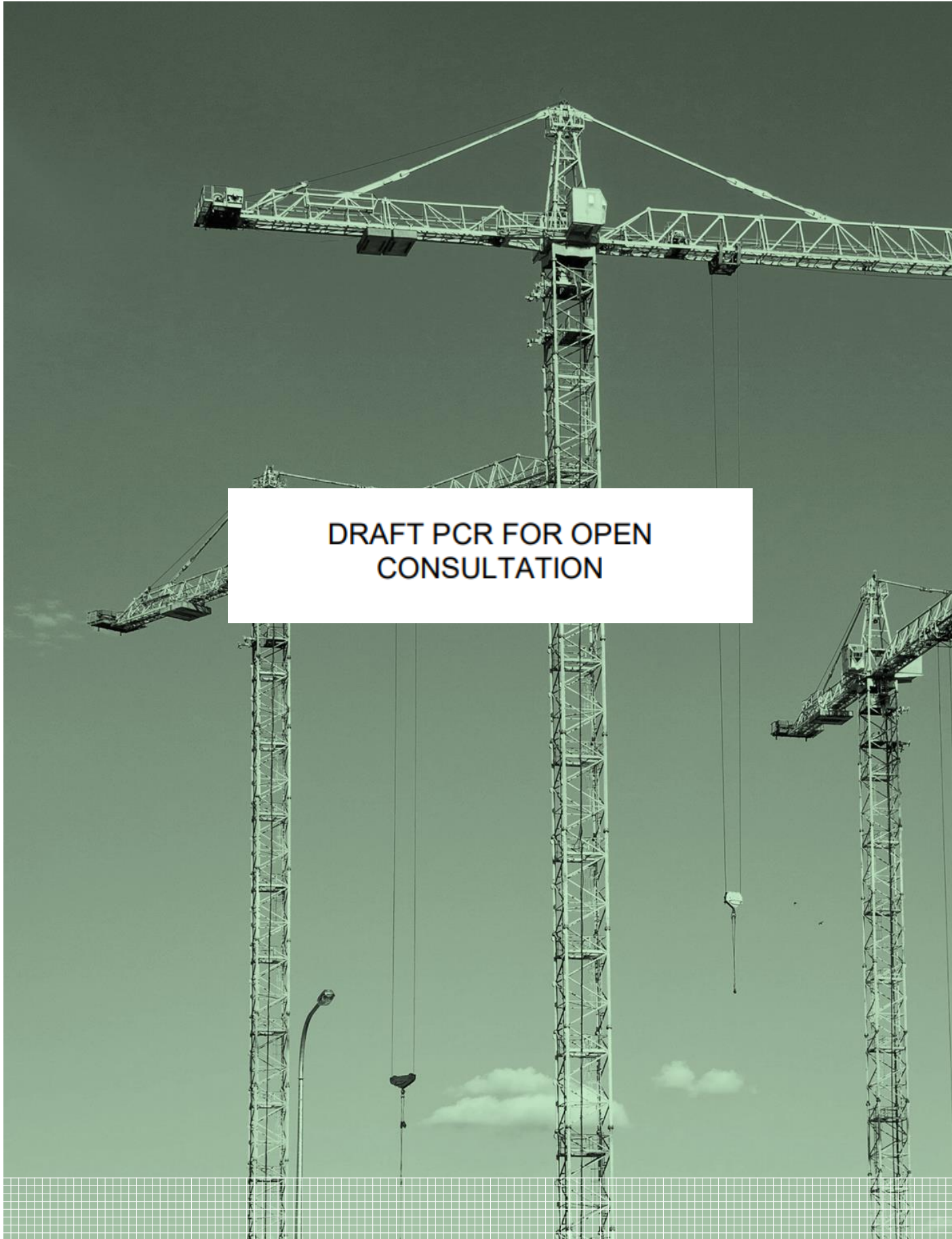


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C-PCR-XXX (TO PCR 2019:14) **DRAFT FOR OPEN CONSULTATION. DO NOT USE OR CITE.**

VERSION: 20XX-YY-ZZ



**DRAFT PCR FOR OPEN
CONSULTATION**

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INTRODUCTION TO OPEN CONSULTATION

This draft c-PCR document is available for open consultation from 2023-05-15 until 2023-07-15. Feel free to forward the draft to any other stakeholder you might think is relevant, including colleagues and other organisations.

This is the first version of this document to be developed. We are therefore interested in comments from stakeholders on:

- General
 - o Alignment with PCRs available in other programmes for type III environmental declarations, industry-specific LCA guides or similar.
- Scope of PCR
 - o Product category definition and description
 - o Classification of product category using CPC codes
- Goal and scope, life cycle inventory and life cycle impact assessment
 - o Functional unit/declared unit
 - o System boundary
 - o Allocation rules
 - o Data quality requirements
 - o Recommended databases for generic data
 - o Impact categories and impact assessment methodology
- Additional information

Comments may be sent directly to the PCR Moderator (contact details available in Section 1). There is a template for comments on www.environdec.com that may be used.

