (EPD) data for various products and product groups. As emission reduction goals for construction projects increase, and as environmental performance becomes a key criterion for product selection, it is crucial that EPD information is accurate and as product specific as possible.

Manufacturers often have up to thousands of products in their portfolios. In the production of environmental declarations, it is important that there are efficient ways for manufacturers to produce this information.

One of key factors influencing the cost-effectiveness of an EPD project is the method used to prepare the EPD. The method refers to the choices in the beginning of the project, concerning product grouping, choice of unit, use of averaging the products, and scaling. On the selection of the preparation method, it is essential to understand the rules set by the standards and PCR documents, as well as the impact different materials have on the LCA results. There are various methods and those need to be developed to answer the demand of EPDs.

Method description

The goal of the Rakennustieto Component based EPD tool is to enhance the preparation and presenting of product specific environmental declarations for product groups and variations. This document is intended to be used together with the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD). This is planned to be an EPD tool with individual verification, by the definitions of ECO Platform¹. This is the first version of the Rakennustieto Component based EPD tool guideline and it will be updated according to the response.

The recurring parts in the product category or product variations are divided into independent product components in the Component based EPD tool, whose results are verified. Product specific EPDs are prepared by combining the EPD results of different component parts within the same product system. The Component based EPD tool by Rakennustieto itself contains information and results of the product components, enabling the production of product-specific environmental declarations. Actual users of the environmental information are served with the product specific EPDs, which are by the content and format like any EPDs produced with other methods.

The environmental impacts of the component life cycle, life cycle scenarios, and the rules for combining the product components to products are all assessed, documented, and verified as whole as part of the Component based EPD tool approval process.

¹ ECO Platform Tool Verification Guidelines

Combining the product components to complete products and systems complies with EN 15804 and on the other hand the calculation can be compared to the EN 15978 principles of building level LCA calculation.

2 Scope

Environmental declarations are compiled according to the standard SFS-EN 15804:2019 (SFS EN 15804:2012 + A2:2019) "Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products" and the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD) and this guideline for Component based EPD tools. This like the EPD program of Rakennustieto is intended for preparing environmental declarations for building products.

3 Normative references

To be drawn up in accordance with SFS-EN 15804:2019.

3.1 Terms and definitions

To be drawn up in accordance with SFS-EN 15804:2019.

Studied product =	Products and product variations covered by the declaration, in other words an entity compiled by the product components or product group consisting of the product components
Product component =	A part of a product whose results of the environmental impact assessment serve as the basis for the calculation of the Component based EPD tool. A product component in this context is not necessarily a production-technical or physical component, but a part of the component based EPD tool.
Component based EPD tool =	An EPD tool that uses LCA model based on EN 15804, that specifies the results and system boundaries of the product components of the studied product.
Reference product EPD =	A product-specific EPD declaration prepared in connection with the creation of the component based EPD tool, which is referenced within the Component based EPD tool itself. Reference products are used to assist in various definitions. The declaration of the reference product also serves as a template for other product-specific EPD declarations.

4 General

4.1 Objectives

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

The objective of Component based EPD tool is to increase the production and availability of product specific and accurate EPD information for the use of construction industry. The objective of the Component based EPD tools is to streamline the production, verification and publication of EPD information for products consisting of the same components.

4.2 Types of EPD with respect to the lifecycle stages covered

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

4.3 Comparability of EPD for construction products

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

The comparison of EPD data shall be done at the building and the building component level. The EPD data of the components in the Component based EPD tool are not comparable same way as the product-specific EPDs are not comparable, but the comparison must be done at the building level in accordance with the EN 15804 standard.

4.4 Ownership and responsibility for the information

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

4.5 Communication format

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

A Component based EPD tool can be drawn up only for a manufacturer. In industry-specific declaration, it is not possible to reliably control the impact of changes on the EPD results, e.g. changes in product variations and their impact on the specifications of declaration. The Component based EPD tool by Rakennustieto shall be specific to the production site, or the differences between the production sites must be shown to be insignificant. An insignificant difference is less than 10% in the GWP-total value for any module of the life cycle and products consisting of EPD components.

