BUILDINGS

PRODUCT GROUP CLASSIFICATION: UN CPC 387, UN CPC 531

C-PCR-029 (TO PCR 2019:14)
VERSION: 2024-06-07

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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 declarations[1] 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.

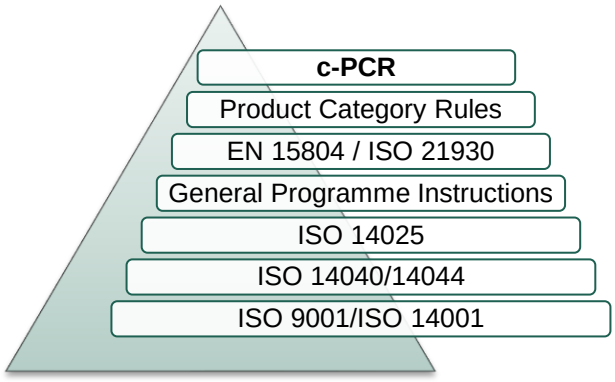

Figure 1 This c-PCR in relation to the hierarchy of standards and other documents.

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.

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.

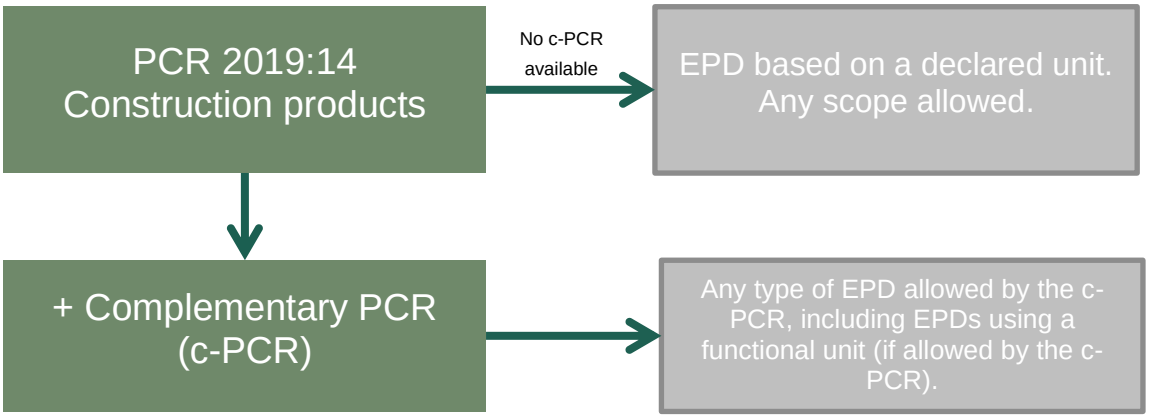

Figure 2 Overview of using PCR 2019:14 directly to develop an EPD, or how to use it together with a c-PCR.

2 GENERAL INFORMATION

2.1 ADMINISTRATIVE INFORMATION

Name:	Buildings
Registration number and version:	c-PCR-029, version 2024-06-07
Programme:	The International EPD System
Programme operator:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. Website: www.environdec.com E-mail: support@environdec.com
PCR Moderator:	Ida Bohlin, Tyréns AB, ida.bohlin@tyrens.se Anna Pantze, Tyréns AB, anna.pantze@tyrens.se
PCR Committee:	Tyréns AB, SGBC (NollCO2), Derome, Boverket (National Board of Housing, Building and Planning)
Date of publication and last revision:	2024-06-07
Valid until:	2025-06-20
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:	▪ 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/AC:2021 ▪ EN 15941:2024 ▪ ISO 21930:2017. This standard is used in selected sections, such as allocation, when it provides additional but not contradictory rules to EN 15804. EPDs may comply with this standard if additional requirements are met, see PCR 2019:14. 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.
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.

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

The c-PCR can be used by developers/manufacturers that are planning a project (types 1-3, see Section 2.2.2) or have completed a project (type 4, see Section 2.2.2). The c-PCR can be used for the entire building or for the conversion or extension of the building. The scope of the c-PCR covers building built on site, buildings built on site with prefabricated parts or buildings prefabricated with high degree of completion at a factory or entirely prefabricated.

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.

