epd-norge

Product category rules

EN 15804 +A2

NPCR 030 version 1.1 -

Part B for ventilation components

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REVISION LOG

This is an overview of the changes made to this PCR. Typology of changes:

- Editorial (ed): Text or layout edited, with no change in content.
- Technical (te): Existing content has been changed.
- Addendum (ad): New content has been added.

Naming convention: Version x.y, where x is a major revision and y is a minor revision.

Date (2020-XX-XX)	Type	Description of change
Version 1.0		
Original version, issued 2020-XX-XX.		
Version 1.1 ed – Clarifcation on the possibility of declaring EPD as kg of product		

Table of Contents

Introduction

These product category rules (PCR) are intended for companies preparing an environmental product declaration (EPD) for ventilation components. The PCR consist of two parts. This document contains PCR part B for ventilation components, which is the part of the PCR that is specific for ventilation components. Part A contains the requirements that are common for all construction products. When preparing an EPD for ventilation components, all requirements outlined in part A and part B must be followed. In PCR part B, the requirements for PCR part A are referred to in each section where they occur. The purpose of this document is to define clear guidelines for performing the underlying life cycle assessment (LCA) to ensure comparability between EPDs.

Comparison of the environmental performance of ventilation products using the EPD information shall be based on the product's use in and its impacts on the building and shall consider the complete life cycle. EPD that are not in a building context are not tools to compare construction products.

This PCR was developed from May 2020 to November 2020, by a Norwegian PCR working group (WG) with representatives from the ventilation component industry and with aid from Norwegian institute for sustainability research (NORSUS) and the EPD programme operator The Norwegian EPD Foundation. This PCR has been developed in accordance with the requirements outlined in the general programme of instructions from the Norwegian EPD programme (EPD-Norway, 2019).

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1 Scope

This document complements the core rules for the product category of construction products as defined in EN 15804 and NPCR part A and is intended to be used in conjunction with those standards.

The intended application of this product category rule (PCR) is to give guidelines for the development of environmental product declarations (EPD) for ventilation components and to further specify the underlying requirements of the life cycle assessment (LCA). The core rules valid for all construction products are given in standard EN 15804, NPCR Part A and relevant published complementary PCR (c-PCR) and are expected to be known by those preparing the EPD.

2 Normative references

NPCR Part A: Construction products and services. Oslo: EPD-Norge.

3 Terms and Definitions

As in PCR part A and relevant c-PCR.

4. Abbreviations

c-PCR	Complementary product category rules
EPD	Environmental Product Declaration
DU	Declared unit
FU	Functional unit
PCR	Product category rules
LCA	Life cycle assessment
LCI	Life cycle inventory
LCIA	Life cycle impact assessment
RSL	Reference service life
ESL	Estimated service life

5. General Aspects

5.1 Objective of PCR Part A and B

As in PCR part A and relevant c-PCR.

5.2 Types of EPD in respect to life cycle stages covered

As in PCR part A and relevant c-PCR, including the following further clarification:

This PCR gives specification for EPD for ventilation products with declared unit including life cycle modules A1-A3, A4, C1-C4 and D.

5.3 Comparability of EPD of construction products

As in PCR part A and relevant c-PCR.

5.4 Additional information

As in PCR part A and relevant c-PCR.

5.5 Ownership, responsibility, and liability for the EPD

As in PCR part A and relevant c-PCR.

5.6 Communication format

As in PCR part A and relevant c-PCR.

6. Product Category Rules for LCA

As in PCR part A and relevant c-PCR.

6.1 Product Category

As in PCR part A and relevant c-PCR, including the following further clarification:

The product group comprise of all kinds of ventilation components prepared for trade and are made of different materials. The products that shall follow this PCR, and their related standards, are listed here in Table 1 and Table 2. Other ventilation components than listed may also be declared based on this PCR.