For questions about the PCR, please contact the PCR Moderator. For general questions about the International EPD® System, EPD or PCR development, please contact the Secretariat via pcr@environdec.com.

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1 INTRODUCTION

1.1 GENERAL

This document constitutes complementary Product Category Rules (c-PCR) developed in the framework of the International EPD® System: a programme for type III environmental declarations¹ according to ISO 14025:2006, ISO 14040:2006, ISO 14044:2006, and product-specific standards such as EN 15804 and ISO 21930 for construction products. Environmental Product Declarations (EPD) are voluntary documents for a company or organisation to present transparent, consistent and verifiable information about environmental performance of their product (goods or services).

The rules for the overall administration and operation of the programme are the General Programme Instructions (GPI), publicly available at www.environdec.com. PCRs and c-PCRs complement the GPI and the normative standards by providing specific rules, requirements and guidelines for developing an EPD for one or more specific product categories (see Figure 1). A PCR/c-PCR should enable different practitioners using the PCR/c-PCR to generate consistent results when assessing products of the same product category.

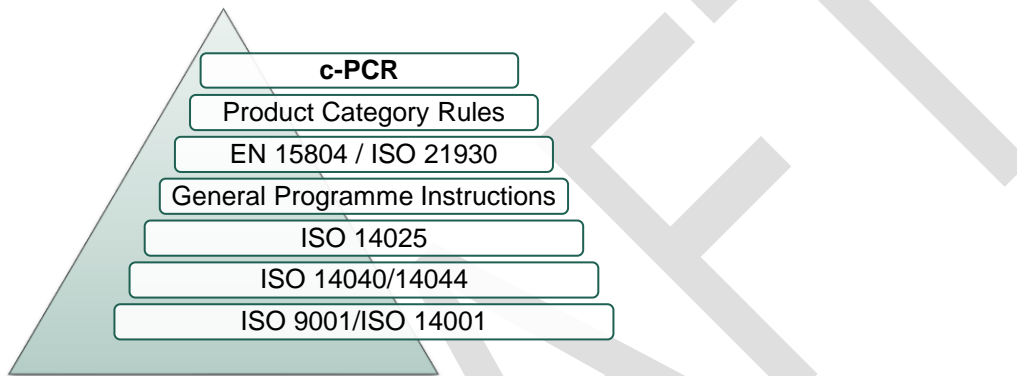


Figure 1 This c-PCR in relation to the hierarchy of standards and other documents.

Within the present c-PCR, the following terminology is adopted:

- The term “shall” is used to indicate what is obligatory, i.e. a requirement.
- The term “should” is used to indicate a recommendation, rather than a requirement. Any deviation from a “should” requirement shall be justified in the PCR development process.
- The terms “may” or “can” is used to indicate an option that is permissible.

For definitions of further terms used in the document, see the normative standards.

A PCR and its c-PCRs are valid for a pre-determined period of time to ensure that it is updated at regular intervals. The latest version of the PCR and its c-PCRs are available at www.environdec.com. Stakeholder feedback on PCRs and c-PCRs is very much encouraged. Any comments on this c-PCR may be sent directly to the PCR Moderator and/or the Secretariat during its development or during its period of validity.

Any references to this document shall include the PCR registration number, name and version.

The programme operator maintains the copyright of the document to ensure that it is possible to publish, update, and make it available to all organisations to develop and register EPDs. Stakeholders participating in c-PCR development should be acknowledged in the final document and on the website.

¹ Type III environmental declarations in the International EPD® System are referred to as EPD, Environmental Product Declarations.

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1.2 ROLE OF THIS DOCUMENT

This document provides complementary product category rules (c-PCR) to PCR 2019:14 Construction products available at www.environdec.com. This document cannot be used by itself but shall be used together with PCR 2019:14 and the European standard EN 15804:2012+A2:2019 (called EN 15804 in short). If a c-PCR is available for a product category, it shall be used.

See Figure 2 for an illustration on how PCR 2019:14 and this c-PCR relate to each other and the EPDs that may be based on them.