Additionally, an EPD based on this c-PCR can be one of the following types of EPDs adopted from EN 15941:

- Type 1: Concept design quantification. For example, such EPDs can support design decisions in early design stages.
- Type 2: Building permit quantification. For example, such EPDs can support the building permit process, such as providing documentation on the fulfilment of environmental performance criteria.
- Type 3: Detailed design quantification. For example, such EPDs can support design decisions in detailed design stages.
- Type 4: As-built quantification. For example, such EPDs can be part of a digital log book of the building.

The type of EPD shall be stated in the EPD.

2.2.3 GEOGRAPHICAL SCOPE

This c-PCR may be used globally.

2.2.4 EPD VALIDITY

See PCR 2019:14.

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 2024-06-07

This c-PCR was available for open consultation from 2023-05-15 until 2023-07-15, during which any stakeholder was able to provide comments by contacting the PCR Moderator and/or the Secretariat.

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.

- Sarah Buffaloe, WSP USA
- Sergio Alfonso Ballén, Constructora Acuario Ltda.
- Mukunth Natarajan, WSP USA
- Ben Stanley, WSP USA
- Julie Sinistore, WSP USA
- Annica Lindbäck, Lindbäcks
- Sascha Iqbal, IQ Consult LLC

3.2 PCR REVIEW

3.2.1 VERSION 2024-06-07

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 support@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:	Claudia A. Peña
Review dates:	2023-08-31 until 2023-10-19

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:

- BRE Global. https://bregroup.com/services/testing-certification-verification/en-15804-environmental-product-declarations
- Canadian Standard Association Group (CSA)
- Carbon Leadership Forum (CLF)
- Centrum environmentálních prohlásení (CENDEC)
- Confederation of European Paper Industries (CEPI)
- Danish Environmental Protection Agency (EPD-DK)

- DAPHabitatSystem. https://daphabitat.pt/en_US/home/
- Declaración Ambiental de Productos de Construcción (DAPCO)
- Earthsure - Institute for Environmental Research and Education (IERE)
- ECO-LEAF
- Environment and Development Foundation (EDF)
- EPD Danmark. www.epddanmark.dk
- EPD Ireland. https://www.igbc.ie/epd-home/
- EPD Italy. https://www.epditaly.it/
- EPD Norge. https://www.epd-norge.no
- European Aluminium Association (EAA)
- FDES. https://www.inies.fr/inies-et-ses-donnees/fdes-produits-de-construction/
- Global EPD. https://www.aenor.com/certificacion/certificacion-de-producto/declaraciones-ambientales-de-producto
- IBU. https://ibu-epd.com/
- ICC Evaluation Service (ICC-ES)
- IFT Rosenheim (IFT)
- INIES (FDES INIES)
- International EPD System. www.environdec.com
- ITB EPD Program. https://www.itb.pl/epd
- Kiwa – Ecobility Experts. https://www.kiwa.com/de/en/themes/ecobility-experts/ecobility-experts-epd-program/
- Korean Environmental Industry & Technology Institute EDP (KEITI EDP)
- National Ready Mixed Concrete Association (NRMCA)
- NSF International (NSF)
- PEP Ecopassport. http://www.pep-ecopassport.org/
- Product Environmental Footprint (PEF)
- Programm für Umweltproduktedeklarationen des SÜGB. https://www.sugb.ch/
- RTS EPD. https://cer.rts.fi/en/rts-epd/

Existing PCRs/c-PCRs and other internationally standardized methods that were considered to avoid overlap in scope and to ensure harmonisation with established methods:

- ASTM (2022) Standard Practice for Minimum Criteria for Comparing Whole Building Life Cycle Assessments for Use with Building Codes, Standards, and Rating Systems, ASTM E2921-22 (Last updated 21 Nov 2022).
- BREEAM (2023) Certification system for sustainable built environment.
- EeBGuide Guidance Document Part B: BUILDINGS
- EPD International (2019) PCR 2014:02 Buildings. www.environdec.com.
- EPD International (2020) PCR 2019:14-c-PCR-008 Lifts. www.environdec.com.
- EPD International (2021) General Programme Instructions for the International EPD System. Version 4.0. www.environdec.com.
- EPD International (2021) PCR 2019:14-c-PCR-013 Prefabricated buildings intended as special-purpose transportable units. www.environdec.com.
- EPD International (2022) PCR 2019:14 Construction products, version 1.2.5. www.environdec.com.
- EPD International (2022) PCR 2019:14-c-PCR-022 Road infrastructure. www.environdec.com.
- EPD International (2023) PCR 2019:14-c-PCR-025 Escalators and moving walks. www.environdec.com.