Table 1: List of air ducts product categories

Product	Product standard or relevant performance standard
Circular ducts	EN 1506 Ventilation for buildings - Sheet metal air ducts and fittings with circular cross-section – Dimensions EN 12237 Ventilation for buildings - Ductwork - Strength and leakage of circular sheet metal ducts
Rectangular ducts	EN 1505 Ventilation for buildings - Sheet metal air ducts and fittings with rectangular cross section - Dimensions EN 1507 Ventilation for buildings - Sheet metal air ducts with rectangular section - Requirements for strength and leakage
Flexible ducts	EN 13180 Ventilation for buildings - Ductwork - Dimensions and mechanical requirements for flexible ducts

Duct fittings: bends, elbows, transformations, joints, T-pieces, Y-pieces, cross-pieces.	Same as circular and rectangular ducts

Table 2: List of air distribution equipment product categories

Product	Product standard or relevant performance standard
Exhaust and supply air terminal device and units	EN 13141-2 Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 2: Exhaust and supply air terminal devices EN 16445 Ventilation for buildings - Air diffusion - Aerodynamic testing and rating for mixed flow application: non-isothermal procedure for cold jet EN 12238 Ventilation for buildings - Air terminal devices - Aerodynamic testing and rating for mixed flow application EN 12239 Ventilation for buildings - Air terminal devices - Aerodynamic testing and rating for displacement flow applications EN 12589 Ventilation for buildings - Air terminal units - Aerodynamic testing and rating of constant and variable rate terminal units EN 13264 Ventilation for buildings - Floor mounted air terminal devices - Tests for structural classification
Fans	EN 13141-4 Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 4: Fans used in residential ventilation systems EN 14986 Design of fans working in potentially explosive atmospheres EN 12101-3 Smoke and heat control systems - Part 3: Specification for powered smoke and heat control ventilators (Fans)
Chilled beams	EN 14518 Ventilation for buildings - Chilled beams - Testing and rating of passive chilled beams
Air transfer device	No standards available
Roof hood	EN 13141-5 Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 5: Cowls and roof outlet terminal devices
Cooker hood (range hood)	EN 13141-3 Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 3: Range hoods for residential use without fan EN 61591 Household range hoods and other cooking fume extractors - Methods for measuring performance EN 16282-2 Equipment for commercial kitchens - Components for ventilation in commercial kitchens - Part 2: Kitchen ventilation hoods - Design and safety

	requirements
Fume extractor / local air extractor	No standards available
Louvres and grills	EN 13030 Ventilation for buildings - Terminals - Performance testing of louvres subjected to simulated rain EN 13181 Ventilation for buildings - Terminals - Performance testing of louvres subject to simulated sand
Dampers	EN 1751 Ventilation for buildings - Air terminal devices - Aerodynamic testing of damper and valves
Fire damper	EN 15650 Ventilation for buildings - Fire dampers EN 12101-8 Smoke and heat control systems - Part 8: Smoke control dampers
Sound attenuator (silencer)	EN ISO 7235 Acoustics - Laboratory measurement procedures for ducted silencers and air-terminal units - Insertion loss, flow noise and total pressure loss
Air filters	EN ISO 16890-1 Air filters for general ventilation - Part 1: Technical specifications, requirements and classification system based upon particulate matter efficiency (ePM) EN 15805 Particulate air filters for general ventilation – Standardised dimensions
Air handling units (AHU)	EN 1886 Ventilation for buildings - Air handling units - Mechanical performance EN 13053 Ventilation for buildings — Air handling units — Rating and performance for units, components, and sections EN 13141-7 Ventilation for buildings - Performance testing of components/products for residential ventilation - Part 7: Performance testing of a mechanical supply and exhaust ventilation units (including heat recovery) for mechanical ventilation systems intended for single family dwellings

6.2 Life cycle stages and their information modules to be declared

6.2.1 General

As in PCR part A and relevant c-PCR, including the following further clarification:

Transport in all life cycle modules shall include the following:

- Direct emissions during transport (exhaust, tires, etc.)
- Upstream emissions from fuel extraction, processing, and distribution
- Life cycle emissions of vehicles (raw materials, manufacturing, maintenance, and disposal)
- Life cycle emissions of infrastructure (raw materials, manufacturing, maintenance, and disposal)

6.2.2 A1-A3, Product stage, information modules

As in PCR part A and relevant c-PCR.