5 Product category rules for LCA

5.1 Product category

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD) and Rakennustieto EPD Guidelines.

A Rakennustieto Component based EPD tool can be drawn up for a product group or portfolio. The intended use, market area and life cycle scenarios of the components and products built from the components included in the same Component based EPD tool may vary. The specific use of the product, scenarios and geographical coverage shall be reported in the product-specific EDP.

Figure 1 shows the connection between the product component data of the Rakennustieto Component based EPD tool and the product-specific EPDs. Practical examples of product groups and product portfolios are, for example, windows and balcony doors from the same company or a product family of LED lamps from one manufacturer. In windows and balcony doors the frames are almost identical in structure, there is some difference in the structures of doors and windows (for example, the frame structure in the door is more sturdy and the door may have a solid part) and in windows, the glass is typically a 2-glazed element and one outer pane, while doors usually have one 2 or 3-glazed element.

Similarly on a LED luminaire there is a lamp body of some shape, usually made of metal, the LED part itself that produces light, and a driver for it. In addition to these parts, the luminaire includes electronics for controlling the lights, which can be of several options. Since luminaires can have many different wattages in the same frame models and with different control electronics, the number of combinations can increase very quickly.

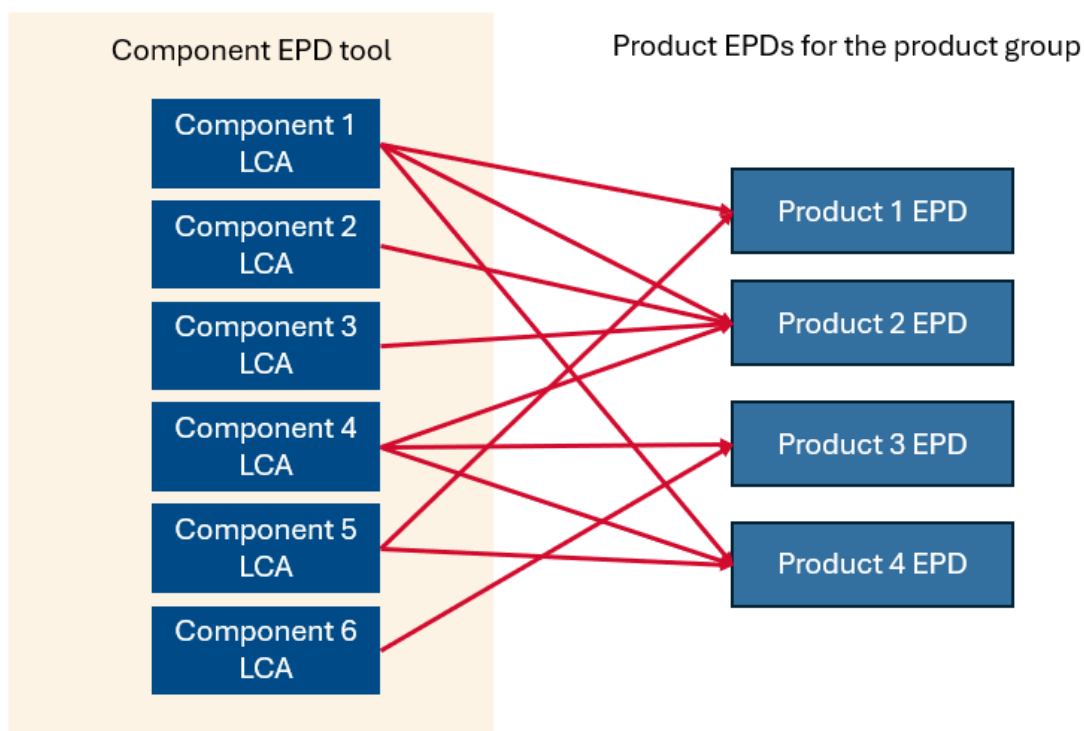


FIGURE 1 EXAMPLE OF PRODUCT-SPECIFIC EPDS OF A PRODUCT GROUP AND THEIR PRODUCT COMPONENTS.