- EN 15804:2012+A2:2019
- EN 15978:2011
- ISO 14040:2006
- ISO 14044:2006
- ISO 21930:2017

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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.

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:

- Boverket (2023) Climate declaration for new buildings in Sweden.
- European Commission (2020), JCR TECHNICAL REPORTS,), Level(s) indicator 1.2: Life cycle Global Warming Potential (GWP) User manual: overview, instructions and guidance (publication version 1.0)
- Folkhem (2015) EPD Folkhems building, registration number S-P-00652 (expired and no longer publicly available).
- Kurkinen E N-A. (2015) Energi och klimateffektiva byggsystem. Miljövärdering av olika stomalternativ. SP Rapport 2015:70.
- Larsson ME (2016) Byggandets klimatpåverkan. Livscykelberäkning av klimatpåverkan för ett nyproducerat energieffektivt flerbostadshus med massiv stomme av trä. Sveriges Byggindustrier.
- Malmqvist T (2021) Referensvärden för klimatpåverkan vid uppförande av byggnader.
- Peñaloza DN (2013) Life Cycle Assessment of Different Building Systems: The Wälludden Case Study. SP Report 2013:07.
- Sweden Green Building Council (2023): Net Zero Building certification system “NollCO2” & “Miljöbyggnad” version 4.0
- RICS (2015) Code of measuring practice, 6th Edition, May 2015: Published by the Royal Institution of Chartered Surveyors (RICS), ISBN 978 1 84219 332.
- Tyréns (2012) Screening avseende klimatpåverkan från flerbostadshus. En studie av Folkhems projekt Kv. Strandparken.
- Tyréns (2015) Jämförande LCA screening varuhus.
- Tyréns (2016) Jämförande LCA för industribyggnad.

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.

4.1 FUNCTIONAL UNIT

The functional unit[2] 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.

An EPD based on this c-PCR shall use the following functional unit: 1 m^2 GFA of building of a specific type (see Table 3), with specific functional characters (see below), over a reference study period (RSP). The RSP shall be defined according to Section 4.1.1. Functional unit is the same for an EPD of a building in a planning/design stage (types 1-3, see Section 2.2.2) and an EPD of a completed building (type 4, see Section 2.2.2). For a conversion or extension of a building the 1 m^2 GFA refers to the parts of the building that are converted or the actual extension and not to the entire building.

GFA follows the same core definitions, exclusions and inclusions as gross external area (GEA) defined in *Code of measuring practice, 6th Edition, RICS (2015).* GFA is defined as the total floor area inside the building envelope, including the external walls, and excluding the roof. GFA includes columns, piers, chimney breasts stairwells, lift-wells and the like. It also includes lift rooms, plant rooms, tank rooms, fuel stores, internal balconies, entrance halls, mezzanine areas. GFA excludes areas of open one-sided balconies, covered ways and fire escapes, garages, roof terraces, minor canopies, and areas with a headroom of less than 1.5 m.

The building type symbolises a certain generic function, as classified in Table 1. In addition to describing the building type, the EPD shall describe other relevant technical and functional requirements fulfilled by the specific building, e.g., requirements set by regulation or a client on energy efficiency, fire safety, seismic performance, etc., the expected building-related pattern of use (e.g., hours occupied, occupancy), and the required or estimated service life (see Section 4.1.1).[3] Comparisons should only be made between buildings with equivalent functions.

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 designs.

In mixed-use buildings, there are different building types within the same building. Then the function of the building can be formulated as follows: *A mixed-use building consisting of X m^2 residential, Y m^2 commercial and Z m^2 educational GFA with a RSP of 50 years. The functional unit is the average 1 m^2 GFA of the total GFA of the three building types.*

[2] The term “functional unit” is used here, to align with PCR 2019:14 and EN 15804, but this corresponds to the term “functional equivalent” used in prEN 15978.