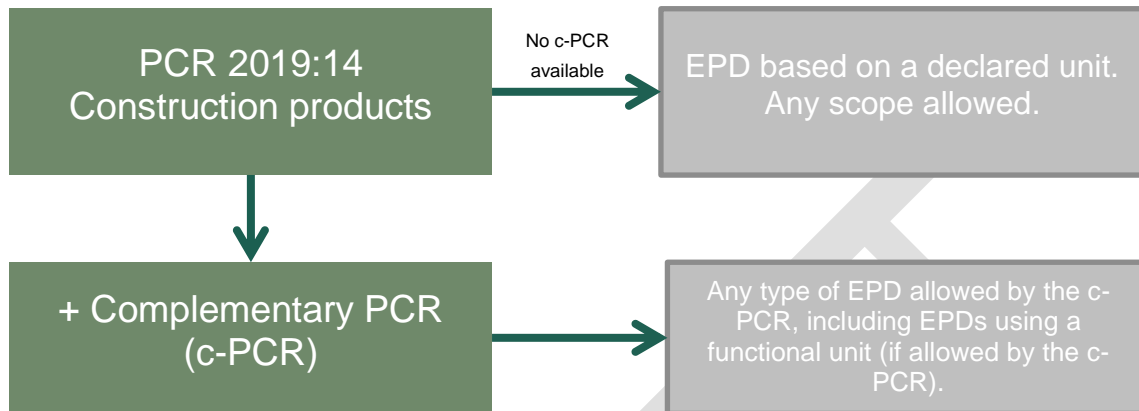


Figure 2 Overview of using PCR 2019:14 directly to develop an EPD, or how to use it together with a c-PCR.

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2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Buildings
Registration number and version:	<i>To be added by the Secretariat</i>
Programme:	 The International EPD System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: info@environdec.com
PCR Moderator:	Ida Bohlin, Tyréns AB, ida.bohlin@tyrens.se Anna Pantze, Tyréns AB, anna.pantze@tyrens.se
PCR Committee:	Tyréns AB, IVL Swedish Environmental Research Institute, SGBC (NollCO2), Derome, Boverket (National Board of Housing, Building and Planning)
Date of publication and last revision:	<i>To be added by the Secretariat</i>
Valid until:	<i>To be added by the Secretariat</i>
Schedule for renewal:	This document will be revised together with the PCR for Construction products. In case a c-PCR is developed by a CEN Product TC, the standard will replace this c-PCR, with a transition period of at least 90 days under which both are valid.
Standards conformance:	<ul style="list-style-type: none"> ▪ General Programme Instructions (GPI) of the International EPD System, version 4.0, based on ISO 14025:2006, ISO 14040:2006 and ISO 14044:2006 ▪ EN 15804:2012+A2:2019 ▪ ISO 21930:2017. This standard is used in selected sections, such as allocation, when it provides additional but not contradictory rules to EN 15804. <p>All EPDs based on this PCR shall be compliant with EN 15804:2012+A2:2019. If additional rules are followed, e.g. additional indicators, this PCR may also be used to develop an EPD compliant with ISO 21930:2017.</p>
PCR language(s):	This PCR was developed and is available in English. In case of translated versions, the English version takes precedence in case of any discrepancies.

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2.2 SCOPE

2.2.1 PRODUCT CATEGORY DEFINITION AND DESCRIPTION

This c-PCR for the assessment of the environmental performance of buildings and prefabricated buildings and the declaration of this performance by an EPD. The product category corresponds to UN CPC 387 and 531 (<https://unstats.un.org/unsd/classifications/Family/Detail/1074>). This c-PCR does not cover transportable prefabricated buildings included in c-PCR-013 Prefabricated buildings intended as special-purpose transportable units.

- **Group: 387 – Prefabricated Buildings**
 - Class: 3870 – Prefabricated Buildings
 - Subclass: 38701 - Prefabricated Buildings, of wood
 - Subclass: 38702 - Prefabricated Buildings, of metal
 - Subclass: 38703 - Prefabricated Buildings, of plastics
 - Subclass: 38704 - Prefabricated Buildings, of concrete
- **Group: 531 – Buildings**
 - Class: 5311 – Residential buildings
 - Subclass: 53111 - One- and two-dwelling residential buildings
 - Subclass: 53112 - Multi-dwelling residential buildings
 - Class: 5312 – Non-residential buildings
 - Subclass: 53121 - Industrial buildings
 - Subclass: 53122 - Commercial buildings
 - Subclass: 53129 - Other non-residential buildings

2.2.2 TYPE OF EPD AND INFORMATION MODULES INCLUDED

Following the requirements in Section 2.2.2 of PCR 2019:14, an EPD based on this c-PCR is a type c EPD, including modules A, B, C, and D. Section 4.2 below provide more information on each life-cycle stage concerning the product category in scope.

2.2.3 GEOGRAPHICAL SCOPE

This c-PCR may be used globally.

2.2.4 EPD VALIDITY

See PCR 2019:14.

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3 PCR REVIEW AND BACKGROUND INFORMATION

This c-PCR was developed in accordance with the PCR development process described in the GPI of the International EPD® System, including open consultation and review.

3.1 OPEN CONSULTATION

3.1.1 VERSION 20XX-YY-ZZ

This c-PCR is available for open consultation from 2023-05-15 until 2023-07.15, during which any stakeholder is able to provide comments by contacting the PCR Moderator and/or the Secretariat.