6.2.3 A4-A5, Construction process stage, information modules

As in PCR part A and relevant c-PCR.

6.2.4 B1-B5, Use stage, information modules

As in PCR part A and relevant c-PCR.

6.2.5 C1-C4 End-of-life stage, information modules

As in PCR part A and relevant c-PCR.

6.2.6 Benefits and loads beyond the system boundary, information module

As in PCR part A and relevant c-PCR.

6.3 Calculation rules for the LCA

As in PCR part A and relevant c-PCR, including the following further clarification.

For declaring ventilation components, a declared unit as described here shall be used for products specified.

The scope and variations of products must be declared according to EPD-Norway guidelines.

6.3.1 Functional unit

As in PCR part A and relevant c-PCR.

6.3.2 Declared unit

As in PCR part A and relevant c-PCR, including the following further clarification:

For all products, the declared units shall be applied (cradle to gate with options) with modules A1-A3, A4, C1-C4 and D. The units for the different product groups are given in Table 3. If declared as kg of product – scalability should be justified. It is recommended to provide conversion factors to other relevant units, e.g. to kg.

Table 3: List of units for the product categories

Product groups	Declared unit
Circular ducts, rectangular ducts, flexible ducts,	1 meter of product / 1 kg of product
Air handling units (AHU), duct fittings, exhaust and supply air terminal device and units, fans, chilled beams, air transfer devices, roof hoods, cooker hoods, fume extractors / local air extractors, louvres and grills, dampers, fire dampers, sound attenuators, air filters other ventilation components	1 piece of product / 1 kg of product

6.3.3 Reference service life (RSL)

As in PCR part A and relevant c-PCR.

The reference service life of the product shall be stated and should be based on manufacturer information.

6.3.4 System boundaries

As in PCR part A and relevant c-PCR.

6.3.5 Criteria for the exclusion of inputs and outputs (cut-off)

As in PCR part A and relevant c-PCR, including the following further clarification:

The cut-off criteria in EPD-Norway's general program of instruction (GPI) shall also be followed..

The scope of materials included in the product and packaging in the declared unit shall be the same as in traded products specified in the EPD. Hence, parts such as electronic components can only be left out if they are sold separately to the product declared.

6.3.6 Selection of data

As in PCR part A and relevant c-PCR.

6.3.7 Data quality requirements

As in PCR part A and relevant c-PCR.

6.3.8 Scenarios at the product level

As in PCR part A and relevant c-PCR.

6.3.8.1 A4 Transport to the building site

As in PCR part A and relevant c-PCR, including the following additions:

Transport from the manufacturing site to the construction site is estimated based on information from the manufacturer relevant for the intended market. The following default values can be used for developing scenarios at the product level:

- For domestic production, the default travel distance from the manufacturing site to the building site is 300 km.
- For import, the distance is measured from the manufacturing site to a specific storage location, plus a transport distance from the storage location to the building site (300 km if not specified). If no specific storage location is given, then the capital city of the country that the product is being imported to may be used as an approximate location.

6.3.8.2 A5 Installation

As in PCR part A and relevant c-PCR.

6.3.8.3 B1-B7 Use phase

As in PCR part A and relevant c-PCR.

6.3.8.4 C1-C4 End-of-life

As in PCR part A and relevant c-PCR, including the following additions:

Transport from the building/demolition site to the waste treatment/recycling facility is estimated based on information from the manufacturer and shall be relevant for the intended market. Default scenarios for life cycle module C2 transport to waste processing should be based on representative data, e.g. national statistics.

More than one scenario for waste treatment and disposal should be included if there are several relevant common practices, but the most conservative scenario shall always be included. Default conservative scenarios for life cycle modules C3 for waste processing and C4 for waste disposal are listed in Table 4.

Table 4: Default conservative scenarios for life cycle modules C3 and C4.