[3] These functional aspects have been adopted from prEN 15978.

Table 1. Classification of building types.

Sector	Building type[4]	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 Industrial unit – process, manufacturing, or vehicle servicing
	Retail	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		Preschool Schools and colleges Universities Higher education institutions
Residential institutions	Long term stay	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	Hotel, hostel, boarding and guest house Secure training centre Residential training centre
Non-standard building types	Bespoke	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 STUDY PERIOD (RSP)

The RSP[5] is the time period over which the function of the building is considered in the functional unit (see Section 4.1) and as such is the period over which time-dependent characteristics of the building are analysed (CEN 2023). The RSP shall be defined for each EPD, based on the below rules adopted from prEN 15978 (CEN 2023).

The RSP should be the required service life (ReqSL), which is the service life required by the client (e.g., the commissioner of the building project) or by regulation. If there is no ReqSL, the RSP may be the estimated service life (ESL). If an ESL is used to set the RSP, the EPD shall described how it was derived, for example based on empirical, probabilistic, or statistical data. If neither ReqSL or ESL is used to set the RSP (e.g. because of the intended use of the assessment, regulatory requirements, or national guidance), this shall be clearly stated and justified in the EPD. If the RSP differs from ReqSL and ESL, the EPD shall include conversion factors for converting the environmental performance results of the time-dependent modules to results per ReqSL (or ESL), following the rules in prEN 15978 (CEN 2023).

In all cases, the environmental performance results for the production stage (modules A1, A2, A3), construction stage (modules A4, A5) and the end-of-life stage (modules C1, C2,C3, C4) are independent of the value of the RSP.

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 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.

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

This c-PCR can be used for the construction of the entire building or for the conversion or extension of the building or part of it. This influences the system boundaries:

This c-PCR can be used both for new buildings and existing buildings. New and existing entire buildings have the same requirements on what processes to include, see Section 4.2.1- 4.2.5, but have different data quality requirements, see Section 4.6. Groundworks needed for the foundation of an entire building or extension, such as excavations, crushed rocks, piles, drainage, isolations, etc., shall always be included. It shall be clearly explained in the EPD which groundworks that are needed or which groundworks scenarios that are used .

The object of assessment is the building, including its foundations and external works within the building's site. This means that all civil works not needed for the foundation of the building is excluded. Examples of civil works outside the physical space of the building is for example parking areas, sidewalks, lawn or other plantations, gravel or paved surfaces, lighting poles, mechanical pads, lawn etc.

For conversion or extension of an existing building, the object of assessment in these cases is the processes and material needed for the conversion or extension and also demolition, dismantling and waste handling of existing building materials that will be dismantled from the existing building. This means that all reused parts of the building have no environmental impact except for processes needed for refreshment, reinforcement, paint, etc. It shall be clearly stated in the EPD what´s included in a conversion or extension of an existing building. Furnishings, such as kitchen fixtures, bathroom fittings, wallpapers, etc., shall not be included in the system boundaries.

If it is a building with common areas, the common areas shall be clearly stated and described in the EPD, together with information regarding if any allocation of common areas has been performed. Example of common area is a garage in the first floor of a building that provides parking spaces for three buildings, and the EPD is for only one of the three buildings. In this case a percentage allocation of parking spaces can serve well for the allocation of the common area.

4.2.1 PRODUCT STAGE: MODULES A1-A3

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

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

[5] Here, the term RSP is used instead of reference service life (RSL) to align with prEN 15978 (CEN 2023).