Add information about any physical or web-based meetings held during the open consultation phase, if applicable.

Stakeholders were invited via e-mail or other means to take part in the open consultation and were encouraged to forward the invitation to other relevant stakeholders. The following stakeholders provided comments during the open consultation and agreed to be listed as contributors in the c-PCR and at www.environdec.com.

- *List of stakeholder names and affiliation will be added after the open consultation*

3.2 PCR REVIEW

3.2.1 VERSION 20XX-YY-ZZ

PCR review panel:	The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com . The review panel may be contacted via info@environdec.com . Members of the Technical Committee were requested to state any potential conflict of interest with the PCR Committee, and if there were conflicts of interest they were excused from the review.
Chair of the PCR review:	<i>To be added by the Secretariat</i>
Review dates:	<i>To be added by the Secretariat</i>

3.3 EXISTING PCRS FOR THE PRODUCT CATEGORY

As part of the development of this c-PCR, existing PCRs/c-PCRs and other internationally standardised methods that could potentially act as c-PCRs were considered to avoid unnecessary overlaps in scope and to ensure harmonisation with established methods of relevance for the product category. The existence of such documents was checked among the following EPD programmes and international standardisation bodies:

- International EPD® System. www.environdec.com.
- AENOR Global EPD. www.aenor.com
- Norwegian EPD Foundation / EPD Norge. www.epd-norge.no
- EPD Danmark. www.epddanmark.dk

No existing PCRs/c-PCRs or other relevant internationally standardised methods with overlapping scope were identified.

3.4 REASONING FOR DEVELOPMENT OF C-PCR

This c-PCR was developed to provide requirements and guidelines additional to those in PCR 2019:14 and EN 15804, for developing EPDs for the product category. The c-PCR thereby enables different practitioners to generate consistent results when assessing the environmental impact of products of the same product category, and thereby it supports comparability of products within a product category.

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3.5 UNDERLYING STUDIES USED FOR C-PCR DEVELOPMENT

The methodological choices made during the development of this c-PCR (declared/functional unit, system boundary, allocation methods, impact categories, data quality rules, etc.) were primarily based on the following underlying studies:

- EPD International (2022): PCR 2019:14 Construction products, version 1.2.5
- EPD International (2021): General Programme Instructions for the International EPD System. Version 4.0
- EN 15804:2012+A2:2019
- ISO 21930:2017
- Boverket (2023): Climate declaration for new buildings in Sweden
- Sweden Green Building Council (2023): Net Zero Building certification system "NollCO2" & "Miljöbyggnad" version 4.0
- *BREEAM (2023): Certification system for sustainable built environment*
- *PCR 2014:02 Buildings*
- *PCR 2019:14-c-PCR-013 c-PCR-013 Prefabricated buildings intended as special-purpose transportable units*
- *Folkhem (2015) EPD Folkhems building*
- *LCA reports of different building types, see Section 7 for reference*

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4 GOAL AND SCOPE, LIFE CYCLE INVENTORY AND LIFE CYCLE IMPACT ASSESSMENT

This section provides specific rules, requirements, and guidelines for developing an EPD for the product category as defined in Section 2.2.1.

Required information about the manufacturing company is reported in the table below, separated between mandatory and voluntary information.

Table 1. Mandatory and examples of voluntary information about the manufacturing company.

Mandatory information	Examples of voluntary information
The developer; builder or manufacturing company	Owner of the house, designers, contractors or architect etc.
Production site and country	Specific aspects regarding the production
Information on environmental management system	Other certifications of the building
Information on type of project; new building, conversion, or extension	
Construction method: built on site, built on site with prefabricated parts or entirely prefabricated	

4.1 FUNCTIONAL UNIT

The functional unit and reference flow shall be specified in the EPD. The functional unit corresponds to a reference flow to which all other modelled flows of the system are related.

Table 2. Definition of the life cycle stages and functional unit of the building.

Approach	Life cycle stages (Figure 4)	Functional unit(s)
Cradle to grave	A1-A3, A4-A5, B1-B7, C1-C4	A building of a specific type (see Table 3) with a reference service life (RSL) of 50 years. The building's impact per square meter GFA shall be reported.

The EPD shall follow a "cradle to grave" approach i.e. including all life cycle stages of the building; see Table 2. The building type symbolises a certain function, as classified in Table 3, and comparisons shall only be made between buildings with the same function.

The environmental performance of the building is directly dependent on its size, why the environmental burden shall be reported per square meter gross floor area (GFA).