Product types	C3	C4
Plastic, rubber	Municipal incineration with energy recovery	Landfilling of ashes from incineration
Metal	Central sorting of mixed construction waste. Recycling of metals.	Landfilling of wasted product in sanitary landfill
Mineral wool	Central sorting of mixed construction waste	Landfilling of wasted product in sanitary landfill
Electronics	Waste of Electrical and Electronic Equipment (WEE) recycling. Incineration of non-recycled parts.	Landfilling of ashes from incineration and residuals from recycling/sorting.

6.3.9 Units

As in PCR part A and relevant c-PCR.

6.4 Inventory analysis

As in PCR part A and relevant c-PCR.

6.5 Impact assessment

As in PCR part A and relevant c-PCR.

7. Content of the EPD

7.1 Declaration of general information

As in PCR part A and relevant c-PCR, including the following additions:

The material composition of the product shall be listed with specific weights of the main components as it is installed. This information shall be included in the LCA report. Usage areas and conditions must be specified in the EPD. The harmonized standard for which the product is produced according to must be specified in the EPD. Key performance characteristics should be included for the product information.

The products that are declared shall be referred to by product name, brand name (including product code(s) such as GTIN or similar) that gives an unambiguously link between product and EPD according to EN 15804 7.1.c.

The scope of products declared in an EPD must be specified so that the product range can easily be identified by the customer. The ability of scaling LCIA results of the different environmental impacts to other dimensions must also be specified and tables shall be used to show the product variations. Table 5 to Table 9 bellow specifies how the different product variations shall be declared.

Table 5: Circular ducts and flexible ducts

Diameter [mm]	Wall thickness [mm]	Length [m]	Material	Specific weight [kg/m]
Note: To be continued for different types, materials, and dimensions.				

Table 6: Rectangular ducts

Dimensions A × B [mm]	Wall thickness [mm]	Length [m]	Material	Specific weight [kg/m]
Note: To be continued for different types, materials, and dimensions.				

Table 7: Duct fittings, exhaust and supply air terminal device and units, fans, chilled beams, air transfer devices, roof hoods, cooker hoods, fume extractors / local air extractors, louvres and grills, dampers, fire dampers, sound attenuators, air filters

Dimension 1 [mm]	Dimension 2 [mm]	Dimension 3 [mm]	Dimension 4 [mm]	Piece	Material	Weight [kg]
Note: To be continued for different types, dimensions, and materials.						

Table 8: Air handling units (AHU) and fans

Element description	Piece	Material	Weight [kg]	Airflow [m^3/hr]
Note: To be continued for different AHU elements and materials.				

7.2 Declaration of environmental parameters derived from LCA

As in PCR part A and relevant c-PCR.

7.3 Scenarios and additional technical information

As in PCR part A and relevant c-PCR.

7.4 Additional information

As in PCR part A and relevant c-PCR.

7.4.1 Additional information on release of dangerous substances to indoor air, soil, and water

7.4.1.1 Indoor air

As in PCR part A and relevant c-PCR.

7.4.1.2 Soil, ambient air, and water

As in PCR part A and relevant c-PCR.

7.4.2 Additional Norwegian requirements

As in PCR part A and relevant c-PCR.

7.4.2.1 Greenhouse gas emissions from electricity use in A3 Manufacturing.

As in PCR part A and relevant c-PCR.

7.4.2.2 Dangerous substances and content declaration

As in PCR part A and relevant c-PCR.

7.4.2.3 Emission classification of building materials

As in PCR part A and relevant c-PCR.

7.4.2.4 Carbon footprint of products

As in PCR part A and relevant c-PCR.

7.5 Aggregation of information modules

As in PCR part A and relevant c-PCR.

8. Project Report

As in PCR part A and relevant c-PCR.

9. Verification and Validity of an EPD

As in PCR part A and relevant c-PCR.

Approved 18.05.2021, valid until 18.05.2026.

Norwegian EPD Foundation, Technical committee

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Leader of the Technical committee

10 Bibliography

As in PCR part A, including the following additions:

EPD-Norway (2019). General program instructions for the Norwegian EPD program.

EPD for the best environmental decision

Global
Program
Operator

The Norwegian EPD Foundation
www.epd-norge.no

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