The product entity covered by the Rakennustieto Component based EPD tool shall be described unambiguously.

The life cycle assessment for Component based EPD tool is carried out on a product component or subcomponent basis.

A studied product that is built up of product components is not an average result, but product components can be averaged in accordance with section 6.3.7 of the standard. The results of the life cycle assessment of a product component can be averaged from various alternative solutions (e.g. there are several different raw material suppliers for the same raw material, or the component can consist of different alternatives).

If product components are averaged, the information underlying the average must be documented as part of the Component based EPD tool project report. The component-specific EPD results in tool can cover the results of more than one component option. This guideline does not specify an allowable range for the range of component-specific results, but the sensitivity and range of results are examined at product level, and the variation can be demonstrated using reference products. The allowable range for individual product results is specified in the Rakennustieto Guidelines and is $\pm 10\%$ for GWP-total values at the product stage at the reference product level. These results shall be documented in the Background report for Component based EPD tool.

5.2 Life cycle stages and their information modules to be included

5.2.1 Product stage A1-A3

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

The energy and material flows that may be allocated in module A3 shall be allocated to product components in accordance with the allocation rules.

5.2.2 Scenario modules A4-5, B1-7, C1-4, D

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

When creating scenarios for product components, the relationship of the component to the product and the use of the product in the construction context are taken into account in accordance with the EN15804 standard. When creating scenarios and life cycle assessments, scenarios are created for the product under study, and the life cycle assessment of product components is created taking into account the functions during the product's life cycle and at the end of the life cycle.

The product-specific environmental declaration must comply in all respects with the requirements of the standard and the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD), including the preparation of scenarios, input data and results.

5.3 Calculation rules for the LCA

5.3.1 Functional unit

Shall be determined at product component and product level, if the use phase is taken into account.

5.3.2 Declared unit

Shall be determined at product component and product level.

5.3.3 Reference service life (RSL)

Shall be determined at product component and product level, if the use phase is taken into account.

The product-specific environmental declaration must present the results over the entire life cycle for the reference service life, if the use phase is taken into account. The presentation of the use phases follows the requirements of the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

5.3.4 System boundaries

To be drawn up in accordance with standard SFS-EN 15804:2019.

The system boundary is defined at the level of the product under study, and its description must demonstrate the validity of the system boundary also at the product component level.

5.3.5 Limitation criteria for product, material and energy flows entering and leaving the product system

To be drawn up in accordance with standard SFS-EN 15804:2019.

Allocation can be determined at the level of the product studied, provided that there are no differences between the different product components.

5.3.6 Selection of data

To be drawn up in accordance with standard SFS-EN 15804:2019.

5.3.7 Data quality

To be drawn up in accordance with standard SFS-EN 15804:2019.

5.3.8 Preparation of product level scenarios

To be drawn up in accordance with section 5.2 of this document.

5.3.9 Units

To be drawn up in accordance with standard SFS-EN 15804:2019.

In Component based EPD tool the declared units of product components can have differing units.

5.4 Inventory analysis

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

Allocation shall be carried out in accordance with section 6.4.3 of SFS-EN 15804:2019. The allocation method shall be specified at both product and component level. The material or energy flows to be allocated shall always be assigned to product components, and the choice of allocation method shall take into account the accuracy and consistency of the results in the product-level assessment. In other words, when combining product components at the product level, it shall be verified and demonstrated that the flows to be allocated are the same as if the allocation were made at the product level. These results shall be documented in the Background report for Component based EPD tool.

5.5 Impact assessment

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

6 Content of the product specific EPD

6.1 Declaration of general information

To be drawn up in accordance with standard SFS-EN 15804:2019.