GFA is defined as the total floor area inside the building envelope, including the external walls, and excluding the roof. GFA includes service accommodation such as WCs, showers, and changing rooms; columns, piers, whether free standing or projecting inwards from an external wall, chimneybreasts, lift wells, stairwells and so on. It also includes lift rooms, plant rooms, tank rooms, fuel stores, whether or not above roof level, open-sided covered areas (should be stated separately). GFA excludes areas of open balconies, open fire escapes, open-sided covered ways, open vehicle parking areas, terraces and so on, minor canopies, any area with a ceiling height of less than 1.5 m (except under stairways), any area under the control of service or other external authorities.

The reference unit GFA, allows different buildings of the same type to be compared with each other, even though they are of different sizes or have different design. In addition to accounting for the environmental performance per square meter GFA the building's overall environmental performance, or for example environmental performance per m² foundation, per m² atemp for residential buildings or per m² garage may also be reported under additional information.

Table 3. Classification of building types.

Sector	Building type ²	Description
Residential	Residential	– Single dwelling
		– Multiple dwelling
Commercial	Offices	– General office buildings
		– Offices with research and development areas
	Industrial	– Industrial unit – warehouse storage or distribution

² The classification of the building types is based on BREEAM International New Construction Technical Manual 2021

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	Retail	<ul style="list-style-type: none"> – Industrial unit – process, manufacturing, or vehicle servicing – Shop or shopping centre – Retail park or warehouse – ‘Over the counter’ service provider, e.g., financial, estate and employment agencies, and betting offices – Showroom – Restaurant, café and drinking establishment – Hot food takeaway
Education		<ul style="list-style-type: none"> – Preschool – Schools and colleges – Universities – Higher education institutions
Residential institutions	Long term stay	<ul style="list-style-type: none"> – Residential care home – Sheltered accommodation – Residential college or school (halls of residence) – Local authority secure residential accommodation – Military barracks
Hotels and Residential institutions	Short term stay	<ul style="list-style-type: none"> – Hotel, hostel, boarding and guest house – Secure training centre – Residential training centre
Non-standard building types	Bespoke	<ul style="list-style-type: none"> – Community or visitor centre – Town hall or civic centre – Conference facility – Theatre or concert hall – Sports or leisure facility (with or without a pool) – Library – Cinema – Hospital and other healthcare facility – Prison – Law court – Police station – Fire station – Transport hub (coach, bus, or rail station) – Gallery or museum – Place of worship – Research and development (category 2 or 3 laboratories - non-higher education)

4.1.1 REFERENCE SERVICE LIFE (RSL)

The reference service life, predefined in this c-PCR, is set to 50 years.

4.2 SYSTEM BOUNDARIES

EPDs that are developed based on this c-PCR shall cover product stage (A1-A3), construction process stage (A4-A5), use stage (B2, B4, B6), end-of-life stage (C1-C4) as well as benefits and loads beyond the system boundary (D). The scope allowed by this c-PCR, and requirements for excluding information modules, must be aligned with PCR 2019:14 and EN 15804.

The following subsections describe the covered information modules and the respective processes. For detailed information on each module, see EN 15804 (Section 6.3.5). Here only specific descriptions related to this c-PCR are provided.

This c-PCR handles both new buildings and existing buildings. For new buildings, all life cycle stages shall be reported. For existing buildings, generic data may be used when modelling the product (A1-A3), construction (A4-A5) and the end-of-life (C1-C4) stages, and the use stage (B1-B7) shall be reported using specific data. Repair scenarios for existing buildings should be modelled by the history of the building.

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Conversion or extension means construction work that leads to a substantial reshaping or adaptation of the building. If the performance of the building at the completion of the work is significantly affected this c-PCR can be used. If conversion or extension is used this shall be described and justified in order to distinguish from smaller refurbishments or replacements in module B.

The object of assessment is the building, including its foundations and external works within the curtilage of the building's site, where the buildings site is defined as the physical space of land that is occupied by the building.

The building can be built on site, built on site with prefabricated parts or be entirely prefabricated.

*The building structure can be described with number of storeys, structural frame and foundations, beams, columns, slabs, external and internal walls, windows, doors, stairs, roof, ceiling, floor, etc. In addition, the facilities required for the building's function to be met shall be included. This includes the system of water supply and drainage, sanitary systems, heating and water heating, cooling, ventilation, electrical systems, and elevators. Legal or project requirements on for example energy efficiency, fire safety or noise reduction may also be described, see **Fel! Hittar inte referenskälla.** and*

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Table 4 below. Deviations from this shall be documented and clearly stated in the EPD.

Groundworks shall be reported separately and shall always be included in the total environmental impact of the building.

Furnishings, such as kitchen fixtures, bathroom fittings, wallpapers, etc., shall not be included in the system boundaries.

Internal surface layers or other optional parts may be reported separately under additional information.

If it is a building with several building types or common areas, it shall be clearly stated and described in the EPD.

4.2.1 PRODUCT STAGE: MODULES A1-A3

See PCR 2019:14 and Section 6.3.5.2 of EN 15804.