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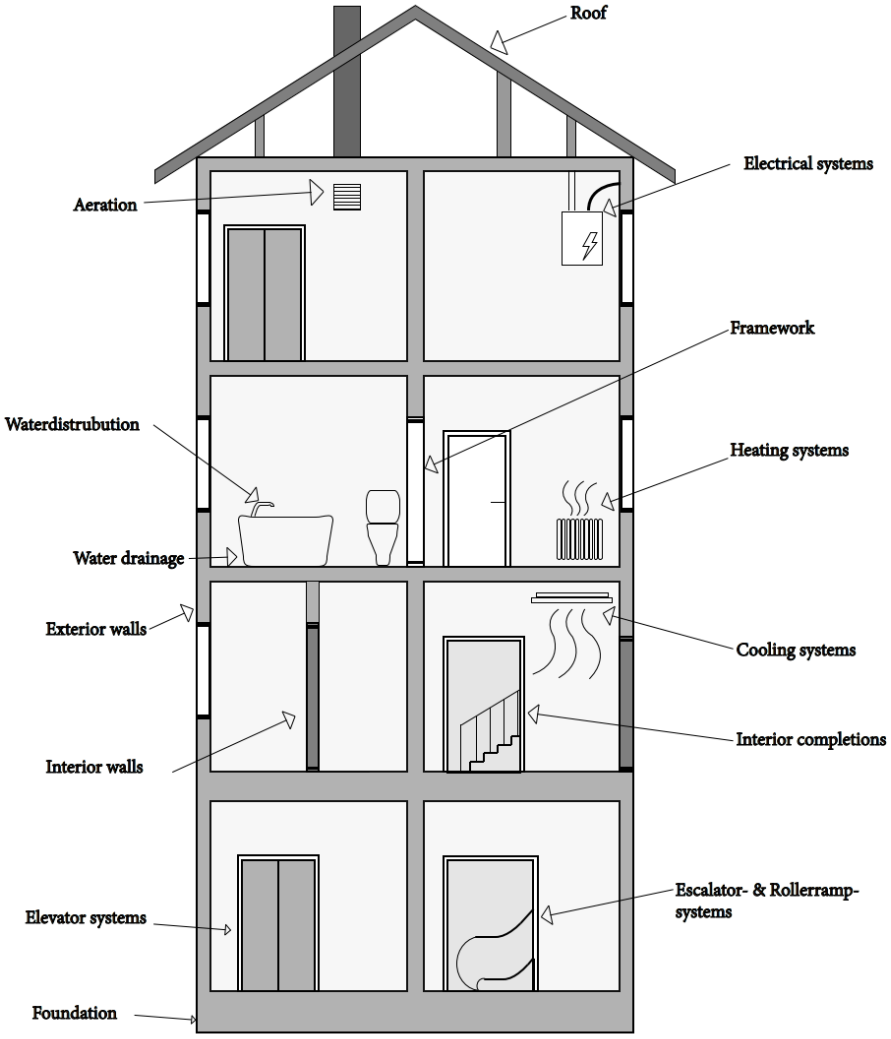

Figure 3. Included parts of an entire building. Groundwork needed for foundation of the building is also included but not illustrated in the picture.

Table 2. 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	Slab on the ground and, for example, foundations, soles, reinforcement beams, rafters, and foundation walls Insulation under the foundation	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)	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	Verandas that do not form part of the building's climate screen or supporting structure Screen roof
Climate screen	External wall including building board on the inside Roof and floor joists, incl. green roofs Integrated solar cells/other renewable energy technologies Facade cladding Plastering and painting on the outer wall Window Exterior doors Glass partitions and glazing	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	Inner walls up to building board Glass partitions Interior doors Mesh walls for apartment storage Fixed subfloor Suspended ceiling Interior ceiling	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 shall be stated what has been included in A1-A3 and important assumptions for A1-A3.

Prefabricated buildings with high degree of completion or entirely prefabricated:

If the building is prefabricated, the factory where the prefabricated elements/volumes are produced, shall be defined as part of 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 in and energy use (electricity, district heating and diesel etc.) in element factory are included in module A5
- Waste in element factory together with waste on building site are included in module A5.

If the building is prefabricated with high degree of completion and the factory, where prefabricated elements are produced, is defined as part of the construction site (A5), this shall be stated in the EPD.

4.2.2 CONSTRUCTION PROCESS STAGE: MODULES A4-A5

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

A4-A5 for prefabricated buildings with high degree of completion, see also Section 4.2.1.

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 with high degree of completion: Transport of materials from material-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.
- In the EPD it shall 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.
- Groundworks needed for foundation of the building, such as earth work, rock excavation, rock and soil filling, drainage works, geotechnical reinforcement, concrete grouting, piling, installation work and other construction processes under a new building, see also Section 4.2
- 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 associated with landscaping or other civil works, see also Section 4.2, shall not be included.