6.2 Environmental indicators

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

6.3 Scenarios and additional technical information

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

To be drawn up by product component if they differ from each other.

In the product-specific EPDs these are determined product-specific, if there is variation within the product group.

6.4 Aggregation of information modules

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

7 Documents for Component based EPD tool

Documents for Component based EPD tool and verification procedure is presented in the following figure.

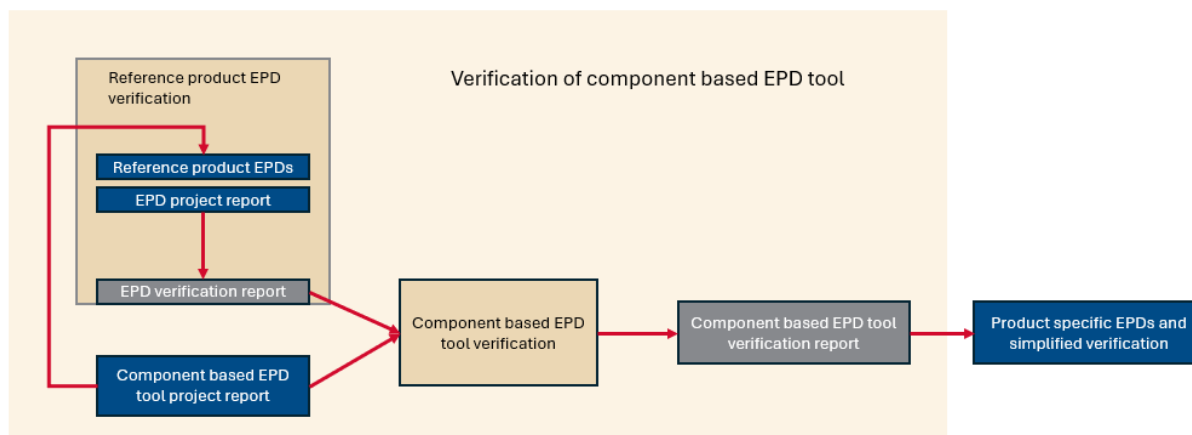


FIGURE 2 DOCUMENTS FOR COMPONENT BASED EPD TOOL AND VERIFICATION.

7.1 Project report for component based EPD tool

The project report for component based EPD tool is confidential and provided only to the verifier and Rakennustieto. It should present the raw material composition of all product components and the range of variation in the raw material composition of the studied product group. For certain product groups, determining variation can be very challenging, such as in the case of custom-made products. In such instances, the report should include justification as to why variations cannot be determined.

The project report shall present also assumptions for the whole life cycle and the rules for scaling and combining component information, the allowed input data and related requirements

Tool Project Report shall also document the following:

- ownership of the tool (legal entity)
- identification of the tool including the version number
- applicable PCR or range of PCR including the PCR version
- description of the LCA model of the tool,
- assumptions on which the model is based,
- sensitivity assessment of the variable parameters (see 7.1.1)
- description of the data quality
- products covered by the tool
- information for the project report of the EPD
- definition of allowed tool input data and their quality
- definition of the aspects that shall be included in the simplified verification of EPDs produced using the tool

The report defines product-specific information that shall be reported in the project report of each product specific EP. It also defines the aspects that have to be verified individually for each product specific EPD.

7.1.1 Product component LCA related elements of the project report for component-based tool

The project report shall describe the data sources and the quality assessment of the data sources for each component.

The report shall include Life Cycle Impact Assessment and Life Cycle Interpretation for product components, and the variation for GWP total values (product stage A1-3) in the product level in accordance with standard section 8.2. It should also provide a description of the LCA model used in the tool, information for the EPD project report, any potential limitations of the tool, and a sensitivity assessment of the product level achieved using the tool, along with potential restrictions on the tool's use to ensure quality as referenced in section 4.2 in this guideline.

7.2 Summary report of the component-based EPD tool project report (to be published)

The summary report of the Rakennustieto component based EPD tool project report is to be published.