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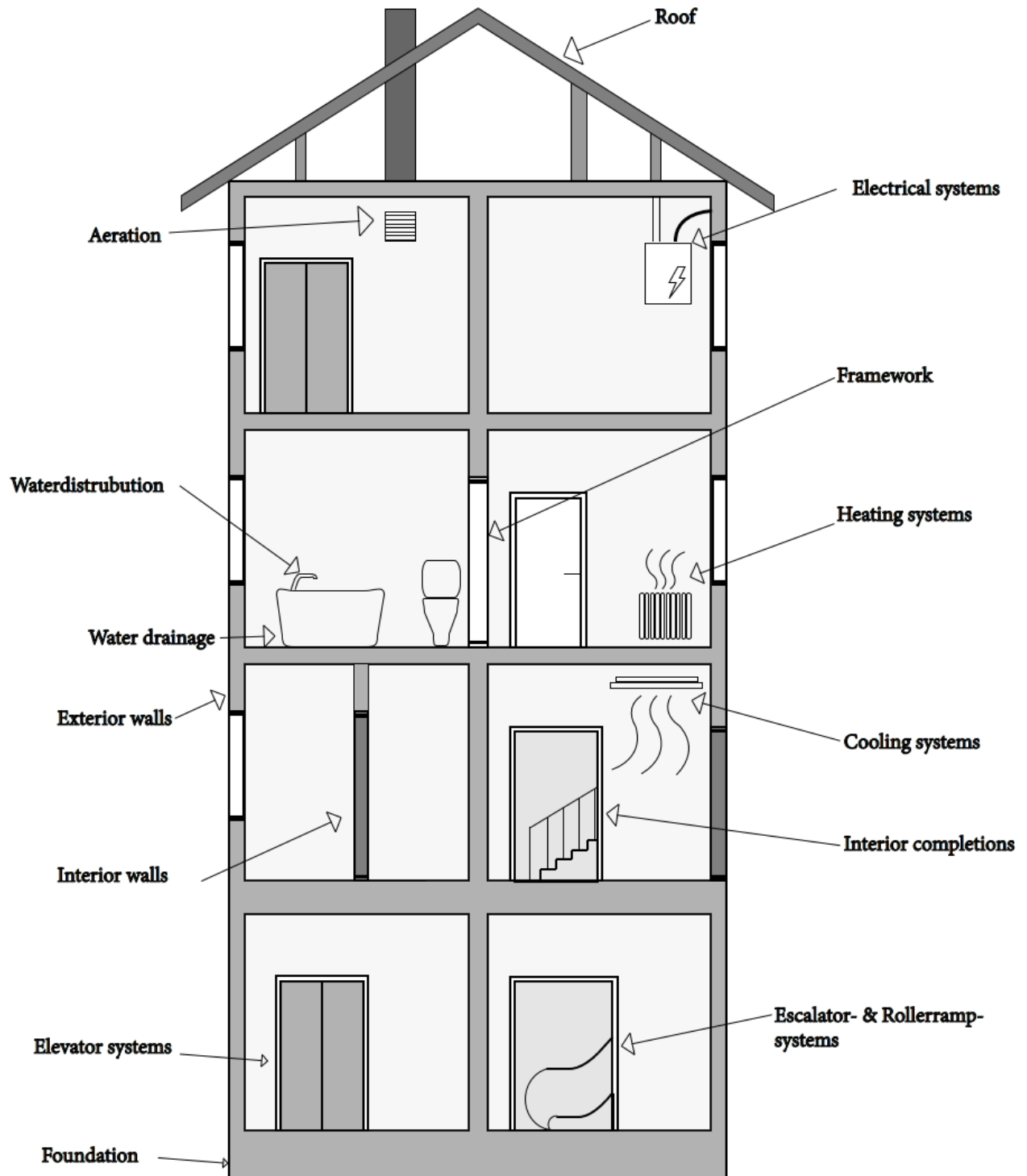


Figure 3. Included parts of the building.

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Table 4. Clarification on which parts of the building that is included or excluded in calculations of modules A1-A3.