In the EPD it shall 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.

Modules B2 (maintenance), B4 (replacement) and B6 (operational energy use) are 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 and plug loads and process loads are therefore excluded. Building-related operational energy use are for example energy use by elevators, ventilation systems, alarm system, door openers, basic lighting and alike. Plug in appliances for the users, e.g., computers, washing machines, refrigerators, audio, TV and alike together with process loads from data centres, manufacturing equipment and commercial kitchens and alike are not included in B6.

The calculation of building-integrated and on-site generated energy (e.g., how to determine the self-consumed energy in module B6 and the share of exported energy) shall follow the rules in prEN 15978 (CEN 2023). Any exported energy shall be considered in module D2 (see Section 4.2.5).

The production of solar cells or other renewable energy production appliances that are installed on the building or property shall be included in module B6. If such production appliances are replaced and maintained during the RSP, it shall be accounted for in module B6. If the production appliance has dual functions and forms part of the climate screen of the building, the environmental burden of

the appliance shall be divided between A1- A3 and B6 by subdivision (alternative one in the hierarchy for co-production allocation, see Section 4.5). For example, 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. If the parts are inseparable (i.e., so that subdivision is not possible), the environmental burden of the appliance shall be divided 50/50 between the two functions. It shall be clearly stated in the EPD if the environmental burden of the appliance has been divided between A1- A3 and B6 by subdivision or by the 50/50 method.

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

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. In addition, module D shall be divided into D1 and D2, to align with prEN 15978. D1 represents potential net benefits and loads from reuse, recycling and recovery of materials and energy from waste materials generated throughout the building life cycle, while D2 represent potentials net benefits and loads from exported utilities in the use stage (export of electrical energy generated from solar cells, export of thermal energy generated in the building, etc.).

4.2.6 OTHER BOUNDARY SETTING

See PCR 2019:14 and EN 15804.