The summary report of the Component based tool project report shall document the following:

- Owner of the tool
- Identification of the tool and the version number
- The PCR that has been used in the project
- Range of products that are covered by the component based EPD tool
- Description of product components
- The EPD result tables of the product components

7.3 Reference product EPDs and product-specific EPDs

The reference products are representative products selected from the product group, whose EPDs are prepared, verified, and published during the tool development and verification process. Following product-specific EPDs, with reference to the component based EPD tool, can be produced by combining information on product components from the component based EPD tool.

In addition to the content of the EPD defined in the standard SFS-EN 15804:2019 and the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD), the product description in the product-specific EPD declarations, based on the Component-based EPD tool, should include the input data and other parameters of the tool,

7.4 EPD Project report

EPD project report shall be drawn up in accordance with standard SFS-EN 15804:2019 and Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD). The EPD project report is confidential and provided only to the verifier and Rakennustieto. It shall provide the version of the tool and the PCR it relates to. The report shall contain product-specific information as is

defined in the Project report for component based EPD tool (see part 7.1). Other information may be included in the report or provided by creating a reference to the relevant parts of the tool project report.

7.4.1 EPD Project report for reference product EPD(s)

The Project report shall be prepared for reference products that are verified during the tool verification process.

7.4.2 EPD Project report for the following product specific EPDs

The report shall be prepared for each individual EPD.

8 Verification and validity of an EPD

8.1 Data availability for verification

To be drawn up in accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

The Component based EPD tool by Rakennustieto is valid for 3 years. The product-specific EPDs based on the Component based EPD tool are valid for 5 years from the publication.

8.2 Verification

8.2.1 Component based EPD tool

A Component based EPD tool may be verified by a verifier approved for the Rakennustieto EPD program who has verified 5 or more EPDs published in the Rakennustieto program, or who is qualified to verify EPD tools in another program.

The component-based EPD tool verification process follows the publication system's verification rules and separate Component-Based EPD Tool Verification Guidelines.

8.2.2 Reference product EPDs

In accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

The EPD verification of the reference products shall follow the verification check list of the EPDs. The reference product's project report shall contain all necessary information for the verification of the reference products. Together with the tool project report these documents are parts of the tool verification report.

8.2.3 Updating and verification of Component based EPD tool

While Component based EPD tool is valid, updating its product components as well as the rules for scaling and combining of those can be done at the level of individual components.

After the Component based EPD tool expires, its information must be reviewed and updated as necessary. The need for component updates can be reviewed through reference products; a significant change is considered to be a change of more than 10% in the A1-A3 GWP total value in reference products.

After updating the tool, new revisions of the reference product EPDs shall be published as part of the verification process.

8.2.4 Following product-specific EPDs based on the Component based EPD tool

The verification of the following product-specific EPDs based on the component information of the Component based EPD tool follows a simplified verification process. The content of the simplified verification is defined in a simplified verification checklist. The simplified verification is restricted to the following aspects.

1. The product is included in the product system defined in the component based EPD project report.
2. The quantity data of the product components is the same as the product and corresponds to the range of variations (Min. and Max) defined for the products.
3. The product images correspond to the product.
4. Other product-specific variables that should be verified for each product specific EPD defined in the tool's project report

Accepted verifiers are defined by the EPD program operator. The verifier may not be the EPD owner. The third-party provider of the component EPD tool may act as a verifier.

An individual EPD can always be verified with a project report, as described in the standard and the Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD), for example if the Component based EPD tool has expired.

8.3 Approval as Rakennustieto EPD

In accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

8.3.1 Component based EPD tool project report and reference product EPDs

In accordance with Protocol for the preparation of environmental declarations for construction products (Rakennustieto EPD).

8.3.2 Product-specific EPDs based on the Component based EPD tool

Product-specific EPDs produced with the Component based EPD tool can be published directly through the publishing channel. Rakennustieto publishes EPDs through the publishing tool.