Category	Included (mandatory in calculations)	Excluded (optionally to account for but reported separately)
Load-bearing structural parts – Foundation	<ul style="list-style-type: none"> – Slab on the ground and, for example, foundations, soles, reinforcement beams, rafters, and foundation walls – Insulation under the foundation 	<ul style="list-style-type: none"> – Piping – Piles and other ground measures such as stabilization and retaining walls (could have a significant impact)
Bearing construction parts – Other Frame (beam, joist, column, wall)	<ul style="list-style-type: none"> – Frame (beam, joist, column, wall) – Wall to ground – Stairs, incl. the stair railing – Internal stairs – Outer roof construction – Ramps – Balconies and loft corridors, incl. railings – Castings 	<ul style="list-style-type: none"> – Verandas that do not form part of the building's climate screen or supporting structure – Screen roof
Climate screen	<ul style="list-style-type: none"> – External wall including building board on the inside – Roof and floor joists, incl. green roofs – Integrated solar cells – Facade cladding – Plastering and painting on the outer wall – Window – Exterior doors – Glass partitions and glazing 	<ul style="list-style-type: none"> – Internal surface layers – Putty on interior wall – Façade blinds and sun shading – Roof security and rainwater systems – Façade ladders and external fire escapes
Interior walls	<ul style="list-style-type: none"> – Inner walls up to building board – Glass partitions – Interior doors – Mesh walls for apartment storage – Fixed subfloor – Suspended ceiling – Interior ceiling 	<ul style="list-style-type: none"> – Internal surface layers, such as putty, paint, fire protection paint and wallpaper, including waterproofing for wet areas – Ceiling and floor mouldings – Window benches – Internal surfaces, for example parquet floors, linoleum carpets, tiles, and clinker

In the EPD it should be stated what has been included in A1-A3 and important assumptions for A1-A3

Prefabricated buildings

If the building is prefabricated, the element factory where the prefabricated elements/volumes are produced, shall be defined as the construction site (A5), which means:

- Transport of materials from producers direct to the building site, transports of materials from producers to the element factory and transports from the element factory to the production site are all included in module A4.
- Consumables and energy use (Electricity, district heating and diesel etc.) in element factory are included in A5
- Waste in element factory together with waste on Building site are included in module A5.

If the building is prefabricated a clarification regarding the factory where prefabricated elements are produced shall be provided.

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4.2.2 CONSTRUCTION PROCESS STAGE: MODULES A4-A5

See PCR 2019:14 and Section 6.3.5.3 of EN 15804.

A4 Transport to construction site and transport on site

- Transport of materials and products from the factory gate to the building site, including any transport, intermediate storage and distribution;
- Transport of construction equipment (cranes, scaffolding, etc.) to and from the site;
- Clarifications regarding transports for prefabricated buildings. Only transport of the prefabricated elements and materials that's transported direct to building site is included in A4, Transport of materials to factory where prefabricated elements are produced is included in module A2.

In the EPD it should be stated what has been included in A4 and important assumptions for A4

A5 Construction and installation

Included:

- Storage of products, including the provision of heating, cooling, humidity, etc.
- Transport of materials, products, waste and equipment within the site.
- Temporary works, including temporary works located off-site as necessary for the construction installation process.
- On-site production and transformation of a product.
- Energy consumption for heating, cooling, ventilation, humidity control etc. during the construction process.
- Installation of the products into the building including ancillary materials not counted in the EPD of the products e.g. releasing agents in formworks for concrete, formworks discarded at the end of the project.
- Water use for cooling of the construction machinery or on-site cleaning.
- Waste management processes of other wastes generated on the construction site. This includes all processes (including transportation from the building site) until final disposal or until end of waste state is reached.
- Production, transportation and waste management of products and materials lost during the construction and installation process.

Excluded:

- Groundworks such as capillary-breaking layers and drainage gravel (could have a significant impact and may be reported separately under additional information).
- Groundworks associated with landscaping shall not be included.

In the EPD it should be stated what has been included in A5 and important assumptions in A5

4.2.3 USE STAGE: MODULES B1-B7

See PCR 2019:14 and Section 6.3.5.4 of EN 15804.

Module B2 (maintenance), B4 (replacement) and B6 (operational energy use) is mandatory. Module B1 (use), B3 (repair), B5 (refurbishment) and B7 (operational water use) may be omitted. The omission must be explained and justified.

The energy use (B6) should be building-related. Plug in appliances for the users, e.g., computers, washing machines, refrigerators, audio, TV and production or process-related energy in the use of the building) is not included in B6 but can be a part of the energy calculation of the building. The energy calculation can be documented and reported separately.

The production of solar cells and other production of own renewable energy that is installed on the building or property shall be included in Module B6. If the solar cells or other production appliances is replaced och maintained during the RSL it shall be accounted for in module B6.

If the solar cells have dual functions and forms part of climate screen of the building, the environmental impact of the material is allocated to both A1- A3 and B6. The parts of the solar cell that primary function as a part of climate screen of the building is included in A1-A3 and the parts of the solar cell that primary function is to generate electricity is included in B6, as environmental impact of the infrastructure of the energy production.

In the EPD it should be stated what has been included in module B1-B7 and important assumptions in B1-B7

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4.2.4 END-OF-LIFE (EOL) STAGE: MODULES C1-C4

See PCR 2019:14 and Section 6.3.5.5 of EN 15804.

In the EPD it should be stated what has been included in module C1-C4 and important assumptions in C1-C4

4.2.5 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY: MODULE D

See PCR 2019:14 and Section 6.4.3.3 of EN 15804.