4.3 SYSTEM DIAGRAM

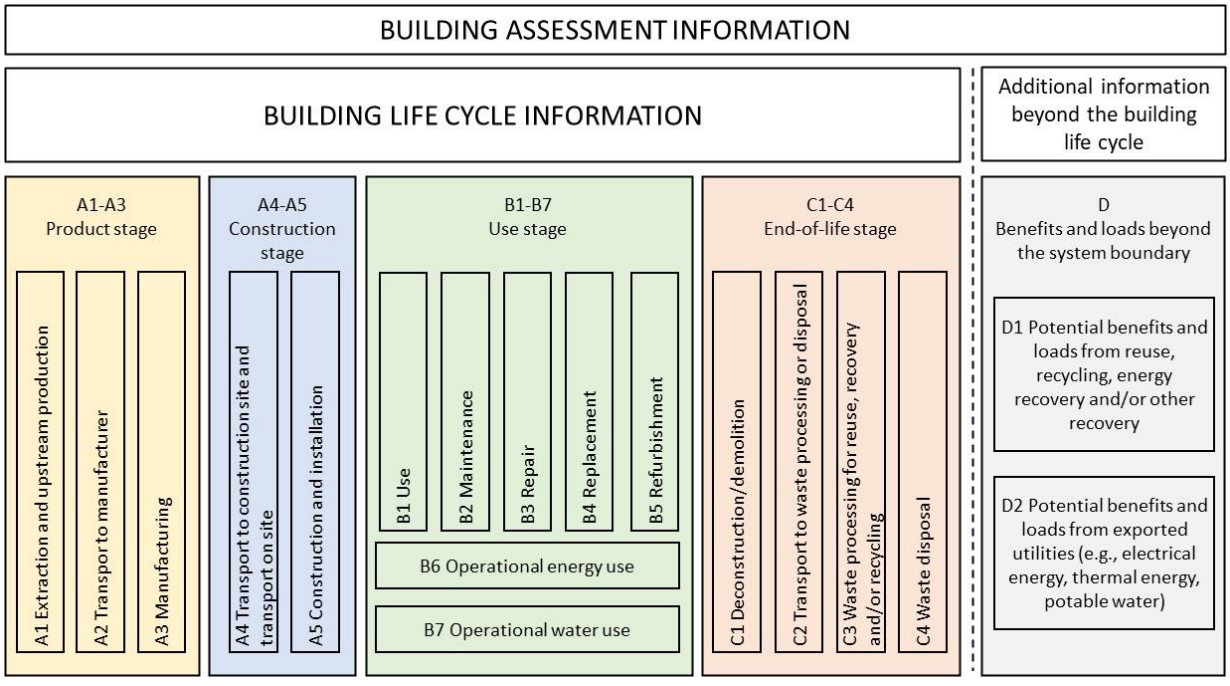

Figure 4. System diagram illustrating the processes that are included in the product system, divided into life-cycle stages and information modules.

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. Additionally, the rules on data quality requirement, assessment and reporting in EN 15941 apply.

For an EPD of a building in a planning/design stage (types 1-3, see Section 2.2.2), the EPD owner shall, in the EPD, describe how data quality requirements are met and explain the origin of the data or information. In such EPDs, modelling of groundworks and wasted generated on the construction site shall be based on likely scenarios which shall be described in the EPD.

For an EPD of a completed building (type 4, see Section 2.2.2), actual inputs on groundworks and wastes generated on the construction site should be used. These scenarios should also be described in the EPD. Any deviations from this shall be clearly stated and reasons explained.

4.7 ENVIRONMENTAL PERFORMANCE INDICATORS

See PCR 2019:14 and EN 15804.

4.8 INCLUDING MULTIPLE PRODUCTS IN THE SAME EPD

See PCR 2019:14.

4.9 COMMUNICATION OF THE EPD RESULTS

Regarding communication of environmental performance results outside the EPD, 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 false impression that a new building with a lot of wood or other biogenic materials has a negative or neutral climate impact.

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. Additionally, see EN 15941 for the reporting on data quality.

In addition, Table 3 outlines information about the product that shall or may be declared in the production information section:

Table 3. Mandatory and examples of voluntary information about the building.

Mandatory information	Examples of voluntary information
The developer: builder or manufacturing company	Owner of the house, designers, contractors, architect, other certifications of the building, if the EPD owner has any environmental management system. etc.
Production site, city and country	Other aspects regarding the production
RSP of the LCA, and whether it is based on ReqSL or ESL of the building, or another time period. See requirements in Section 4.1.1.	
Information on type of project: ▪ New building or existing building ▪ As built or planning/design, according to types 1-4 in Section 2.2.2. ▪ Entire building or conversion or extension of existing building. EPDs for projects in the planning/design stage shall have the following disclaimer on the cover page: EPD of project in planning/design stage.	
Information on building type (according to Table 1), other applicable functional characteristics (see Section 4.1) and total gross floor area in m2 (GFA; see Section 4.1). If mixed-use buildings, see Section 4.1.	Additional information on total, m2 GIA (Gross internal area), total m2 NIA (Net internal area), total m2 Atemp, (see Section 6) or any other defined area for the building that could be important for local regulations or habits can be added and supplemented with a text that briefly define this term.
Short description of the construction system, number of storeys structural frame, ground/foundation. Also describe the type of external and internal walls, windows, doors, stairs, roof, ceiling, floor, façade, etc. Also describe If any production of solar cells or other renewable energy production appliances are installed on the building.	
Construction method: built on site, built on site with prefabricated parts, prefabricated building with high degree of completion or entirely prefabricated.	
If prefabricated building with high degree of completion or entirely prefabricated a statement that clarify if the factory, where prefabricated elements are produced, is defined as part of the construction site (A5).	
Insultation properties of the building.	
Actual or estimated energy use/m2, supplemented with text that explains the origin of the data or information that it is an estimate.	

6 LIST OF ABBREVIATIONS

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

GFA	Gross floor area
A_{temp}	Atemp is used in the context of energy calculations, as the primary energy figure of the building is to be calculated with respect to this

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8 VERSION HISTORY OF C-PCR

VERSION 2024-06-07

Original version of the c-PCR.

BUILDINGS
PRODUCT GROUP CLASSIFICATION : UN CPC 387, UN CPC 531