4.2.6 OTHER BOUNDARY SETTING

See PCR 2019:14 and EN 15804.

4.3 SYSTEM DIAGRAM

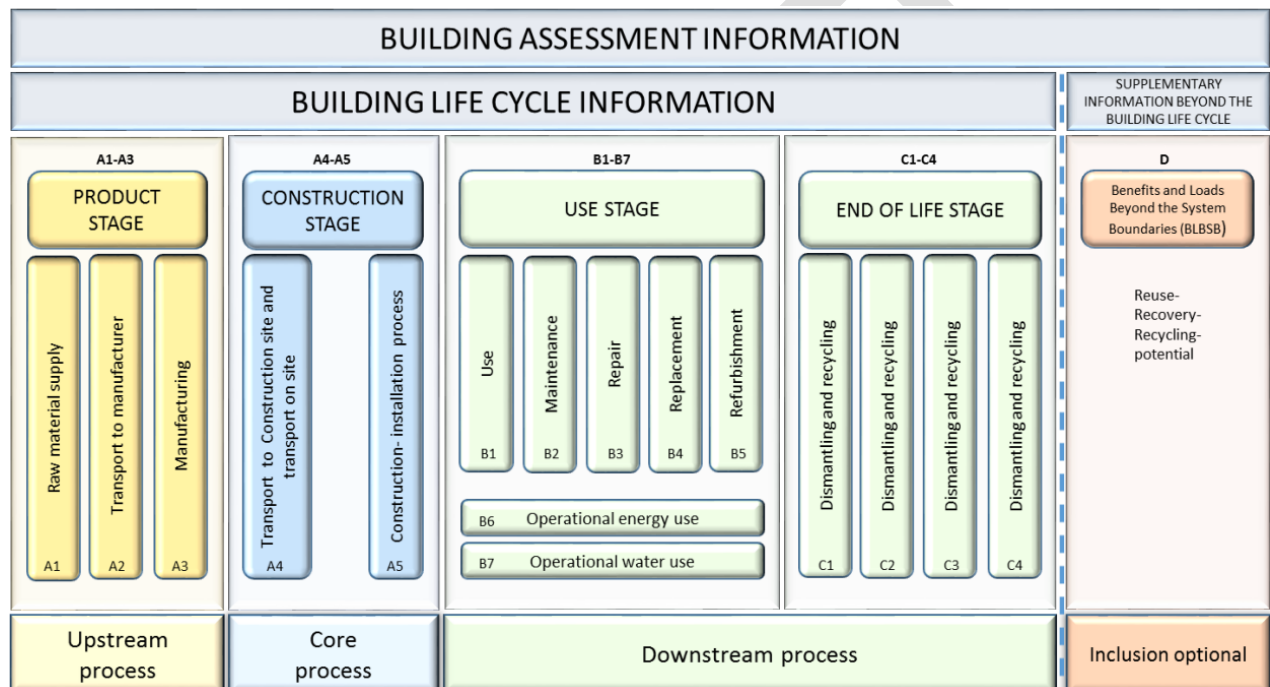


Figure 4. System diagram illustrating the processes that are included in the product system, divided into life-cycle stages and information modules.

4.4 CUT-OFF RULES

See PCR 2019:14 and EN 15804.

4.5 ALLOCATION RULES

See PCR 2019:14 and EN 15804.

4.6 DATA QUALITY REQUIREMENTS

See PCR 2019:14 and EN 15804.

4.7 ENVIRONMENTAL PERFORMANCE INDICATORS

See PCR 2019:14 and EN 15804.

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4.8 INCLUDING MULTIPLE PRODUCTS IN THE SAME EPD

See PCR 2019:14.

4.9 COMMUNICATION OF THE EPD RESULTS

Regarding biogenic content, it is recommended to always communicate the results of all modules including module C and all four GWP indicators (GWP_{total} , GWP_{fossil} , $GWP_{biogenic}$ and GWP_{luluc}) to avoid misinterpretation. If only GWP_{total} or only module A1-A3 is reported, it can give the impression that a new building with a lot of wood or other biogenic materials has a negative or neutral climate impact.

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5 CONTENT AND FORMAT OF EPD

See PCR 2019:14.

5.1 EPD LANGUAGE

See PCR 2019:14.

5.2 UNIT AND QUANTITIES

See PCR 2019:14.

5.3 USE OF IMAGES IN EPD

See PCR 2019:14.

5.4 EPD REPORTING FORMAT

See PCR 2019:14.

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6 LIST OF ABBREVIATIONS

In addition to abbreviations listed in PCR 2019:14, Section 6:

GFA Gross floor area

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8 VERSION HISTORY OF C-PCR

VERSION 20XX-YY-ZZ

Original version of the c-PCR.

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